South Dakota State University General Catalog 1992-1994

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The contents of this catalog are believed to be accurate as of its date of publication. They cannot, however, be considered to be contractually binding and are presented for background information only.

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12,500 copies of this document were printed at an approximate cost of $1.00 per document for South Dakota State University.
1992 Fall Semester
(1 day registration, 71 class days, 1 reading day, 5 exam days)

August 31, Monday .............. Registration and Orientation
September 1, Tuesday .......... Instruction begins
September 7, Monday .......... Labor Day Holiday
September 15, Tuesday ....... Last Day to drop or add and adjust final fees
September 22, Tuesday ...... Last day to submit a graduation card for Fall 1992
October 3, Saturday .......... Hobo Day
October 12, Monday .......... Native American Day Holiday
October 13, Tuesday .......... Monday classes
October 15, Thursday ...... "W" grade begins
October 22, Thursday .... First half, Fall semester ends
October 27, Tuesday ....... Deficiency Reports due in Registrar's Office, Adm 208, by 5:00 p.m.
November 10, Tuesday ...... Last day to drop a course
November 11, Wednesday .... Veterans Day Holiday
November 26, 27, Thursday-Friday Thanksgiving Recess
December 12, Saturday .... Graduation, 10:00 a.m.
December 15, Monday ....... Easter Recess
December 16, Wednesday ... Reading Day
December 17, 18, 19, 21, 22, Thursday, Friday, Saturday, Monday, Tuesday .......... Final Examinations
December 28, Monday ...... Grades due in Registrar's Office not later than 5:00 p.m.

1993 Spring Semester
(1 day registration, 73 class days, 5 exam days)

January 13, Wednesday .... Registration and Orientation
January 14, Thursday ...... Instruction begins
January 18, Monday ...... Martin Luther King, Jr. Day Holiday
January 28, Thursday ...... Last day to drop or add and adjust final fees
February 10, Wednesday .... Last day to submit a graduation card for Spring 1993
February 15, Monday ...... Presidents' Day Holiday
February 16, Tuesday .......... Monday classes
March 1, Monday .......... "W" grade begins
March 8-12, Monday-Friday .......... Spring break
March 16, Tuesday .......... First Half, Spring Semester ends
March 19, Friday .......... Deficiency reports due in Registrar's Office, Adm 208, by 5:00 p.m.
April 5, Monday .......... Last day to drop a course
April 9,12, Friday-Monday .......... Easter Recess
April 15, Thursday .......... Monday classes
May 7, Friday .......... Last day of classes, Spring 1993
May 8, Saturday .......... 107th Annual Commencement, 10:00 a.m.
May 10-14, Monday-Friday .......... Final Examinations
May 19, Wednesday .......... Grades due in Registrar's Office not later than 5:00 p.m.

1993 Fall Semester
(1 day registration, 72 class days, 1 reading day, 5 exam days)

August 30, Monday .............. Registration and Orientation
August 31, Tuesday .......... Instruction begins
September 6, Monday .......... Labor Day Holiday
September 14, Tuesday .... Last day to drop or add and adjust final fees
September 21, Tuesday ...... Last day to submit a graduation card for Fall 1993
October 11, Monday .......... Native American Day Holiday
October 12, Tuesday .......... Thursday classes
October 14, Thursday ...... "W" grade begins
October 21, Thursday .... First half, Fall Semester ends
October 26, Tuesday .......... Deficiency reports due in Registrar's Office, Adm 208, by 5:00 p.m.
November 10, Wednesday .... Last day to drop a course
November 11, Thursday .... Veterans Day Holiday
November 17, Wednesday .... Monday classes
November 25, 26, Thursday, Friday .......... Thanksgiving Recess
December 11, Saturday .... Graduation, 10:00 a.m.
December 16, Thursday .......... Reading Day
December 17, 18, 19, 20, 21, 22, Friday, Saturday, Monday, Tuesday .......... Final Examinations
December 27, Monday ...... Grades due in Registrar's Office not later than 5:00 p.m.

1994 Spring Semester
(1 day registration, 73 class days, 5 exam days)

January 12, Wednesday .... Registration and Orientation
January 13, Thursday ...... Instruction begins
January 17, Monday ...... Martin Luther King, Jr. Day Holiday
January 27, Thursday .......... Last day to drop or add and adjust final fees
February 9, Wednesday .... Last day to submit a graduation card for Spring 1994
February 21, Monday ...... Presidents' Day Holiday
February 22, Tuesday .......... Monday classes
February 28, Monday .......... "W" grade begins
March 7-11, Monday-Friday .......... Spring Break
March 15, Tuesday .......... First Half, Spring Semester ends
March 18, Friday .......... Deficiency Reports due in Registrar's Office, Adm 208, by 5:00 p.m.
April 1, 4, Friday, Monday .......... Easter Recess
April 6, Wednesday .......... Last day to drop a course
April 7, Thursday .......... Monday Classes
May 6, Friday .......... Last day of classes Spring 1994
May 7, Saturday .......... 108th Annual Commencement, 10:00 a.m.
May 9-13, Monday-Friday .......... Final Examinations
May 18, Wednesday .......... Grades due in Registrar's Office not later than 5:00 p.m.
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9 Binnewies Hall
10 Biology Annex
11 Bio-Stress Laboratory (proposed)
12 Brown Hall
13 Central Heating Plant
14 Communications Center
15 Coughlin - Alumni Stadium
16 Coughlin Campanile
17 Crothers Engineering Hall
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37 Plant Science Seedhouse
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40 Rotunda for Arts and Science
41 Scobey Hall
42 Sexauer Field
43 Shepard Hall
44 Solberg Hall
45 South Dakota Art Museum
46 Stanley J. Marshall HPER Center
47 State Court
48 State Village
49 Sylvan Theatre
50 Tompkins Alumni Center
51 University Student Union
52 Waneta Hall
53 Wecota Hall
54 Wenona Hall
55 West Hall
56 Wildlife and Fisheries Sciences Building
57 Woodbine Cottage (President's Residence)
58 Young Hall
READING THE CATALOG

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The catalog contains three important entries: a brief description of the department, an outline of the curriculum required of a student major and a description of the courses offered. To read these sections you will want to review the material that follows here.
Curriculum Entries

Course Descriptions

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<tr>
<td><strong>Bio 151 Introductory Biology 3 (2,3)FSSu</strong></td>
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Fundamental concepts: the cell structure, function, chemistry and reproduction; molecular and Mendelian genetics; plant and animal diversity through evolution; and ecology.

1. Department offering the course. A complete description of the course will be found by looking for Biology 151 under the Biology Department.

2. Course number. The first digit of the three-digit number indicates the level of instruction, as follows:
   - 0 Pre-college, non-degree;
   - 1 Freshman;
   - 2 Sophomore;
   - 3 Junior;
   - 4 Senior.

3. Name of the course.

4. Number of credits assigned to the course. One credit is usually interpreted as one hour of class work per week or as two to three hours of labor work per week.

5. The first number inside the parenthesis indicates the number of recitation/lecture hours per week and the second number is the number of laboratory hours per week that the course requires.

6. Semesters in which the course is taught. F Fall; S Spring; Su Summer.

7. A brief description of the course. This section will also include other information affecting your enrollment in the course. A course description might include, for instance: "P, Math 333." This means that Math 333 is a prerequisite and must be taken before enrollment in this course. Other information included in various course descriptions would be: "Alternate years," "Not open to majors," "May be repeated for a total of six credits," etc.

Course Numbering

**Undergraduate Courses:**
1-99 Pre-college, non-degree credit; 100-199 Freshman level; 200-299 Sophomore level; 300-399 Junior level; 400-499 Senior level; 500-599 Fifth year pharmacy level.

**Graduate Courses:**
500-599 Open only to selected undergraduate Junior and Senior students having the necessary prerequisites. May not be used as a requirement for the Bachelor's degree, but may serve as electives. Taught in conjunction with 600-699 graduate level courses but with undergraduate tuition rate.

600-699 Graduate level taught in conjunction with 500-599. Graduate tuition rate.

Open to senior students for **graduate credit** under the following conditions: Within 15 credits of completing Bachelor's degree; have an overall grade point average of 2.5 or higher, or a Junior-Senior grade point average of 3.0 or higher; enroll for no more than 18 credits (9 credits during Summer School); the course or courses are not required for the Bachelor's degree.

700-799 Graduate level only.

800-899 Doctoral and post-doctoral level courses.

900-999 Post-baccalaureate courses not for degree credit.

**Experimental Courses**
Courses ending in 98 or 99 are experimental, offered for a maximum of two years without approval of the Regents of Education.

Colleges, Departments and Program Abbreviations

Actg, Accounting
ARCH, Architecture
AgE, Agricultural Engineering
AgEc, Agricultural Economics
AgEd, Agricultural Education
AgEx, Agricultural Extension
AHEd, Adult Higher Education
Air, Aerospace Studies
Anth, Anthropology
ArtD, Art Design
ArtE, Art Education
ArtH, Art History
ArtS, Art Studio
AS, Animal Science
AV, Audio-Visual
Avia, Aviation
BAdm, Business Administration
Bio, Biology
Bot, Botany
CAHE, Consumer Affairs and Home Economics Education
CAL, Computer Assisted Instruction
CE, Civil Engineering
Chem, Chemistry
Chin, Chinese
CHRD, Counseling and Human Resource Development
CJus, Criminal Justice
Conc, Concurrent
CSc, Computer Science
CST, Communication Studies and Theatre
Danc, Dance
DCom, Communication Disorders
DrEd, Driver Education
DS, Dairy Science
Econ, Economics
EdAd, Educational Administration
EdER, Education Evaluation & Research
EdFn, Educational Foundations
EE, Electrical Engineering
EG, Engineering Graphics
ElEd, Elementary Education
EM, Engineering Mechanics
Engl, English
Ent, Entomology
EPsy, Educational Psychology
ES, Engineering Shops
ET, Electronics Engineering Technology
EurS, European Studies
Fren, French
FL, Foreign Languages
GCom, General Communication
GE, General Engineering
Geog, Geography
Germ, German
HE, Home Economics
Hist, History
Hith, Health
Ho, Horticulture
HPER, Health, Physical Education & Recreation
HSc, Health Science
HDCF, Human Development, Child & Family Studies
Hum, Humanities
J, Journalism
Japn, Japanese
La, Landscape Design
Ling, Linguistics

6 Reading the Catalog
MA, Mechanized Agriculture  
Math, Mathematics  
MCom, Mass Communication  
ME, Mechanical Engineering  
Mier, Microbiology  
Mil, Military Science  
MuAp, Music Applied  
MuEn, Music Ensembles  
Mus, Music  
NFS, Nutrition & Food Science  
Nurs, Nursing  
Pha, Pharmacy  
Phil, Philosophy  
Phys, Physics  
Plan, Planning  
Pols, Political Science  
PR, Parks  
Prtg, Printing  
PS, Plant Science  
Psyc, Psychology  
PT, Physical Therapy  
Rang, Range Management  
Recr, Recreation  
Rel, Religion  
Russ, Russian  
SeEd, Secondary Education  
Soc, Sociology  
Span, Spanish  
Sp, Speech (see CST)  
SpCm, Speech Communication  
Stat, Statistics  
TCID, Textiles, Clothing & Interior Design  
Thea, Theater  
Vet, Veterinary Science  
VTTE, Vocational Teacher Training Education  
WL, Wildlife  
Zool, Zoology  

Miscellaneous Abbreviations  

admin, administration  
adv, advanced  
Ag, Agriculture  
Am, American  
AY, alternate years  
& and  
chem, chemistry  
comp, composition  
CRN, 5 digit course reference number  
dev, development  
econ, economics  
ed, educational  
F, fall semester  
fr, freshman  
fund, fundamentals  
gen, general  
intro, introduction  
jr, junior  
prin, principles  
L, or lab, laboratory  
R, recitation (lecture)  
S, spring semester  
Schd, Schedule Type  
Sec, Section  
S.D., or SD, South Dakota  
soph, sophomore  
sr, senior  
Su, summer term  
TBA, time and/or credit to be arranged  
U.S., or US, United States
ABOUT SOUTH DAKOTA STATE UNIVERSITY

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8 About South Dakota State University
In accepting the provisions of the “Morrill Act” of Congress (1862), the state of South Dakota pledged itself to carry out the purposes of the Land Grant College Act: to endow, support, and maintain one university where a major emphasis is teaching “agricultural and mechanic arts,” including “scientific and classical studies,” in order to promote a liberal and practical education in the “several pursuits and professions in life.”

Within the spirit of the “Morrill Act” and the early legislative acts of South Dakota, the purposes of SDSU are to develop, maintain, and encourage:

1. Learning in the fields of agriculture; engineering; home economics; liberal arts; pharmacy; nursing; teacher and counselor education; basic physical, biological, and social sciences; humanities and fine arts at both undergraduate and graduate levels.

2. Research and scholarship in agriculture; engineering; home economics; liberal arts; nursing; pharmacy; teacher and counselor education; basic physical, biological and social sciences; humanities and fine arts at both the undergraduate and graduate levels.

3. Extension/outreach programs in agriculture; engineering; home economics; liberal arts; nursing; pharmacy; teacher and counselor education; basic physical, biological, and social sciences; humanities and fine arts for adults and youth in South Dakota.

4. Citizenship training and general learning essential for understanding and appreciating the American way of life and its relationship to the world community.

5. Student self-development in leadership, social, intellectual, recreational, interpersonal, ethical and spiritual attributes.

6. Student self-development in international and intercultural understanding consistent with the continually increasing cultural, economic and political interdependence of the modern world.

7. Vocational learning and training in selected areas.

8. Collection, preservation, display and study of artistic, factual and documentary materials which are the cultural base for all future programs.

9. Service for the welfare of South Dakota, the region and the nation.

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.” The Legislature of 1883 provided for the first building.

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. By the Enabling Act of 1889 congress granted South Dakota 40,000 additional acres for the Agricultural College in lieu of a grant that had been made to new states in 1841.

Developments. In 1923 the institution’s instructional program was organized under five divisions: Agriculture, Engineering, General Science, Home Economics and Pharmacy. In 1956 the sixth undergraduate division, Nursing, was created and in 1957 all graduate work was organized into a graduate division. The university organization was formally recognized when the Legislature changed the name to “South Dakota State University” on July 1, 1964.

At that time the following colleges were created: Agriculture and Biological Sciences, Arts and Science, Engineering, Home Economics, Nursing and Pharmacy, as well as the Graduate School.

In 1974 the College of General Registration was established to provide assistance to students who are undecided as to major, are preprofessional, or who want a one or two year general studies program. In 1975 the Division of Education was created to provide greater recognition of the part the University plays in preparation of teachers, counselors, and administrators for primary and secondary school systems and higher education. In 1989 this unit officially became the College of Education and Counseling.

The Agricultural Experiment Station was organized in 1887 under the Hatch Act of Congress, which provided for establishment of agricultural experiment stations in connection with agricultural colleges. The stations were established to conduct research that concerns the home or agriculture throughout the U.S. They also were to aid in diffusing information on these topics. The South Dakota station's research primarily concerns: livestock, dairying, crops and soils, irrigation, horticulture, plant and animal diseases and pests, marketing and farm and ranch management, population studies, community and resource development, human nutrition, textiles and clothing, and home management.

The Cooperative Extension Service was established to provide useful, current, research based agricultural, home, family and youth related information to the people of the state. Federal funds are appropriated through the U.S. Department of Agriculture, which cooperates with state colleges of agriculture and counties in conducting planned programs of Extension work. In addition to a state staff of specialists, county offices are maintained throughout the state to provide information concerning agriculture, home and family, 4-H Club work, and the community.

State and Federal Support. Support from state funds is granted and controlled by the Legislature. The annual appropriation provides funds for salaries and other regular expenses. Special appropriations 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, and some for extension work in engineering, agriculture and home economics. These are itemized in the annual financial report of the University.
Organization

The Board of Regents. Control of the educational institutions of the state is vested in the Board of Regents.

The Faculty. The President, the Vice Presidents, the Deans and other administrative officers, teachers and researchers with rank of instructor or above comprise the faculty. The faculty is responsible in general for academic standards and procedures and programs, including recommending to the Regents the candidates for degrees. Faculty business is conducted by the Academic Senate, an elected body through which faculty express concerns for the welfare of the University and the University community, develop and disseminate communications, contribute to formation of general University policy, and perform those duties and functions allocated to or assumed by the faculty.

Board of Regents

Honorable Bob Brancel
(Term expires March 31, 1997)
Pierre

Honorable Max Gruenwald
(Term expires March 31, 1997)
Milbank

Honorable Cathy Hall
(Term expires March 31, 1993)
Aberdeen

Honorable James Hart
(Term expires March 31, 1998)
Miller

Honorable Pat Lebrun
(Term expires March 31, 1993)
Rapid City

Honorable Thomas Olsen
(Term expires March 31, 1995)
Wessington Springs

Honorable Margie Phillips
(Term expires March 31, 1997)
Madison

Honorable Karl H. Wegner
(Term expires March 31, 1998)
Sioux Falls

Honorable Carol McFarland-McKee
Student Regent
Belle Fourche

Honorable Howell Todd
Executive Director
Pierre

General Administration

President
Robert T. Wagner, Ph.D.

Vice President for Administration
Richard W. Powers, Ph.D.

Asst. Vice President for Academic Affairs
Edward P. Hogan, Ph.D.

Honorable Carol McFarland-McKee
Student Regent
Belle Fourche

Honorable Howell Todd
Executive Director
Pierre

Asst. Vice President for Institutional Advancement
Eileen Mentone, M.S.

Registrar
Ranny B. Knutson, M.Ed.

College Administration

College of Agriculture and Biological Sciences
Herbert E. Cheever, Jr., Ph.D. (Acting Dean)

W. Eugene Arnold, Ph.D., Associate Dean and Director of Academic Programs

Mylo A. Hellickson, Ph.D., Associate Dean and Director of Cooperative Extension Service

Raymond A. Moore, Ph.D., Associate Dean and Director of Agricultural Experiment Station

College of Arts and Science

College of Engineering
Duane E. Sander, Ph.D., Dean

College of General Registration
James O. Pedersen, Ph.D., Dean

College of Home Economics
Virginia L. Clark, Ph.D., Dean

College of Nursing
Mary Adams, Ph.D. (Acting Dean)

College of Pharmacy
Bernard E. Hietbrink, Ph.D., Dean

Graduate School
Christopher P. Sword, Ph.D., Dean

Library
Leon Raney, Ph.D., Dean

Student Affairs
Michael P. Reger, Ph.D., Dean

Robert S. Burke, Ph.D., Associate Dean

South Dakota Art Museum
Joseph M. Stuart, M.A.

SDSU Foundation/Development
Larry D. Dailey, M.S.

Student Activities
Marysz Palczewski Rames, M.A.

University Bookstore
Gary G. Burdick, B.A.

Water Resources
Mylo A. Hellickson, Ph.D. (Acting)

Directors

Admissions
Dean Hofland, Ph.D.

Alumni Association
Chadron C. Kono, B.S.

Budget/Finance/Personnel
Wesley G. Tschetter, M.B.A.

Chief Business Officer
Jerome C. Fiedler, M.Ed.

Computing Services
Delmar R. Johnson, M.Ed.

Diagnostic Laboratory
John U. Thomson, D.V.M. (Acting)

Financial Aid
Jay A. Larsen, M.Ed.

HPER/Athletics
Fred M. Oien, Ed.D.

Instructional Media
Gary L. Sheeley, M.Ed.

International Programs
David C. Hilderbrand, Ph.D.

Lifelong Learning and Outreach
Barbara M. Audley, D.P.A.

Management Information Systems
Donald C. Lockwood, B.S.

Physical Plant
Stephen F. Erickson, M.S.

Residential Life
Frederick T. Meyer, M.S.

South Dakota Art Museum
Joseph M. Stuart, M.A.

SDSU Foundation/Development
Larry D. Dailey, M.S.

Student Activities
Marysz Palczewski Rames, M.A.

University Bookstore
Gary G. Burdick, B.A.

Water Resources
Mylo A. Hellickson, Ph.D. (Acting)

10 About South Dakota State University
Department Heads (by college)

Agriculture and Biological Sciences
Animal and Range Sciences
   James R. Males, Ph.D.
Biology and Microbiology
   Charles R. McMullen, Ph.D.
Dairy Science
   John G. Parsons, Ph.D.
Economics
   Ardelle A. Lundeen, Ph.D.
Horticulture, Forestry, Landscape and Parks
   W. Carter Johnson, Ph.D.
Plant Science
   Fred A. Cholik, Ph.D.
Rural Sociology
   James L. Satterlee, Ph.D.
Veterinary Science
   John U. Thomson, D.V.M. (Acting)
Wildlife and Fisheries Sciences
   Charles G. Scalea, Ph.D.
Arts and Science
   Army ROTC
      LTC Jeffrey C. Berry, M.S.
      LTC John A. Scharer, M.A.
   Air Force ROTC
      LTC John B. Oliveira, Ph.D.
Chemistry
   David C. Hilderbrand, Ph.D.
Communication Studies and Theatre
   Michael R. Schiessmann, Ph.D.
English
   George A. West, Ph.D.
Foreign Languages
   Merritt W. Bates, Ph.D.
Geography
   Roger K. Sandness, Ph.D.
Health, Physical Education and Recreation
   Fred M. Oien, Ed.D.
History
   Rodney E. Bell, Ph.D.
Journalism and Mass Communications
   Richard W. Lee, Ph.D.
Music
   Warren G. Hatfield, Ph.D.
Philosophy and Religion
   Robert V. Burns, Ph.D. (Acting)
Political Science
   Robert V. Burns, Ph.D.
Psychology
   Allen R. Branum, Ph.D.
Visual Arts
   Norman Gambill, Ph.D.

Education and Counseling
Counseling and Human Resource Development
   Howard B. Smith, Ed.D.
   Undergraduate Teacher Education
      Gary L. Steinley, Ph.D.
   Advanced Studies in Education
      Charles K. Lingren, Ph.D.

Engineering
Agricultural Engineering
   Ralph Alcock, Ph.D.
Civil Engineering
   Dwayne A. Rollag, Ph.D.
Computer Science
   Gerald E. Bergum, Ph.D.
Electrical Engineering
   Virgil G. Ellerbruch, Ph.D.

General Engineering
   H. Frank Kornbaum, M.S. (Acting)
Mathematics and Statistics
   Kenneth L. Yocom, Ph.D.
Mechanical Engineering
   Donell P. Froehlich, Ph.D.
Physics
   Warren W. Hein, Ph.D.

Home Economics
Human Development, Child and Family Studies
   Judy R. Branum, M.S. (Acting)
Consumer Affairs and Home Economics Education
   Delores M. Kluckman, Ed.D. (Acting)
Nutrition and Food Science
   Michael G. Crews, Ph.D.
Textiles, Clothing and Interior Design
   Sandra J. Evers, Ph.D.

Nursing
   Undergraduate Nursing
      Timothy M. Gaspar, Ph.D.
   Advanced Studies in Nursing
      Margaret J. Hegge, Ed.D.
Research and Special Projects
   William J. McBreen, Ph.D.

Pharmacy
   Pharmaceutical Sciences
      Gary S. Chappell, Ph.D.
Clinical Pharmacy
   Brian L. Kaatz, Pharm.D.

The broad educational objective of SDSU is primarily to guide each student in attainment of intellectual and professional competence, growth of personal development, cultivation of a sense of social and civic responsibility, and achievement of a satisfactory adjustment in human relationships. Ideally, upon graduation, SDSU students will have attained the abilities to think, read, speak, and write effectively, both within their practiced disciplines and beyond. In confidently shaping the future, as individuals on their jobs and as people collectively charged with the responsibility of nurturing a humane, rational, and free republic, our graduates should demonstrate an abiding belief in the value of learning. They should possess both historic and aesthetic perspectives and act in accordance with high ethical and spiritual codes of behavior, even in the face of adversity. Above all, they should seek to foster understanding and harmony among their fellow citizens of this diverse nation and world.

Educational Objectives

Intellectual and professional competence is attained when a graduate:
1. Has developed knowledge and skills—including those of clear oral and written expression and evaluative listening—required for beginning competence in a vocation or profession.
2. Has acquired those self-reliant character elements that demonstrate a high personal code of ethics and willingness to pursue vocational or professional objectives within a framework of humanitarian and social goals.
3. Has developed the ability to think clearly and speculate imaginatively about both immediate and long-range problems.

Adequate personal development has been achieved when a graduate:
1. Attempts to reach sound, objective decisions after considering the values and practical and theoretical issues involved, and after exploring reliable sources of information, and then accepts responsibility for these decisions.
2. Has begun to evolve a meaningful personal philosophy of life based upon a growing knowledge of self, a perceptive awareness of the world, and a critical appraisal of his/her relationship to this code.

A satisfactory sense of social and civic responsibilities has been acquired when a graduate:
1. Has critically examined the ideas of democratic society and their underlying assumptions, which embrace a belief in: the worth of the individual, the preservation of free inquiry, free discussion, equality of opportunity, and respect for law.
2. From this examination has applied conclusions to a citizen’s role for which he/she keeps informed in attempts to play a constructive role in the dynamics of social change, and the evolving of social and civic values in which he/she believes.
A satisfactory adjustment in human relationships has been achieved when a graduate:
1. Respects the fellowship of many by following the principle of doing to others as he/she would have them do to him/her.
2. Supports the dignity of fellow human beings in his/her own and other cultures by respecting their social amenities, rights, abilities, and cultural attributes.

Endowed Chairs

An endowed chair is a prestigious faculty position supported entirely by private contributions. Individuals appointed to serve in such positions will be renowned in their fields of expertise and will add a special dimension of quality to the academic environment at South Dakota State University.

Nutrition
An endowment fund established by Dr. Ethel Austin Martin, a 1916 SDSU graduate, has, for a decade, maintained an ongoing program of visiting professorships in human nutrition and will eventually support in perpetuity an endowed chair to be entitled the ETHEL AUSTIN MARTIN-EDWARD MOSS MARTIN CHAIR of HUMAN NUTRITION. The Chair of Human Nutrition will be established at SDSU to ensure scholarly instruction in the broad aspects of the science of nutrition. This will be a continuing campus position with faculty rank filled by a nutrition scientist selected for qualifications in the science of nutrition, and for understanding, skill and experience in advancing the multidisciplinary approach to nutrition education. This position will be funded solely by the endowment.

The Visiting Professorships will continue to be conducted periodically as a major multidisciplinary function of the Chair Program. Typically, visiting professorships are for a period of days or weeks.

Programs supported by the Ethel Austin Martin endowment have no administrative affiliation with any one college or department of SDSU. The program is administered directly under the Vice President for Academic Affairs.

Objectives of the University’s Research Program

The philosophy of the research and scholarship efforts of SDSU is that of advancing knowledge basic to the teaching and extension programs throughout the entire university. In addition, research should discover new ideas, processes and developments to expand and strengthen the state’s industrial and agricultural economy.

The research program provides an atmosphere and encouragement for research, scholarship, and creative activity in all segments of the institution.

The Agricultural Experiment Station

The research function of the College of Agriculture and Biological Sciences results from carefully designed experiments providing a base of new knowledge. This new knowledge is effectively used by farmers, ranchers, homemakers, by industry, in the campus classroom and in extension education programs throughout the state. Courses in the College of Agriculture and Biological Sciences and in the College of Home Economics are especially strengthened by this new knowledge. State, area and county extension specialists in Agriculture and Home Economics have immediate access to this information.

Most of the research is done at Brookings and is led by faculty who may also teach undergraduate and graduate courses. Agricultural research and extension centers are the focal points of off-campus research efforts. These are at Rapid City and Beresford. In addition, several field stations are maintained to conduct research designed to solve local or special purpose problems. Beyond this, research on farms and ranches, in wildlife areas, in streams and reservoirs, and with cooperating businesses and institutions results in research being conducted in nearly every county of the state.

Research may be grouped in the following subject matter areas: livestock, crops and soils, community and public affairs, animal health, fertilizers, garden and orchard, home and consumer, water resources and irrigation, forestry, insects, farm machinery, marketing, business management, farm buildings, pollution, range and grass, fisheries, plant diseases, wildlife, and sociology.

The research is financed by state and Federal appropriations, other industry grants, and Federal and state grants. Research results are published in Experiment Station or Extension bulletins, journals of scientific societies, and a quarterly publication, Farm and Home Research. These publications are available from the County Extension Office or the Experiment Station Bulletin Room on campus.

For information contact Raymond A. Moore, Director, Agricultural Experiment Station, South Dakota State University, Box 2207, Brookings, SD 57007.
Center for Innovation, Technology and Entrepreneurship (CITE)

The rapid transition occurring in American and South Dakota businesses and industries is characterized by a knowledge- and technology-oriented economy as increasing numbers of workers are engaged in information and process control, automated production and service. Increasingly, economic advances are knowledge based, entrepreneurial in nature, global in scope, involved in rapid, often radical technological changes, and increasingly decentralized, making the state and local options and initiatives more significant and even essential.

The Enterprise Initiation Higher Education Program was created to incorporate the resources of South Dakota's six public institutions of higher learning into the state's overall economic development program. In recognizing the importance of higher education in economic development efforts and in encouraging research and development activities on our campuses, the Enterprise Initiation Program aims to make South Dakota's public higher education institutions more competitive for matching funds from outside sources.

The Governor's Office of Economic Development funds provide for three categories of use: university-industry partnerships administered through the CITE office, special projects, and capacity building. A variety of projects have been funded through the CITE program at SDSU totaling over $700,000 during the past four years. These projects have included partnerships with the agricultural and technical industries in the state. Benefits of cooperation between higher education and industry are many. Universities contribute to economic development in the following ways: perform basic and applied research, offer technological and management assistance and advice on updating operations including economic feasibility and business plan analysis, and provide education and training programs. Benefits to industries include access to new corporate products, service or management needs, gaining access to personnel in fields where talent is of a specialized nature, upgrading the professional development of corporate employees, and enhancing the research and development component without large investments. Cooperative work may lead to more federally sponsored research, and keeping research costs down.

For information contact Edward P. Hogan, Assistant Vice President, Center for Innovation, Technology and Entrepreneurship, South Dakota State University, Box 2201, Brookings, SD 57007.

The Cooperative Extension Service

The overall mission of the Cooperative Extension Service is to disseminate and encourage the application of research-generated knowledge and leadership techniques to individuals, families and communities in order to improve agriculture and strengthen the South Dakota family and community. The Cooperative Extension Service is the off-campus educational function of the College of Agriculture and Biological Sciences.

The service extends the SDSU campus to every community and the advantages of higher education to all people. Through its extension agents and specialists, the Cooperative Extension Service disseminates the findings of research and encourages the application of knowledge to solution of problems encountered in everyday living, across the entire state. Much of the economic progress of farmers and ranchers can be traced to this unique type of non-formal, out-of-school learning opportunity provided them for more than 75 years by SDSU in cooperation with the U.S. Department of Agriculture and with county governments.

Approximately fifty percent of the funds supporting Cooperative Extension educational programs are appropriations to SDSU by the Legislature, and 50 percent come from Federal appropriations. Extension program emphasis is constantly changing to meet the needs and opportunities of people who help determine instructional needs.

The following broad areas of educational program objectives describe the scope for this service:

1. To provide education that will increase net farm income through management practices that insure efficient production, marketing, and energy use techniques.
2. To improve family income utilization through sound resource management and nutrition education.
3. To provide educational opportunities to youth to learn about and practice our economic system and to develop individual leadership abilities.
4. To assist local leaders and citizens in the development of viable economic rural communities.

The Extension staff is dedicated to the task of assisting individuals and groups to meet the challenge of change in farming, ranching, marketing, the home, state and nation. They use the press, radio, TV, educational publications, group methods, and individual contacts to inform and teach. Resident students are encouraged to become acquainted with Extension staff members on campus and take advantage of the information available in Extension publications to enrich their regular course of study. Extension also offers rewarding career opportunities for college graduates in Agriculture and Home Economics, Natural Resources, and the Social Sciences.

For information contact Mylo A. Hellickson, Associate Dean, College of Agriculture and Biological Sciences; Director, Cooperative Extension Service, South Dakota State University, Box 2207, Brookings, SD 57007.

University Affiliations and Accreditations

The University holds institutional membership in a number of educational associations. The National Association of State Universities and Land Grant Colleges promotes the aims expressed in the Morrill Act of 1862, and in the subsequent acts of Congress relating to Land Grant Colleges.

The North Central Association of Colleges and Schools is the regional accrediting agency. Its purpose is to maintain high standards of instructional work and educational programs. The University is accredited through the doctoral level.

The Athletic Training Program is accredited by the National Athletic Trainers Association.

The Departments of Agricultural, Civil, Electrical, and Mechanical Engineering are accredited by the Accreditation Board for Engineering and Technology.

The bachelor's and master's degree programs in the College of Nursing are accredited by the National League for Nursing.

The Chemistry Department is accredited by the American Chemical Society.

The dietetic program is accredited by the American Dietetic Association.

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The curriculum in Home Economics is accredited by the American Home Economics Association.
The curriculum in Journalism is accredited by the American Council on Education for Journalism.
The Music Department has full membership in the National Association of Schools of Music.
Preparation of secondary teachers at both the undergraduate and graduate level is accredited by the National Council for Accreditation of Teacher Education.

The curriculum in Pharmacy is accredited by the American Council on Pharmaceutical Education.
The University 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 National League for Nursing, the American Association of Colleges of Nursing, the American Library Association, Associated Western Universities.

Policy on Sexual Harassment

South Dakota State University (in accordance with Federal and State statutes and regulations) affirms that sexual harassment is an unlawful form of sex discrimination. In addition, this institution formally recognizes that sexual harassment is not only illegal but that it is intolerable and reprehensible behavior which violates the fundamental principles of the academic community. Unchecked, it endangers the special bond of intellectual dependence and trust which must be maintained at the University. Unrecognized, it undermines the integrity of the "merit principle" in both the classroom and the workplace.

It is this institution’s policy that no form of sexual harassment of its employees or students is permissible under any circumstance and that all reported incidents will be investigated promptly and all substantiated acts of prohibited behavior will result in immediate and appropriate corrective action, including disciplinary sanctions. (NOTE: Certain acts of sexual harassment may be subject to Federal or State jurisdiction.)

Employees and students are encouraged to discuss their concerns on an informal basis with knowledgeable persons in the University community. The following are recommended:
Affirmative Action Officer.... 688-4128
Counselors, Counseling Center.......................... 688-6146
Counseling Staff, College of Education ................ 688-4196
Counselor, Human Sexuality ....... 688-4312
Dean of Student Affairs/Assistant
Dean of Student Affairs........ 688-4493

Any person may bring questions concerning definitions, policy or procedures, seek informal advice, or discuss grievance procedures with the Affirmative Action Officer at any time. Strict confidentiality will be observed at all times in regard to informal inquiries and questions; however, the Affirmative Action Officer will be consulted when a concern requires definition or interpretation.

Family Educational Rights and Privacy Act of 1974 (FERPA)

The Family Educational Rights and Privacy Act of 1974 (FERPA) (also known as the Buckley Amendment) is a Federal law designed to protect the privacy of a student's personal education records kept at the University. The law provides that the institution will maintain the confidentiality of each student's education records and covers matters relating to access to student records and the disclosure of such records. For complete information about these policies, please refer to Chapter 4 of the SDSU Student Policies Manual.

Affirmative Action/Equal Employment Opportunity Policy

In recognition of its legal and moral responsibilities, South Dakota State University reaffirms its commitment to provide "equal opportunity" for the education and employment of all persons, without regard for age, race, color, religion, sex, national origin, or handicap, through a continuing policy of "Affirmative Action." Positive efforts to further equality of opportunity in education and employment will be as:(1) vigorously pursued, (2) conform to current legal requirements, and (3) be consistent with University standards of excellence and quality.

The "affirmative action" required to meet our responsibilities will include the statement and continual review of University policies relating to equal opportunity and non-discrimination, the collection, performance of analyses, the formulation and implementation of procedures to insure compliance with stated policy and the continual monitoring of all administrative practices relating to these procedures.

It is recognized that the success of an affirmative action program is measured, in part, by good faith efforts in achieving compliance, and not in the accumulation of data, analyses, and reports. Of course, analyses, planning, and programming help bring about desired results. A minimum they identify problem areas and permit rational scheduling of corrective action. Moreover, it is of equal importance that these activities give new insights into the dynamics of the University community and help sensitize all of us to the goal of "equal opportunity."

In specific terms, this commitment to provide equal opportunity for all persons requires:

1. The eradication of the effects of any past discrimination; and,
2. The prevention of any future discrimination, including any potential "reverse" discrimination which may arise as a result of the improper implementation of affirmative action practices.

In the final analysis, "affirmative action" is nothing more than a focusing of the University community's creative energies on the task of developing processes which will enhance human development and institutional effectiveness.

Affirmative Action questions and concerns can be directed to the Affirmative Action Officer, Mr. Eugene Butler, 688-4128.
Applicants are encouraged to apply for admission well in advance of the desired date of entrance, six to ten months before the semester of anticipated attendance. Early application allows sufficient time to arrange housing, to apply for financial assistance, and to make arrangements to attend the new student pre-registration and orientation programs.

All applicants must complete:

(1) Admission application — Submit application for admission with $15 non-refundable fee. Former SDSU students and those who have attended another South Dakota public university are not required to pay the application fee to SDSU.

(2) Housing application — All students must complete the housing application when applying for admission and, unless specifically exempted, all students must enter into housing contracts with the University. Students who have completed four (4) semesters of full-time enrollment at a post-high school educational institution, or who are two (2) or more years beyond high school graduation are automatically exempted from this requirement. All others wishing exemption must submit a written application for exemption, and receive written approval from Housing Office personnel. All students desiring exemption must note their intentions on the housing application. A $50 Advance Housing payment must be submitted with the housing application.

(3) Health application — Upon admission to the University, all new applicants are required to submit a health examination form with proof of required immunizations. This form will be sent to the applicant with the letter of admission. All applicants seeking readmission must submit a health examination form if nonattendance at SDSU exceeds one year.

Applicants entering from a high school must also:

(1) Submit the results of the American College Test. These results must be sent from the test center in Iowa City. SDSU’s ACT code is 3924.

(2) Submit a high school transcript. High school seniors should also include a copy of their senior course schedule.

Applicants transferring to SDSU must also: Submit an original transcript from each college previously attended, plus a high school transcript.

Applicants seeking readmission must also: Submit transcripts from all colleges attended since enrolled at SDSU.

Application deadlines are August 1 for the fall semester and December 1 for the spring semester.

Applications for International Students must arrive by: April 1 to be considered for fall admission; August 1 for spring admission. Application materials differ from standard materials. Contact the International Student Affairs office for forms and further information: International Student Affairs, Administration 200, SDSU, Brookings, SD 57007. Phone: (605) 688-4122.

The University reserves the right to defer admission to potentially eligible candidates to the next semester if credentials are submitted after established deadlines or enrollment quotas have been reached. Applicants whose materials are received after August 1 for fall and December 1 for spring may either be denied or permitted to register as a late student. (International Students are required to attend orientation and are not permitted to register late.)

The Admissions Office accepts admission packets and processes applications on a rolling basis. Address is: Admissions Office, Administration 200, SDSU, Box 2201, Brookings, SD 57007. Phone: (605) 688-4121.

Admission Requirements

Admission to SDSU is granted without regard to age, race, color, religion, sex, handicap, or national origin.

Admission to SDSU is open to all academically qualified students. If you are a high school student or recently graduated, your admission will be based on your high school transcript and ACT composite score. Transfer students are considered for admission based on their college and high school transcripts.

High School Students or Current Graduates

I. High school degree or equivalent before enrollment as a full-time student is required. (You can be considered for early admission following completion of your junior year in high school.)

II. Complete the American College Test. (Applicants two or more years beyond high school are exempt from this requirement.) High school students are encouraged to complete the ACT late in their junior year or early in their senior year.

III. Admission Requirements — New students, including transfer students with fewer than 24 semester hours of credit, must meet the following minimum requirements for admission.

A. Regular Admission

Unconditional admission to South Dakota State University will be granted if you meet the following criteria:

1. Have achieved a C average in the following required high school courses:
   - English — 4 years (One year of debate instruction may be included to meet this requirement.)
   - Mathematics — 2-3 years* (Algebra, geometry, trigonometry, or other advanced math. Arithmetic, business math and general math are not accepted.)
   - Laboratory Science — 2-3* years (Courses in biology, chemistry or physics or other science courses in which at least one regular laboratory period is scheduled each week.)
   - Social Science — 3 years (History, economics, sociology, geography, government, etc.)
   - Computer Science — 1/2 year.
   - Fine Arts — 1/2 year. (Art or music appreciation, analysis or performance.)

* Must have a minimum of two years in math and science, with an additional year in either area (applies only to 1990 or later high school graduates).
2. If you have taken these required high school courses but failed to achieve a C average, unconditional admission will be granted if you:

a. Rank in the top one-half of your high school graduating class, or
b. Have a current ACT assessment composite score of at least 22 for South Dakota and Minnesota residents, a 23 current ACT assessment composite score for nonresidents, or
c. Are selected for an opening in the University's exception group. These openings are limited to specially talented students who are in the upper two-thirds (2/3) of their high school class or who have an ACT composite score of at least 20. Early application is essential, or

3. Are 21 years of age and have graduated from high school or have completed the GED test and met state requirements for the high school equivalency certificate.

B. Conditional Admission
Applicants who are deficient in one of the high school course areas outlined in Section I-A may be granted conditional admittance if they:

1. Rank in the top one-half of their high school graduating class, or
2. Have an ACT composite score of at least 22 for South Dakota and Minnesota residents, 23 for nonresidents, or
3. Are selected for an opening in the University's exception group. These openings are limited to specially talented students who are in the upper two-thirds (2/3) of their high school class or who have an ACT composite score of at least 20. Early application is essential.

If admitted on a conditional basis, you must satisfy the deficient course by completing an appropriate college course in that area. Check with the SDSU Admissions Office regarding the policy for counting these courses toward graduation.

C. Admission to an Associate of Arts (two-year) Program
Admission to the Associate of Arts (two-year) program in General Agriculture is granted if you have met ONE of the following criteria:

1. Rank in the upper two-thirds of your high school graduating class, or
2. Have an ACT composite score of at least 18.

Students enrolled in two-year General Agriculture who have not met the minimum high school course requirements for admission to a four-year baccalaureate program may be allowed to enter a baccalaureate program only after they have satisfied the deficiencies as outlined in Section II and attained an acceptable grade point average in addition, they must also complete 3 credits of English or Speech, 3 credits of Mathematics, 3 credits of Natural Science and 3 credits of Social Science with a GPA of 2.0.

D. Concurrent attendance of high school students — limited attendance by juniors and seniors may be approved upon submission of transcripts, high school approval, and special application.

Policy for Transfer of Undergraduate Credit
You are considered a transfer student if you have enrolled for any college level coursework, whether full-time or part-time, and are six (6) or more months beyond high school graduation. If you have less than 24 credits and are under 21 years of age, you will need to meet the high school requirements listed under III.A. or B. If you have a course requirement deficiency, you must complete equivalent college courses to remove that deficiency within two years. Check with the SDSU Admissions Office regarding the policy for counting those courses toward graduation.

Transfer students are eligible for admission if they meet the following:

I. Have a cumulative grade point average of C (2.0 on a 4.0 scale). Education and Nursing major students must have a 2.5 GPA.

II. Are in good standing with their most recently attended school. Students with less than a C (2.0) grade point average may be admitted on scholastic probation but each applicant is considered on his/her individual merits. Students currently enrolled at another institution and seeking admission to SDSU can send incomplete transcripts (including all coursework completed thus far). The Director of Admissions may grant provisional admission status until complete transcripts are received.

Transfer credits are evaluated relative to university, college and major requirements. Questions should be directed to the appropriate college dean.

I. At the time of application for admission to SDSU a student must list all previous institutions of higher education attended. A degree seeking student must submit an official transcript of all academic course work taken at the above listed institutions directly to the Admissions Office. This course work is then evaluated by the College Dean and recorded on the SDSU transcript by the Registrar. An applicant's signature on the admission application certifies that he/she has complied with this regulation and incorrect or omitted data could be grounds for denial of admission or suspension if already admitted.

II. A student who takes academic course work at another institution of higher education subsequent to initial enrollment and prior to graduation or leaving the institution is required to submit an official transcript to the Admissions Office. It must be evaluated by the Dean and recorded on the SDSU transcript by the Registrar. Failure to comply with this regulation could be grounds for suspension.

III. Academic coursework completed for credit at institutions accredited by a regional accrediting association* are acceptable for transfer if such courses are applicable to the student's degree program at the accepting institution. Credits from colleges or universities which are not accredited by a regional
I

III. Admission Policies and Procedures

A. Academic courses will be transferred as meeting graduation requirements if the courses parallel requirements for the degree or if the courses meet electives required for the degree. Credit will not be given for duplication of courses.

B. Remedial courses, orientation, life experience, and high school level courses are not accepted for transfer credit. No transfer credit is granted for General Educational Development Tests.

C. General education from regionally accredited vocational-technical institutes may be accepted in transfer, subject to evaluation for equivalency. Where specific vocational courses are applicable to an individual’s degree program, credit may be accepted upon the approval of the dean of the college in which the student is enrolled if the course is equivalent to a specific SDSU course. As vocational-technical institutions develop and change, transfer policies at SDSU are under review. Therefore, check with the SDSU Admissions Office regarding these.

D. Credit earned for college level courses by examination, extension, correspondence, CLEP, etc. will be evaluated and accepted for transfer if equivalent to courses at and consistent with the policies of SDSU.

E. When a course has been repeated for credit, the last grade earned will be used in the evaluation of the acceptance of credit. Grades for all attempts will be incorporated in the cumulative grade point average.

F. Transfer credit for work at a junior or community college (2 year), or two-year technical college/institution may not exceed one-half of the hours required for completion of the baccalaureate degree at SDSU. Students who have completed more than the acceptable semester hours of junior or community college work may apply completed, transferable courses to specific course requirements and thereby not be required to repeat the courses. The semester hours of credit for those additional courses may not be applied toward the minimum credit hours required for the degree.

IV. Evaluations of courses will be made by the appropriate institutional officials at the time of admission by comparing descriptions of courses completed with those at SDSU.

V. General educational requirements successfully completed at the sending institution within the South Dakota higher education system will be accepted toward meeting these parallel requirements for SDSU.

VI. Transfer credits will be accepted with the same grade and credit as was recorded on the transcript from the institution at which the course was completed. Courses accepted in transfer from institutions with a different credit and grading system or from vocational-technical and life experience and high school level courses will be evaluated for transfer credit and/or grading system will be equitably converted to the SDSU system and will be transcoded with the SDSU equivalent credit and grade. Each institution may establish grade-point average requirements for graduation, honors, and academic standing based upon the work of the student at the receiving institution in addition to the cumulative credit and grade requirements. Any transferable grade, whether accepted or not, will be incorporated into the addition of the cumulative grade point average and will be included on the student’s transcript.

VII. The President or his/her designee is responsible for insuring that Regental policy will be followed by those involved in determining what courses will be transferred to meet graduation requirements. Each institution shall develop and maintain a procedure for the appeal of transfer credit decisions.

*North Central Association of Colleges and Schools, Western Association of Schools and Colleges, New England Association of Schools and Colleges, Northwest Association of Schools and Colleges, Middle States Association of Colleges and Schools, Southern Association of Colleges and Schools.

Servicemembers Opportunity College (SOC)

South Dakota State University has been designated as an institutional member of Servicemembers Opportunity Colleges (SOC), a group of more than 400 colleges and universities providing voluntary postsecondary education to members of the military throughout the world. As a SOC member, SDSU recognizes the unique nature of the military lifestyle and has committed itself to easing the transfer of relevant course credits, providing flexible academic residency requirements, and crediting learning from appropriate military training and experiences. Servicemembers Opportunity College has been developed jointly by educational representatives of each of the Armed Services, the Office of the Secretary of Defense and a consortium of thirteen leading national higher education associations. It is sponsored by the American Association of State Colleges and Universities (AASCU) and the American Association of Community and Junior Colleges (AACJC).

Concurrent Admissions Program

SDSU is a participant in the U.S. Army Concurrent Admission Program (CmAP). This program allows students to be admitted to SDSU at the time they enlist in the U.S. Army. For more information please contact the Admissions Office or the local U.S. Army recruiter.

Policy for Transfer of Foreign Undergraduate Credit

College level and advanced secondary level courses taken at foreign institutions will be evaluated for transfer consideration by an independent credential evaluation service and/or the appropriate institutional officials. Credit will be considered for transfer only when content is determined to be equivalent to SDSU courses. No elective credit will be allowed for courses not equivalent to SDSU courses. No English course will be accepted for credit from a foreign institution.

Transfer credit grades from foreign institutions will not be entered in the cumulative or semester grade point averages, but will be entered on the SDSU transcript as “P” (passing) grades. There will be a limit of 32 credits which may be transferred from foreign institutions determined to be vocational/technical level programs.
Former Students

Previous SDSU students will be admitted upon review of all collegiate coursework. Petition process may be required if the student has been placed on probation or refused status. Approval of admission is required by the dean of the appropriate college and the director of admissions. (See Academic Information section.)

Certificate or Examination

Those who wish to enter college but lack entrance credits or have not been graduated from an accredited high school may contact the Office of Admissions 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.

Non-Matriculated Students

Those who wish to enroll with a partial load or do not plan to work toward a degree may be classified as Non-Matriculated Students. Non-Matriculated Students must generally meet the requirements outlined for admission of freshmen.

Students With a Break in Education

Students who have had a break in their education should also complete the application for admission and forward that along with a high school transcript. Students more than two years beyond high school are not required to complete the ACT. If completed, the ACT is used only for advisement and placement into courses.

Admission with Advanced Placement

The University recognizes that you may be qualified to enter college at a level above the average freshman. You can receive this recognition in several ways. (See Examination for University Credit.)

Those entering the University with advanced placement and credit are encouraged to use their abilities to enrich their educational experience rather than shorten it. The final decision in granting advanced placement and credit rests with the head of the department in which the credit is sought.

Admission of International Students on Nonimmigrant Visas

SDSU is dedicated to providing educational opportunities for students from abroad and has traditionally enrolled students from as many as 40 different countries each semester.

To be considered for admission, an international student must submit:

1. International Student Application
2. Official academic transcripts for all secondary and postsecondary education
3. Official score report for Test of English as a Foreign Language (TOEFL)
4. Financial capability certification form supplemented with documentation
5. Application fee of US $15.00

To be admitted to SDSU, international students generally need to have a secondary or college transfer grade point average of 2.5 for engineering or a 2.25 for other majors. Transfer students from academic programs at other U.S. institutions must have completed at least 25 consecutive semester credits (37.5 quarter credits) at a single institution. A minimum score of 500 on the TOEFL is required for non-native speakers of English (minimum is subject to change). Applicants whose native language is English or those who are from a country where English is the only language are not required to submit results from a TOEFL. A signed application form with fee and a financial certification form completed in full must also be submitted before the admission decision can be made.

SDSU may grant conditional admission to students who cannot meet the minimum TOEFL requirement. Enrollment would be contingent upon successful completion of a U.S. based intensive English program, including an exit TOEFL of 500 or above.

SDSU regrets that it is unable to offer financial aid such as scholarships or tuition waivers to international students. Applicants must therefore show clear evidence of adequate resources for financing their program of study.

SDSU reserves the right to require advance deposits of estimated tuition, fees and living expenses when warranted by prevailing foreign exchange difficulties.

Non-Native Speakers of English

The Michigan Test of English Proficiency will be administered to non-native speakers of English. Testing may be waived with a score of 600 or higher on the TOEFL.

Testing will be conducted prior to enrollment. Results will be used to determine whether a student needs to complete one or more support courses in English as a Second Language in addition to regular academic classes. The courses are designed to better prepare students for their academic program in general as well as for the English core curricula required of all entering students.

Further information regarding admission and English proficiency requirements may be obtained from the International Student Affairs Office, Administration 200, SDSU, Brookings, SD 57007, Phone: (605) 688-4122.

Correspondence Credit

Although SDSU does not offer correspondence courses, it will grant credit for correspondence courses from other colleges under the following circumstances:

Limited credit for correspondence work may be applied toward a degree. Such credit will not be approved if the work is done while the student is enrolled in the university, unless arrangements have been made in advance with the dean of the college concerned. Maximum acceptable credit by correspondence may be limited by the dean of the college concerned.

A person not enrolled at SDSU who contemplates earning credit by correspondence to be applied toward a degree here should consult the dean of the college in advance concerning the acceptance of such credit.
EXPENSES AND FINANCIAL AID

Definition and Clarification of Fees and Refunds ........................................... 21
Residency Requirements ..................................................................................... 22
Refunds .............................................................................................................. 22
Financial Assistance ........................................................................................... 22
Definition and Clarification of Fees and Refunds

Application Fee — Non-refundable charge assessed all applicants for initial admission unless you have previously attended South Dakota State University or another South Dakota public university.

University Student Fee — A fee charged per semester to cover health, student union and other university services, such as: admission to plays, athletic events, athletic facilities, and partially funded judging, music and forensic programs.

Instructional Fee — A fee per credit charged to replace expendable supplies and materials, defray cost of maintenance, repair and replacement of equipment, testing and other instruction-related costs.

Administrative Fee — A per credit hour fee required to provide or assist in providing administrative services that benefit the students which are not funded from other funds such as tuition, general fund, etc.

Late Fee — If you do not register and/or pay fees during the regular established registration and payment periods, you will be assessed a late fee of $10 (plus $1 per day/maximum of $35). If you fail to satisfy financial obligations when due, you will be administratively withdrawn from the University.

Special Expenses for Engineering Courses — Fees are charged for courses in the College of Engineering ($10.50 per credit hour).

An Engineering/Science Lab Fee of $15.00 per designated course is charged to all lab classes in engineering, mathematics or the science field. These funds are used for supplies and materials and to purchase equipment.

Special Expenses for Nursing Students — Uniforms must be purchased by second year nursing students. Transportation must be provided by the student in Community Health Nursing and selected independent experiences. Students enrolled in nursing major courses are assessed additional fees each semester when applicable: clinical fee $225; malpractice insurance $11.

Special Expenses for Pharmacy students — Pharmacy majors are assessed a major fee of $225 for semesters 3-9, and $260 for semester 10.

General Deposit — If you carry 9 or more credit hours or are living in a residence hall, you must pay a $60.00 general deposit. Charges for laboratory breakage, damage to equipment or facilities, damage or loss of military uniforms, library or traffic fines, outstanding balances of tuition and fees or financial aid repayment may be levied against this deposit. The unused portion of the deposit will be refunded to you by

Tuition, Living and Other Expenses

(As of May 9, 1992)

All charges listed are subject to change pending Regents action.

<table>
<thead>
<tr>
<th></th>
<th>Resident</th>
<th>Non-Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition — undergraduate on-campus per semester credit</td>
<td>$43.00</td>
<td>$100.40</td>
</tr>
<tr>
<td>graduate on-campus per semester credit</td>
<td>$64.15</td>
<td>$128.85</td>
</tr>
<tr>
<td>Instructional/Administrative Services Fee per credit</td>
<td>$15.30</td>
<td>$11.70</td>
</tr>
<tr>
<td>University Student Fee — per semester per credit, (limit 12)</td>
<td>$11.70</td>
<td>$736.75</td>
</tr>
<tr>
<td>Board, per semester Plan 1</td>
<td>$427.00</td>
<td>$427.00</td>
</tr>
<tr>
<td>Plan 2</td>
<td>$783.75</td>
<td>$783.75</td>
</tr>
<tr>
<td>Residence Hall Rent, per semester (includes phone)</td>
<td>$653.00</td>
<td>$653.00</td>
</tr>
<tr>
<td>Single occupancy</td>
<td>$487.00</td>
<td>$487.00</td>
</tr>
<tr>
<td>Double room</td>
<td>$324.00</td>
<td>$324.00</td>
</tr>
<tr>
<td>Triple room</td>
<td>$487.00</td>
<td>$487.00</td>
</tr>
<tr>
<td>Books and supplies (estimate), per semester</td>
<td>$300.00</td>
<td>$300.00</td>
</tr>
</tbody>
</table>

TYPICAL EDUCATION EXPENSES (ONE SEMESTER) FULL TIME UNDERGRADUATE

Tuition — 16 credits | $688.00 | $1,606.40 |
| University Student Fee — health service, Union, Students Association, Instructional | $385.20 | |
| Books and supplies | $300.00 | $300.00 |
| Board | $742.00 | $742.00 |
| Residence hall rent | $2,287.20 | $3,205.60 |

INITIAL PAYMENTS REQUIRED FOR NEWLY ENROLLING STUDENTS:

<table>
<thead>
<tr>
<th></th>
<th>Resident</th>
<th>Non-Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application fee (nonrefundable)</td>
<td>$15.00</td>
<td>$15.00</td>
</tr>
<tr>
<td>Residence Hall Advance Payment (Part of room rent)</td>
<td>$60.00</td>
<td>$60.00</td>
</tr>
<tr>
<td>General Deposit (paid first semester, covers breakage, library fines, etc., and is refundable after graduation or withdrawal.)</td>
<td>$60.00</td>
<td>$60.00</td>
</tr>
<tr>
<td>First time international student charge</td>
<td>$75.00</td>
<td>$75.00</td>
</tr>
</tbody>
</table>

Special Fees are charged for courses in the College of Engineering: Engineering Education Fee $10.50 per credit hour; and an Engineering/Science Lab Fee of $15.00 per designated course.

Registration day each student makes a partial payment of charges ranging from $75 to $1,250 dependent primarily on residency status and campus housing. Final fee payment will be made approximately four weeks later.

NOTE: for Minnesota-S.D. reciprocity agreement, contact the Admissions Office.

Residency Requirements

Qualifications for residency for tuition purposes may be obtained by writing the Registrar's Office.

Refunds

An appeals process does exist for students or parents who feel that individual circumstances warrant exception from published refund policy. Contact the Registrar for information.

Food Service and Room Rent Refunds — A charge of 10 percent of the total semester's rent is made for each week or part of week. No refund made after tenth week.

Financial Aids — If you have received financial aid from the current term, money may be refunded or repaid based on a formula established by Federal Financial Aid regulations and university financial aid policy.

Student's Association Fee — The refund is determined by association and sent directly to the student.
mail within 75 days following graduation or 75 days after the beginning of the next semester if a non-return to the University.

Indebtedness — If you are indebted to the University and do not satisfy financial obligations when due, you may be denied admission to the University. You may be administratively withdrawn from the University after notice from the University and you will not be permitted to register or receive a transcript of grades until the indebtedness is paid. This applies to your indebtedness to the University for tuition, fees, required deposits and board, financial aid, but not to student organizations.

Residency Requirements

Qualifications for residency for tuition purposes may be obtained by writing the Director of Admissions.

Refunds

A petition process does exist for students or parents who feel that individual circumstances warrant exception from the published refund policy. Contact the Registrar, Adm 208, for information.

Food Service and Room Rent Refunds — A charge of 10 percent of the total semester’s rent is made for each week or part of a week. No refund made after tenth week. Board will be refunded according to purchasing power remaining.

Financial Aids — Federal regulations require that the refundable portion of institutional costs be returned to the appropriate student aid program received for the term. The refund is to be distributed to the Title IV programs in sums not to exceed the disbursement according to SDSU selected order: 1. Perkins Loan, 2. Stafford Loan (including Non-Subsidized), 3. Supplemental Educational Opportunity Grant, 4. Pell Grant, 5. PLUS/SLS, 6. State Incentive Grant. Students with non Title IV aid will have the appropriate portion refunded in selected order: 1. SDSU Scholarships, 2. Non-SDSU Scholarships, 3. Nursing or Health Professions Loan, 4. Agency Funding, 5. Balance to student. Repayment to a Title IV financial aid program may also be required, if the aid cash disbursement exceeds the allocated costs and living expenses. Students who did not attend a class are required to repay the total amount of aid received to the respective aid programs. 

Residence Hall Telephone Rent — No refund is made of the telephone rent. 

Students’ Association Fee — The refund is determined by the association and sent directly to the student.

Financial Assistance

General Information

Approximately 80% of the SDSU students attending full-time receive some type of financial assistance to help pay their educational costs. Financial assistance includes both need-based financial aid (Federal/State grants, loans, work) as determined by a federal financial aid application, and other financial aid (scholarship, agency assistance, etc.) not based on need. Financial need is defined as the portion of educational costs not covered by family contributions. Educational costs are determined by the Financial Aid Office and family contribution is calculated from information on the federal financial aid application.

All federal financial aid applications are accepted by SDSU; however, either the EAC Application for Student Aid or the ACT Family Financial Statement is preferred. The SDSU award policy gives priority for some federal financial aid programs to students completing the federal financial aid application before March 15. However, the largest financial aid programs, the Pell Grant and the Stafford Loan, do not have priority processing dates. Students must reapply for financial aid every academic year. Please contact the Financial Aid Office for summer financial aid procedures.

Need-Based Financial Aid Programs

I. General eligibility requirements:
A. Admission in a degree program.
B. Enrolled as a full-time student to receive full award.
C. United States citizen or eligible non-citizen.
D. Cannot be in default on a federal student loan or owe a refund to a federal student grant program.
E. Financial aid transcripts must be sent to SDSU Financial Aid for all post-secondary schools previously attended.
F. Selective Service laws require male students born after December 31, 1959, to be registered with Selective Service.
G. Pell Grant recipients must sign the Anti-Drug Abuse Act Certification on the Student Aid Report.
H. Maintain Satisfactory Progress as described in detail in the SDSU Satisfactory Progress Standards (sent to all financial aid recipients and available upon request for others). Satisfactory Progress is the measurement of a student’s academic performance (credits completed and cumulative grade point average) toward the completion of the student’s degree program. Students not meeting Satisfactory Progress Standards will have their federal financial aid eligibility suspended.

Schedule of Refunds

Complete Withdrawal FY1992

<table>
<thead>
<tr>
<th>Standard Semester</th>
<th>% of Non-Standard Semester</th>
<th>Refund</th>
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</thead>
<tbody>
<tr>
<td>Up to 2 weeks</td>
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<tr>
<td>&gt;2 to ≤3 weeks</td>
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</tr>
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<td>25%</td>
</tr>
<tr>
<td>&gt;4 weeks</td>
<td>&gt;26%</td>
<td>0%</td>
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Tuition and Per Credit Hour Fees

Dropped Courses

A student receives a 100% refund of tuition and per credit hour fees for dropped courses in the first two weeks (standard semester) or 13% (non-standard semester) of instruction.

Nursing or Health Professions Loan, 4. Agency Funding, 5. Balance to student. 

Repayment to a Title IV financial aid program may also be required, if the aid cash disbursement exceeds the allocated costs and living expenses. Students who did not attend a class are required to repay the total amount of aid received to the respective aid programs.

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G. Pell Grant recipients must sign the Anti-Drug Abuse Act Certification on the Student Aid Report.
H. Maintain Satisfactory Progress as described in detail in the SDSU Satisfactory Progress Standards (sent to all financial aid recipients and available upon request for others). Satisfactory Progress is the measurement of a student’s academic performance (credits completed and cumulative grade point average) toward the completion of the student’s degree program. Students not meeting Satisfactory Progress Standards will have their federal financial aid eligibility suspended.

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Residence Hall Telephone Rent — No refund is made of the telephone rent.

Students’ Association Fee — The refund is determined by the association and sent directly to the student.
II. Financial aid programs
SDSU participates in all of the federal financial aid programs. Specific information is available in the “SDSU Financial Aid News,” The U.S. Department of Education’s “The Student Guide,” and other financial aid materials. An SDSU Financial Aid Award Letter identifies the specific awards and other information is enclosed for the financial aid recipient.

A. Grants are gift aid based on financial need.
1. Pell Grant awards are determined by a federal formula for the student's first bachelor degree.
2. Supplemental Educational Opportunity Grant awards are based on Pell Grant eligibility and available funds.
3. State Student Incentive Grants are available only to South Dakota residents. A separate application is mailed to the selected recipient who is typically a student not receiving other grants or has very high financial need after other gift aid is considered.

B. Loans provide an opportunity to borrow money for educational expenses. Loans must be repaid. Loan recipients are required to attend Entrance Loan Counseling sessions.
1. The Stafford Loan Program is the largest financial need-based loan program. The Stafford Loan is processed with financial institutions. The federal government pays the interest while the student is in school and during deferment periods. Interest (8%) and repayment begin six months after half-time enrollment ends; the interest rate increases to 10% starting with the fifth year of repayment.
2. Non-Subsidized Stafford Loan recipients are students who do not show financial need as determined by a federal financial aid application. The student pays the interest while in school.
3. PLUS (Parent Loan for Undergraduate Students): The parent processes a loan application for the student and makes a monthly payment beginning 60 days after the PLUS check is disbursed. Interest rate is variable, not to exceed 12%.
4. Supplemental Loan for Students is similar to the PLUS except it is only for independent students.

5. Perkins Loan is an SDSU award based on financial need and SDSU award policy. Interest (5%) and repayment begin nine months after half-time enrollment ends.
6. Nursing Student Loan is for nursing majors based on financial need and SDSU award policy. Interest (5%) and repayment begin nine months after half-time enrollment ends or ending the nursing degree program.
7. Health Professions Student Loan is for pharmacy majors based on financial need and SDSU award policy. Interest (5%) and repayment begin 12 months after full-time enrollment ends or ending the pharmacy degree program.

C. Work opportunities may provide part-time employment for students.
1. College Work Study financial aid awards are based on financial need and SDSU award policy. Most jobs are on-campus.
2. Other employment opportunities may be available through the Job Location and Development Program as part of the Career and Academic Planning Services and South Dakota Job Service.

III. Scholarships
The SDSU scholarship programs have increased yearly with additional scholarships for new, continuing, and transfer students. SDSU awards over 1,400 scholarships to undergraduate students. There are approximately 400 new-freshmen student scholarships. A single scholarship application available from SDSU or from your high school must be completed and returned to the SDSU Financial Aid Office before January 25 for priority consideration for the academic scholarships.

A. Selected new freshmen scholarships.
1. Renewable scholarships, upon meeting academic standards, include Dan Bocklund Memorial; Stephen F. Briggs; Dick Clarin; Earl F. Ferguson; Philip and Viola May; Henrietta Nichols; LaVerne Noyes; and National Merit Semi-Finalists. South Dakota National Merit Semi-Finalists are also eligible for the South Dakota Superior Scholar Scholarship program.
2. Valedictorian Scholarships are for all students entering SDSU upon their high school graduation with a number one class rank.
3. Leaders for Tomorrow scholarships are for students meeting criteria of high school academic rank and college entrance test scores.
4. Many general, departmental, and talent awards are also available.

B. Upper class student scholarships are awarded by the college/department based on a student's academic record through a competitive scholarship application process. Selected scholarships are the Wilbur Allen; Amdahl; F.O. Butler; William and Byrne Griffith; Hilda Hasslinger; Lackey; Larson Manufacturing; H.B. Mathews; Matthew Tierinan; and many others.

C. Talent and participation scholarship awards are available by contacting the specific areas:
- 4H: County Agents or Program Leader, SDSU
- Air Force ROTC: Professor of Aerospace Studies, SDSU
- Army ROTC: Professor of Military Science, SDSU
- Music: Music Department, SDSU
- Theatre: Theatre Department, SDSU

D. Local and national scholarship information and applications may be available through your high school, various organizations and groups.

IV. Financial assistance may also be available through various agencies including Vocational Rehabilitation and other special services agencies.

V. SDSU is fully accredited for Veterans Assistance benefits for qualified students.

VI. Please contact the SDSU Financial Aid Office, Box 2201, Administration 106, Brookings, SD 57007 (phone 605-688-4695) for specific applications, forms, and information.
Credits

Semester credit hours ("credits") are the numerical values assigned to hours of academic work, according to the amount of time required for lecture or laboratory. Normally one credit is equivalent to one hour of class (lecture, discussion) and two hours of outside preparation per week for one semester. Three hours of laboratory work, where no outside preparation is required, or two hours of laboratory where outside activity is required is typically assigned one credit hour.

Independent courses vary in credit according to the nature of the work involved.

The Bachelor's Degree

The Bachelor's degree is offered in more than 200 major fields or options in seven colleges providing more than 1700 individual classes specializing and preparing students for countless career opportunities.

Graduation Requirements

Graduation requirements, leading to the various baccalaureate degrees, are designed to fulfill the educational objectives of the University toward:
1. Intellectual and professional competence,
2. Adequate personal development,
3. A sense of social and civic responsibility,
4. A satisfactory adjustment in human relationships.

The adviser system assists in proper course selection to meet curricular requirements and helps you avoid errors in scheduling. However, you have the final responsibility for satisfying the degree requirements for the curriculum chosen and for the university core curriculum.

University Assessment Program

SDSU has a comprehensive Assessment Program to evaluate the educational process. This program is designed to measure the effectiveness of the general education core curriculum, satisfaction of students with their educational programs and the cognitive knowledge and skills accumulated in the major programs of study. The evaluation of programs will require that students be assessed at various stages of their program of study. Baseline data will be collected at the freshman level and additional assessment will occur throughout the student’s academic career at SDSU. Seniors take a senior assessment in their major as a part of their graduation requirement.

I. The General Degree Requirements

A. Completion of at least 128 semester credits (see individual professional college requirements).

B. A ratio of at least two grade points per credit hour for courses passed that apply to the degree. (Graduation ratio of 2.0). In computing the graduation ratio, all courses for which a grade of A, B, C, D, Ex, or P has been earned are used. Students who transfer from another institution must earn a minimum graduation ratio of 2.0 for the courses taken at South Dakota State University. If a course is repeated, only the last grade received will be computed in calculation of the graduation ratio.

C. Resident requirement. Successful completion of at least 32 hours at South Dakota State University with a minimum of 20 credit hours of junior and senior (300-400) level courses. (For the two-year Associate Arts degree programs, successful completion of at least 16 hours at South Dakota State University is required.) Credits earned by examination are not counted as resident credit unless an exception has been made because of special program features.

D. Completion of University core requirements as described below (total 42 credits).

E. Completion of all college and major field requirements.

Note: No given course may satisfy more than one of these requirements, unless the minimum number of credits is exceeded. Credits in excess of the minimum credits needed may be applied in another area.

II. General Education Core

There is a general education core at SDSU composed of the following:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education</td>
<td>2 cr.</td>
</tr>
<tr>
<td>Composition</td>
<td>6 cr.</td>
</tr>
<tr>
<td>Speech</td>
<td>3 cr.</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3 cr.</td>
</tr>
<tr>
<td>Humanities and Fine Arts</td>
<td>6-11 cr.</td>
</tr>
<tr>
<td>Natural Science</td>
<td>8-13 cr.</td>
</tr>
<tr>
<td>Social Science</td>
<td>9-14 cr.</td>
</tr>
<tr>
<td>Total</td>
<td>42 cr.</td>
</tr>
</tbody>
</table>

This is organized as described below:

Your education at the University should be a total one combining the general education core, your major area of study and your involvement in campus life and activities. The general education core is particularly important in contributing to these areas of your learning.

- Inquiry, abstract, logical thinking, critical analysis.
- Literacy: writing, reading, speaking, listening, using information.
- Understanding numerical data.
- Historical consciousness—skeptical thinking and wider understanding beyond rote learning.
- Science—understanding the intellectual and philosophical context of scientific observation, research and debate.
- Values—understanding moral philosophy.
- Art—aesthetic appreciation and experience.
- International and multicultural experience—appreciating ethnic diversity in the U.S. and throughout the world.
- Study in depth—the need of undergraduates to develop complex perspectives which connect beyond the discrete educational experience in one area.
- Commitment to Service—practical application of knowledge in actively giving service to the student’s peer groups, to the University, to the community, State, and nation, or to humanity in general.

A. Physical Education

Satisfactory completion of two semesters of PE 100, Fitness and Lifetime Activities for those entering South Dakota State University as freshmen (fewer than 30 credits). No activities may be repeated - note that taking a combined activity course such as "Tennis and Basketball" and then taking "Tennis and Archery" would be considered a repeat. Military service does not fulfill this requirement. Two additional
one-credit PE 100 courses may be elected and such credit will count toward graduation.

B. The Communications Requirement

1. The written communication requirement: You must complete 6 credits in English. English 101 the freshman year, and English 300 (for Engineering students, English 300 or 303) for the junior year.

For a student transferring in courses for English 101 and/or English 300, the total of credits transferred plus any credits at SDSU, should equal 6 credits or be within a fraction of 1 credit of equaling 6 credits. When students do not have these credits, they are advised to take English 303, Technical Communications (3 cr.), English 307, Writing in the Sciences (2 cr.), or English 383, Creative Writing (2 cr.). English 303 and English 383 do specify prerequisites. If the student has problems working out a plan to bridge the gap in a transfer situation, the first choice is to take one of these additional English courses at SDSU. If this cannot be done because of prerequisites or unavailability of the courses, the student should discuss with the English Department the possibility of a Special Problems course to make up a one credit difference.

2. The oral communication requirement: You must obtain satisfactory proficiency in oral communication by completing SpCm 101, Fundamentals of Speech, or by taking an advanced course approved by the Head of the Communication Studies and Theatre Department.

For transfer students, only course equivalency is required in this area. For example, a 3 credit speech course, taken at a quarter system school, will transfer to SDSU as only 2 semester credits. If the course taken at the quarter system school is accepted at SDSU as equivalent to Fundamentals of Speech, it will meet the core requirement in oral communication because the courses are equivalent, even though the credits were not equivalent (3 vs. 2 credits).

C. Mathematics Requirement

Satisfactory completion of three credit hours of college algebra or more advanced mathematics (i.e., Math 112, 113, 120 or a Calculus course). Math 010, 110, 140, 143, and 241 will not satisfy the Math Core.

D. Liberal Studies Core Requirement

To give an intellectual perspective of life's meaning, the faculty has established a core requirement in liberal studies. These courses will provide a foundation in broad areas of general education. Also, they will provide an access to fields of study from which you may choose a major field. These courses can also provide a competent background for building a career in the professional curricula.

Area I, Understanding the Great Ideas

Satisfactory completion of 6-11 semester hours of humanities and fine arts with the required hours from at least two disciplines. At least three credits must be taken from the Humanities Section.

The humanities are broadly defined as courses concerned with the understanding and expression of ideas, creative processes and critical human encounters. To encourage and facilitate selection of courses from all aspects, the approved courses are listed in two groups. Those in Humanities deal primarily with ideas and attitudes expressed in words, while those in Fine Arts deal primarily with thoughts and feelings expressed through the arts.

*A combined total number of 28 semester hours must be taken in Humanities (a minimum of 6 semester hours) and Natural Sciences (a minimum of 8 semester hours) to satisfactorily meet the Liberal Studies Core Requirement.

Humanities

Art History (ArtH)
100 Art and Design Appreciation (3 cr)
211 Survey of World Art and Architecture (3 cr)
212 Western Traditions in Art and Architecture (3 cr)
300 Modern Art & Architecture Survey (3 cr)
310 History of U.S. Art and Architecture (3 cr)

Biology (Bio)
383 Bioethics (4 cr)

Dance (Danc)
340 History and Theory of Dance (2 cr)

English (Engl)
213 World Literature through the Renaissance (3 cr)
215 Modern World Literature (3 cr)
218 Introduction to Literature (3 cr)
248 Women's Literature (3 cr)
250 Literature of Diverse Cultures (1-3 cr)
256 Literature of the American West (3 cr)
263 Poetry (3 cr)

265 Fiction (3 cr)
267 Drama (3 cr)
321 English Literature (3 cr)
322 English Literature (3 cr)
341 American Literature (3 cr)
342 American Literature (3 cr)
367 American Short Story (3 cr)
433 Shakespeare (3 cr)

European Studies (EurS)
300 Topics in European Culture (3 cr)

Foreign Languages (FL)
134 Foreign Cultures (3 cr)

French (Fren)
101 Introduction to French Language and Culture (4 cr)
102 Introduction to French Language and Culture (4 cr)
201 Language and Culture of France (3 cr)
202 Language and Culture of France (3 cr)

German (Germ)
101 First Year German (4 cr)
102 First Year German (4 cr)
201 Second Year German (3 cr)
202 Second Year German (3 cr)

Spanish (Span)
101 First Year Spanish (4 cr)
102 First Year Spanish (4 cr)
201 Second Year Spanish (3 cr)
202 Second Year Spanish (3 cr)

History (Hist)
121 Western Civilization to 1650 (3 cr)
122 Western Civilization since 1650 (3 cr)
322 Ancient History (3 cr)

Honors (Hon)
301 Honors Colloquium (1-4 cr)
302 Honors Colloquium (1-4 cr)

Latin American Area Studies (LAAS)
301 Latin American Cultures (3 cr)

Music (Mus)
100 Music Appreciation (2 cr)
300 Blues, Jazz and Rock Survey (3 cr)

Music Literature (Mus)
130 Music Literature and History I (2 cr)
131 Music Literature and History II (2 cr)
230 Music Literature and History III (2 cr)
231 Music Literature and History IV (2 cr)

Nutrition and Food Science (NFS)
111 Food and Man (2 cr)
Philosophy (Phil)
- 205 Introduction to Philosophy (4 cr)
- 215 Introduction to Social/Political Philosophy (3 cr)
- 225 Introduction to Ethics (3 cr)
- 235 Elementary Logic (3 cr)
- 313 Great Philosophers (2-3 cr)
- 331 Philosophy of Science (3 cr)

Religion (Rel)
- 213 Introduction to Religion (3 cr)
- 226 Old Testament (3 cr)
- 227 New Testament (3 cr)
- 237 Religion in American Culture (3 cr)
- 338 World Religions (3 cr)

Speech
- 160 Introduction to Film (3 cr) (RTVF 160)
- 330 Oral Interpretation (3 cr) (SpCm)
- 360 Film Narrative (3 cr) (RTVF)

Theater (Thea)
- 100 Introduction to Theatre (3 cr)

Fine Arts

Art Studio (ArtS)
- 112 Drawing I (3 cr)
- 122 Design Fundamentals (3 cr)
- 123 Three Dimensional Design (3 cr)
- 211 Figure Drawing (3 cr)
- 231 Painting (3 cr)
- 241 Sculpture (3 cr)
- 253 Ceramics I (3 cr)
- 270 Textile Design (3 cr)
- 281 Printmaking (3 cr)

Dance (Danc)
- 130 Fundamental Dance and Rhythms (1 cr)
- 132 Recreations & International Folk Dance (1 cr)
- 230 Modern Dance I (1 cr)
- 231 Modern Dance II (1 cr)
- 240 Dance Composition (2 cr)
- 330 Ballet, Jazz & Tap (2 cr)

Applied Music (MuAp)
- 100 101 102 103
  Ind Instr in Voice (1 cr)
- 110 111 112 113
  Ind Instr in Keyboard (1 cr)
- 120 121 122 123
  Ind Instr in Woodwinds (1 cr)
- 130 131 132 133
  Ind Instr in Brass (1 cr)
- 140 141 142 143
  Ind Instr in Percussion (1 cr)
- 150 151 152 153
  Ind Instr in Strings (1 cr)

Music Ensembles (MuEn)
- 100 Women's Chorus/Pasquettes (1 cr)
- 101 Concert Choir (1-2 cr)
- 102 Statesmen (1 cr)
- 110 Civic University Orchestra (1 cr)
- 120 Marching Band (1-2 cr)
- 121 Symphonic Band (1 cr)
- 122 Concert Band (1 cr)
- 180 Jazz Ensemble (1 cr)

Theater (Thea)
- 131 Acting (3 cr)
- 141 Stagecraft (3 cr)

Area II, Understanding our Physical and Biological Environment
Satisfactory completion of 8-13 semester hours of natural science. This must include two courses in sequence from the courses listed as "sequence courses" below and any other additional credits from any course listed below in the biological and physical sections so as to equal from 8-13 credits.

SEQUENCE COURSES (Must take one combination of courses in sequence)
- Bio 151 & 153; Bio 151 & Bot 200; Bio 151 & Bot 201; Bio 151 & Zool 203; Chem 110 & 111; Chem 110 & 120; Chem 112 & 114; Chem 112 & 120; Geog 131 & 132; Phys 111 & 113; Phys 211 & 213.

Natural Sciences
The natural sciences include mathematics and the biological and physical sciences that deal with matter, energy, and their interrelationships and transformations.

Mathematics (Math)
- 110 Intermediate Algebra (3 cr)
- 113 College Algebra and Trigonometry (5 cr)
- 120 Plane Trigonometry (3 cr)
- 143 Finite Mathematics (3 cr)
- 123 Calculus & Analytic Geometry I (5 cr)
- 224 Calculus & Analytic Geometry II (4 cr)
- 225 Calculus & Analytic Geometry III (3 cr)
- 222 Calculus for Non-Math Majors (5 cr)

Physics (Phys)
- 101 Introductory Physics (4 cr)
- 103 Descriptive Astronomy (3 cr)
- 111 Elementary Physics I (4 cr)
- 113 Elementary Physics II (4 cr)
- 211 General Physics I (4 cr)
- 213 General Physics II (4 cr)

Plant Science (PS)
- 113 Soils (3 cr)
- 243 Geology (3 cr)

Area III, Understanding our Social Environment
Satisfactory completion of 9-14 semester hours of social science from at least two disciplines.

Social Sciences
The social sciences are among those courses that broaden your perspectives concerning your own identity, your participation as members of society, your understanding of human interrelationships, and your comprehension of public issues.

Anthropology (Anth)
- 200 General Anthropology (3 cr)
- 320 Cultural Anthropology (3 cr)
- 421 Indians of North America (3 cr)

Physical Sciences

Chemistry (Chem)
- 110 General Chemistry (4 cr)
- 111 Introductory Organic & Biochemistry (5 cr)
- 112 General Chemistry (4 cr)
- 114 General Chemistry (3 cr)
- 115 General Chemistry Lab (1 cr)
- 120 Elementary Organic Chemistry (3 cr)

Geography (Geog)
- 131 Physical Geography I (4 cr)
- 132 Physical Geography II (4 cr)

Honor's (Hon)
- 304 Honor's Colloquium (1-4 cr)

Academic Information 27
## Associate Degree and Certificate Programs

### Associate Degree: The University provides a two year associate degree program in General Agriculture (see College of Agriculture and Biological Sciences).

The core requirements for the Associate Degree program are as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major field</td>
<td>16</td>
</tr>
<tr>
<td>Minor field</td>
<td>12</td>
</tr>
<tr>
<td>Constants:</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Speech</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>2</td>
</tr>
<tr>
<td>Science, Math or Language</td>
<td>6</td>
</tr>
<tr>
<td>Electives (minimum)</td>
<td>22</td>
</tr>
<tr>
<td>Total Credit (minimum)</td>
<td>64</td>
</tr>
<tr>
<td>Graduation Ratio</td>
<td>1.9</td>
</tr>
</tbody>
</table>

These requirements meet the basic elements of the Associate Degree. Suggested programs are printed for the student's and adviser's use. In many cases substitutions may be made where courses outlined are not available during the period of your enrollment. Substitution must be made on the recommendation of your classifying officer.

Students enrolled in the two-year program in General Agriculture who have not met the minimum high school course requirements for a four-year baccalaureate program will be allowed to enter a baccalaureate program only after they have satisfied any deficiencies as outlined in Section II (Provisional Admission) under Admission Requirements. Students must have successfully completed 3 credits of English or Speech, 3 credits of Mathematics, 3 credits of Natural Science, and 3 credits of Social Science with a GPA of 2.0.

### Certificate Program: A certificate program in Flight Training is offered through the College of Education and Counseling to those desiring to prepare for their private license.

Aviation education at South Dakota State University offers a unique series of courses designed to permit individuals the opportunity to explore aviation. 200 level courses introduce aviation to beginning aviators, while 300 level courses focus on a more professional utilization of aircraft and aviation as a career. Federal Aviation Administration written examinations are administered upon successful completion of classroom courses for those wishing to pursue pilot certification. Flight courses are conducted on an individual basis under the supervision of FAA certified flight instructors. Instructor consent is required for registration in flight courses.

### College and Major Field Requirements

Courses outlined under the college and major field curricula must be completed to the satisfaction of the head of the major department and college dean. Students in continuous attendance have the right to graduate under the catalog curriculum in effect at entry or any subsequent catalog until they graduate. However, necessary substitutions and additional courses may be required to meet the standards of the major field at the time of graduation.

All requirements must be met under the same catalog.

Students who interrupt their college education for more than one year (two regular semesters — fall/spring) re-enter under the new catalog.
Student Responsibility

Each student is responsible for satisfying requirements for graduation as listed under overall university, college, and major field requirements. This shall include notifying the Registrar's Office in the event any course is repeated. If a student has questions concerning the proper satisfaction of specific requirements, he or she should consult with the dean, major adviser or the Registrar.

Foreign Language Policy

Entering students with appropriate backgrounds are permitted to sit for placement examinations, and are placed according to the results of such examinations. The department reserves the right to require an oral proficiency exam if additional information is necessary to make an informed placement decision. Based on these examination results, a student may be placed in a higher level course.

In order to be granted credit for a foreign language course, the student must meet the minimum score requirement on the placement exam and pass the next sequential course in that language with a grade of C or better. The student must then complete an "Application for Placement Credit" form and pay the recording fee.

The same course may not be used to meet both the humanities and the foreign language requirements for the B.A. degree. You cannot seek credit by examination for a lower level course after you have taken an upper level course in a given subject.

Credit for language proficiency. If the particular language involved is not a student's native language and is not taught at SDSU, elective credit may be granted if proficiency can be documented through transcript submission. No humanities credit will be granted for any level of proficiency in a native language.

Class Attendance Policy

1. Class attendance requirements will be established by each instructor and specified in writing at the beginning of the term on a course syllabus.
2. Regular class attendance is the responsibility of all students.
3. The faculty will honor absences approved by university officials where individuals or groups are absent in the interest of the University.

Registration

Each student is advised by a member of the faculty. Classes consistent with your plan of study and properly adjusted as to the amount of work are arranged by the advisor and subject to approval by the dean.

The normal rate of progress for a student classified as an undergraduate is 16 credits each semester. To be a full-time student, all students classified as undergraduates must carry 12 semester credits; all students classified as graduates must carry 18 semester credits. Undergraduates will not be permitted to register in more than 20 semester credits the first term. Registration in more than 20 semester credits in subsequent terms is permitted only when the previous semester's work shows high achievement.

All overloads in excess of 20 credit hours must be approved in writing by the dean of the college and presented to the Registrar at the time of registration. In general, courses will not be offered to fewer than 10 students for undergraduate courses or 5 students for graduate courses, unless there is some special reason for doing so. Instructors will cancel courses with low enrollment or for other reasons, only with the approval of the dean of the college concerned.

University Withdrawals

Those finding it necessary to withdraw from the University are urged to consult with a faculty adviser to work out the best plan possible. You must then contact Student Affairs, Administration Building, Room 200 to process a withdrawal. Those who leave the university without processing an official withdrawal will be reported as having failed the semester's work. Grades transcripted are based on the date of application for withdrawal. A student may withdraw from the university until 69.4% of instruction has been completed (See date published in Semester Course Schedule). After that date, if extenuating circumstances (i.e. illness) have prevented class participation, a petition for withdrawal may be filed through the Registrar, instructor, adviser, and dean, with final approval resting with the Vice President for Academic Affairs.

Trip Regulations

A) Students involved in trips related to university-sponsored instructional activities as defined in the catalog under Purposes of the University or university-affiliated activities as scheduled by the Director of Student Activities or the Director of Residential Life must receive clearance for the trip. Permit forms are available from the Office of the Vice President for Academic Affairs and must be signed by the faculty sponsor and approved by the dean of the college or his/her designee, or the Director of Student Activities or his/her designee, and returned to the Office of the Vice President for Academic Affairs prior to the trip.

B) Students on university-approved trips are covered by accident-medical insurance. State-owned vehicles may be utilized if criteria established in the

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policy regulating use of state-owned vehicles are met. Drivers of personal vehicles should have liability insurance.

C) Students are eligible for trips if (1) activities of the student have not been curtailed by action of an authorized university judicial body; (2) no single trip shall keep students away from classes more than 5 consecutive class days.

D) The faculty will honor trip absences approved by university officials where individuals or groups are absent in the interest of the University. Differences encountered between student and instructor will be arbitrated by the Vice President for Academic Affairs.

E) A Trip Absence Card for each student involved in the trip will be issued to the faculty sponsor upon approval of the trip. The Trip Absence Card will be signed by the faculty sponsor and given to each student. The student should show the card to his/her instructors in making arrangements to make up any work missed because of a trip, previous to going on the trip. The student should retain the Trip Absence Card until after final grades are received by the student.

Non-Degree Courses

In addition to courses leading to degrees, the university offers special and short courses in several lines of work. Some of these may be given for academic credit; others may be offered with Continuing Education Units. Consult the department head involved or the Director of the Division of Lifelong Learning and Outreach, Pugsley Center 201, South Dakota State University, Box 2218, Brookings, SD 57007-0599; 605-688-5193.

Auditing a Course

Registration as an auditor in a course may be accomplished only after registration day by add slip procedure. Auditing courses by graduate and undergraduate students will be a matter of record (recorded on their academic transcript). A grade of Audit Pass (AUP) or Audit Fail (AUF) will be given in each course audited, the basis for the grade to be agreed upon by the instructor and the auditor. Audit courses are counted as part of the 20 hour rule for overloads. Audit courses are not counted in calculating undergraduate or graduate full-time student status.

Elective Work

Electives are offered so students 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 University. Electives used to meet the

Drop-Add Procedure

1. Approval for dropping or adding courses is initiated with your faculty adviser, signed by the adviser and the instructor or designee, and taken to the Registrar's Office, Ad 208, for official recording.

2. Courses may be dropped, the pass/fail elective may be chosen, and cross listed course prefixes for that semester may be changed during the first 10 class days each semester for standard semester courses and until 15% of instruction is completed for non-standard semester courses.

3. Courses may be dropped without charge during the first 10 class days for standard semester courses and until 13% of instruction is completed for non-standard semester courses. Drops after that date are not entitled to refund.

Grades for dropped courses: (a) Students will be allowed to drop courses until 41.7% of instruction is completed (date published in semester course schedule) with nothing recorded on their transcripts. (b) Thereafter, until 69.4% of instruction is completed (date published in semester course schedule), a "W" will be recorded on the student's permanent transcript indicating a late drop. (c) You may not drop an individual course after 69.4% of instruction is completed. (d) Similar proportional dates would be established by the Registrar's Office for summer, interim and other courses taught outside of the normal nine-month academic year.

4. After 69.4% of instruction is completed, if extenuating circumstances (i.e., illness) have prevented class participation, a petition for an individual drop may be filed through the Registrar, instructor, adviser and dean, and the Vice President for Academic Affairs. You should not drop out of a course without processing discontinuance via the official drop procedure. An "F" will be recorded for an unofficial drop.

When an instructor deems it advisable for you to drop from class, a drop slip must be completed, processed, and submitted to the Registrar's Office prior to calendar deadlines. Your name will not be removed from the class roll until instructions to do so are given by the Registrar's Office.

30 Academic Information
Intercollege Transfer

A Between College Transfer Form (BCT), to transfer from one college to another within the University, is available at the Career and Academic Planning Center located in Medary Commons. When processing is complete, the BCT must be filed for recording with the Registrar’s Office, Adm 208.

Grading System

The grading system is based on achievement in comparison with other members of your class.

A grade report or transcript is distributed to each registered student each term and a cumulative record is maintained in the Registrar’s Office.

Types of Grades

The quality of work is indicated by the following marks:

- **A** — Exceptional — 4.0 grade points
- **B** — Superior — 3.0
- **C** — Average — 2.0
- **D** — Passing (lowest passing mark) — 1.0
- **IP** — In Progress, is a report indicating the requirements for the course, as specified on the initial course syllabi by the instructor at the start of the term, extend beyond the current term. The IP grade is an acceptable grade only if the instructor files through the department a request to report an IP grade for the entire course, or in the case of independent study for an individual student, prior to the census date for the course. Requests must be approved by the College Dean and must be on file each term with the Academic Vice President and the Registrar. At the time grades are recorded, the Registrar will audit the reported IP grades against approvals received. (After initial review, courses such as Thesis, Thesis Sustaining, and Research Paper can be maintained on permanent file, rather than be submitted each term.) The grade of “IP” is not counted in computing the grade point average.
- **IP** — In Progress, is a report indicating the requirements for the course, as maintained in the Registrar's Office.
- **W** — Withdrawn
- **I** — Incomplete, is a report indicating if for reasons beyond the student’s control, a student cannot finish the required work in a course, the work completed is of passing grade, and is deemed practical for the student to complete the subject without repeating it in a regular class, the student may apply to the instructor for an Incomplete grade. If the instructor accepts this application, the student and the instructor must agree on a plan to complete the work of the course. The plan must be in writing and have a completion date of not more than one year from the end of the regular course. At the end of the plan or the one-year period, whichever is sooner, the instructor may assign any academic grade, from “F” to “A.” Any incomplete not properly removed within one year will remain on the permanent record as an “I.” A grade of “I” is not counted in computing the grade point average.
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The quality of work is indicated by the following grades:

- **A** — Exceptional
- **AUF** — Audit-Fail
- **AUP** — Audit-Pass
- **B** — Superior
- **C** — Average
- **D** — Passing
- **F** — Failure (You must repeat the subject)
- **IP** — In Progress
- **CR** — Credit
- **IP** — In Progress
- **X** — Do not report
- **P** — Pass
- **FA** — Failing
- **IP** — In Progress
- **TR** — Credit received by transfer
- **IP** — In Progress
- **CR** — Credit
- **IP** — In Progress
- **X** — Do not report

The cumulative grade point average is obtained by dividing grade points by the number of hours attempted. In computing grade point averages all hours attempted (graded A, B, C, D, X, F) are included even though, because of repetition of work some of them may be considered canceled. Note: This excludes I, AUF, AUP, CR, EX, P, TR, W grades.

Repeating a Course to Raise the Grade. If you repeat any course, the new grade replaces the former grade in computing the graduation ratio, but both will remain on your record and calculate in the cumulative grade point average. You must notify the Registrar’s Office when a course is repeated. Credits and grade points earned for the old grade cannot be counted toward graduation.

Pass-Fail System. The primary objective of the Pass/Fail System is to encourage students to attempt courses in areas they would normally avoid because of lack of background.

1. You may enroll in up to 20 credits.
2. These credits must be outside your major and may not serve to satisfy university, college or departmental specific course requirements.
3. Colleges may further restrict the Pass/Fail credit option.
4. A “D” or lower is considered to be a passing grade in a pass/fail elective.
5. Registration for pass-fail electives will be accomplished only after registration day by informing the Registrar’s Office. The pass/fail option should be known only to the academic advisor, the student and the registrar.
6. You may change from pass/fail elective to credit or vice versa only during the two week add period.
7. The grade (P or F) will be recorded on your permanent record. A grade of “P” will not count in the computation of the semester or the cumulative grade point average. If the course is passed (grade of D or better), the credits and the grade points, computed as two times the number of credits, will be counted in the graduation ratio. An “F” grade will calculate in the computation of the semester or the cumulative grade point average.

Military, 1 credit; grade A; grade 4
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Academic Performance Requirements

The normal progress rate toward graduation requires 16 semester credits and 32 grade points each semester. To be in good scholastic standing you must maintain the following minimum semester performance: Freshman — a 1.5 grade point average; Sophomore — a 1.7 grade point average; Junior — a 1.8 grade point average; Senior — a 1.9 grade point average.

If you do not maintain the above average, your scholastic status will be affected as follows:

A. Probation — At the end of the first semester in which you do not meet the requirements, you will be placed on "scholastic probation." Consultation with your academic adviser is recommended. Actions such as curtailment of participation on faculty-student committees may be appropriate. The dean may require you to carry a reduced load for the next semester.

B. Suspended — You will be "suspended" upon failure to meet requirements at the end of the probationary semester. Readmission may be possible on a "scholastic probation" status, upon application for readmission, after one semester of nonattendance. If you have been on a suspended status twice, you will not ordinarily be permitted to enroll again.

Note: Summer school will not count in the plan but you may remove a probationary status through summer school work at SDSU by raising the grade point average of combined spring and summer work. A suspended status cannot be removed by summer school.

C. To appeal a suspended status, you must do so to the dean of your college.

D. "X" grades will be counted as failures in figuring the grade point averages until removed. It is your responsibility to remove the "X" and check with the Registrar's Office to insure clearance of the record.

Academic Amnesty

Philosophy
Some students attempted college work previously and were not successful in their efforts. They now wish to resume their college careers but are held back by poor academic records. Through the application of academic amnesty, the prior, poor academic record can be excluded from current work under certain conditions. The goal of this policy is to respond to the academic needs of matured individuals as they develop newly-identified potential.

Criteria
The student must:

1. Be seeking an undergraduate degree from SDSU. The student who has already graduated may not apply for amnesty.

2. Have last attended a formal post-secondary educational institution (including a vocational/technical institute) no less than 5 years prior to the most current SDSU admission.

3. Complete a minimum of 12 newly attempted credits from SDSU with a minimum of 2.0 GPA and meet the program minimum GPA for those programs with a higher GPA entrance requirement. (If more than 12 credits have been completed, all credits must calculate to 2.0 GPA or program GPA.)

Procedure

1. The student must submit a formal Academic Amnesty Petition through the adviser, the department head for the undergraduate program into which the student desires entry or is already admitted, and the appropriate college dean.

2. The decision of the academic dean is final.

3. Academic amnesty may be requested for either (a) all previous post-secondary education work or (b) all previous post-secondary education at specific institution(s). Individual courses and/or terms may not be petitioned.

4. If amnesty is approved, the student's academic amnesty record will not be counted toward completion of the current degree program. The academic amnesty record will not be counted for the financial aid review of satisfactory academic progress.

5. All previous work, whether SDSU or transfer work, will remain on the student's permanent record. A notation will be entered when/if amnesty is granted and the appropriate calculations (cumulative grade point average and graduation ratio) will be adjusted to reflect the amnesty decision.

6. If the student changes college and/or major, the amnesty petition must be resubmitted to the new adviser, department head and appropriate academic dean.

7. Academic Amnesty, if granted, will only be applicable at SDSU and does not impose any decision on any other institution(s) which the student may subsequently attend.

Examination for University Credit

If you have studied a subject independently or have done work of college level for which you are unable to get a transcript acceptable to this institution, you may receive credit through a variety of testing programs.

Standardized Tests

Credit may be received in certain subjects through the College Level Examination Program (CLEP), the Proficiency Examination Program (PEP), the Advanced Placement Program (APP), or through local standardized tests in Foreign Language and Mathematics. The CLEP Language and Mathematics tests are administered at SDSU, the other programs are administered only through national testing centers. A fee is charged for administration of the CLEP tests.

Students must complete an Application for Placement Credit form and pay a recording fee to have credit earned by examination recorded on their academic transcript.

Local Challenge Exams

If a standardized exam is not available in the subject area you wish credit, a special exam may be established to allow credit under the conditions specified below.

1. Consult the head of the department concerned who will conduct a preliminary survey of the work in which you claim to be prepared, and determine if an examination is warranted, what topics should be covered, and what credit is expected. Examination for credit for laboratory courses or mixed lecture-laboratory courses must have the consent of the instructor.
2. Consult the dean of the college in which you expect to receive a degree to determine whether credits by examination in the proposed subject will be acceptable toward the degree.

3. A fee established by the Regents must be paid before taking the examination.

4. Specific details are enumerated on an application form which must be filed by you to take such an examination. Copies of this form may be obtained from the Registrar.

If credit is accepted by examination the permanent record will show: course name — credit by examination, with an EX grade for the specified amount of credits. Course equivalent credit and two grade points per credit will be allowed toward graduation. No entry will be made on the record if the examination is failed. The examination results will not be figured in calculation of either the semester or the cumulative grade point averages.

No more than 34 credits obtained by examination for credit may be applied toward the Bachelor’s degree.

Students who are not currently enrolled but who were previously in good standing, may acquire credit by examination provided they meet the above conditions.

Course Exemption

A student may be awarded an exemption from taking a course but not receive college credit. This may result from the SDSU policy related to a specific test or credit received by examination from another institution.

NOTE: A grade given at, or transferred to, this university may not be raised by examination for university credit. If you have taken an upper level course in a given subject, you cannot receive credit by examination for a lower level course dealing with the same content. Credit or exemption will not be awarded based on an ACT Admission Test Score.

For information about credit through any of these programs contact the Assessment and Testing Office in Room 315 in the Administration Building. South Dakota State University cannot guarantee that credit earned via test at SDSU will transfer to other institutions. Even though SDSU has made an effort to set cut off scores at appropriate levels, each institution develops its own procedures for accepting credit by test. In some cases a certain test or score level acceptable at SDSU may not qualify a student for credit at another institution.

Class Rank

1. Sophomore rank requires 30 semester credits toward graduation.

2. Junior rank requires 62 semester credits toward graduation.

3. Senior rank requires 95 semester credits toward graduation.

4. Honors will be based on all grades. The commencement program will include a listing of candidates for honors. However, final determination is made after all grades are included.

Honors shall be of three degrees: With Highest Honor — grade point average 3.80 or above.

With High Honor — grade point average 3.60 to 3.799.

With Honor — grade point average 3.4 to 3.599.

5. Honor students shall have the appropriate honors inscribed on their diploma.

Available Majors, Minors and Options

<table>
<thead>
<tr>
<th>PROGRAM OF STUDY</th>
<th>COLLEGE ADMINISTERING</th>
<th>PAGE NOS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Studies (minor)</td>
<td>A&amp;S</td>
<td>72-73</td>
</tr>
<tr>
<td>Agricultural Business (B.S., minor)</td>
<td>ABS/Ag</td>
<td>44, 108, 110, 119</td>
</tr>
<tr>
<td>Agricultural Finance Specialization</td>
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### Key to colleges administering individual curriculums

- A&S = College of Arts & Science
- ABS/Ag = College of Agriculture & Biological Sciences,
  Agriculture Curriculum
- ABS/BS = College of Agriculture & Biological Sciences,
  Biological Science Curriculum
- ENGR = College of Engineering
- EDUC = College of Education and Counseling
- HOEC = College of Home Economics
- GR = College of General Registration
- NURS = College of Nursing
- PHARM = College of Pharmacy
- 59 = Option: area of emphasis, concentration or specialization

(E) = Education curriculum available with these majors as
  preparation for teaching secondary education.
STUDENT LIFE AND SERVICES

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Student Affairs Division

The Student Affairs Division provides services and activities which are designed to help you gain the greatest benefit from your university education. The following departments and programs are included in Student Affairs: Admissions, Disabled Student Services, Financial Aids, Food Service, Health and Counseling Services, International Student Affairs, Native American Advising, Records, Residential Life, Student Activities, and Veterans Affairs. If you have questions or need information about any of these areas, contact the Dean of Student Affairs office in Room 318, Administration Building, telephone number (605) 688-4493. The specific programs and services offered by the departments are listed below and elsewhere in this catalog.

Admissions — Questions concerning enrollment information, admission and transfer evaluation should be directed to Admissions Office, Room 200, Administration Building, South Dakota State University, Box 2201, Brookings, SD 57007-0649, telephone number (605) 688-4121.

Records — The Office of the Registrar maintains official records on enrollment, biographical student data, grades, credits, and degrees conferred; administers registration and assesses tuition and fees; prepares and sends transcripts when written, signed requests are received from students; processes enrollment verifications; checks athletic eligibility; prepares semester schedules and assigns classrooms; supplies reports and analysis of enrollment, grades and other scholastic matters; coordinates with college deans the procedures for clearing candidates for graduation and submitting candidate lists, and assists with the graduation ceremonies. The Registrar’s Office is in Room 208, Administration Building, Box 2201, telephone number (605) 688-4121.

Financial Aids — Student financial assistance programs, including federal and state need-based financial aid, scholarships, and governmental agency awards (BLA, Veterans Administration, Vocational Rehabilitation, etc.) are administered by the Student Financial Aids Office in Room 106, Administration Building, telephone (605) 688-4695.

Disabled Student Services — Assistance is available for students with a wide range of disabilities, including acquisition of taped materials, facility accommodations, course scheduling assistance, referral to other service agencies, advising and other services. The Disabled Student Services Adviser is located in the Dean of Student Affairs Office, Administration Building 318, telephone (605) 688-4496.

International Student Affairs — This office, directed by the International Student Adviser, administers policies and provides a broad range of support services relative to the nonimmigrant status of international students and scholars, including processing of admission applications, interpretation of immigration regulations, advising, outreach, handling official documents, and maintaining records. An extensive orientation program is conducted by the office prior to registration each semester. The purpose of the office is to facilitate the attainment of the educational goals of students from countries other than the U.S. For further information, contact the office at Room 200, Administration Building, SDSU, Brookings, SD 57007, telephone (605) 688-4122.

Native American Student Advising — SDSU provides an advisor for Native American students to aid them in their adjustment to university life. The adviser assists students in the areas of financial aid, academic planning, and personal concerns, as well as providing information about Native Americans to the college and area community. The Native American adviser may be contacted at (605) 688-4126, Administration Building 318 for further information.

Veterans Affairs — SDSU is a fully accredited university eligible to provide GI Bill educational assistance for qualified veterans and dependents. Eligible dependents and veterans should contact the Veterans Service Office, Room 108, Administration Building, South Dakota State University, Box 2201, Brookings, SD 57007, telephone number (605) 688-4700, for application forms and information concerning their benefits.

South Dakota resident veterans who served between June, 1950, and May, 1975, and who have no remaining VA benefits may qualify for tuition assistance through a South Dakota state program. To determine eligibility, veterans should contact the Financial Aid Office, Room 106, Administration Building, or telephone (605) 688-4702.

SDSU is also approved for processing a state program which provides reduced tuition for South Dakota National Guard students. Please direct questions about this program to the Registrar’s Office, Room 208, Administration Building, South Dakota State University, Box 2201, Brookings, SD 57007-0498. The student is responsible for submitting a national guard tuition assistance application to the Records Office prior to the Drop/Add deadline of each semester they seek benefits.

If you are interested in social activities you are invited to become a member of the SDSU Vets Club.

Counseling Service — SDSU provides an on-campus counseling service offering personal, confidential assistance to students. Adjustment to university life, personal decision making, conflict resolution, self-concept issues, and goal setting are common issues which the Counseling Center staff is prepared to address. These and other services are provided by appointment through one-to-one counseling or group counseling. Specific services addressing stress management, eating disorders, sexuality concerns, alcohol/drug problems, and abuse issues are available. Additional or specialized services are provided by referral when necessary. Call 688-6146, West Hall 112, for further information.

Drug and Alcohol Programs — SDSU, through the Department of Student Health and Counseling Services, provides alcohol and drug abuse information and prevention programs to the campus community. Medical treatment and counseling services are available to students and referrals to other agencies are available to everyone on campus. Call 688-6146 or 688-4157 for information.

Health Service

All usual outpatient services are provided on an appointment basis, including GYN examinations and sexual services, plus limited infirmary care. When medically indicated, appropriate referral will be arranged. Laboratory services, certain medications, immunizations, prescriptions including pharmacy services, and physical examinations (excluding pre-entrance physical exams) are provided on a fee-for-service basis. All enrolled fee-paying students who have submitted the pre-entrance physical exam are eligible to receive services. Health Service will assist students in meeting Board of Regents immunization compliance regulations for measeus and rubella. A supplemental hospitalization, accident and sickness insurance program is available for all students at registration. The Health

36 Student Life and Services
Department of Student Activities

The Department of Student Activities is located in the University Student Union. The various services provided include the Bookstore, Grand Market Place, meeting rooms, Volstorff Ballroom, Jacks' Place, Walder Dining Room, Leisure Skills Center, Information Exchange, Student Enrichment Programs Office, Central Reservations Office, and University community check-cashing. Student offices include University Program Council, Hobo Day Committee, COLLEGIAN/JACKRABBIT publications, Greek Council, Students' Association, S.A. Lawyer, and Off-Campus Housing.

The Department of Student Activities Student Enrichment Programs Office provides advisement to the Greek Council, Hobo Day and the University Program Council. This includes providing assistance with the implementation of programs and leadership training. The Department is also responsible for the coordination of SDSU's New Student Orientation Program. The Office also provides organizations with information, leadership training, and is involved in the organization recognition process.

Phone 688-6127 for information or 688-4022 for Central Reservations (room/space reservations).

Career and Academic Planning Center

I. Introduction

Planning for the type of career you want after graduation should begin with your first advising session at SDSU. The Career and Academic Planning (CAP) Center, located in Medary Commons, houses the following services to assist you with that planning.

II. Academic Advising

At SDSU, each student is assigned to an academic adviser in their chosen major. Your academic adviser is responsible for providing formal and informal guidance intended to help you investigate, identify and accomplish your academic and career plans. Students in the College of General Registration are assigned to advisers who are specially trained to help them decide about their academic goals. Students from all colleges and majors are welcome to consult with CAP Center staff about their academic plans if they need special academic advising assistance.

III. College and Major Changes

The CAP Center is the starting place for students wishing to change their major or add a second or third major. Between College Transfer (BCT), Within College Change of Major (WCCM) and Change of Additional Major (CAM) forms are available at the CAP Center. After completion of the procedure outlined on these forms, your credits will be accepted and evaluated for the new major; you will receive a new adviser assignment, your official SDSU academic records will be updated and your grade report(s) will be sent to your new adviser and college.

IV. College of General Registration

The College of General Registration is for students who would like to explore their interests and abilities and the majors at SDSU before declaring a major. See pages 57-60 for more information.

V. Career Planning Services

If you're looking for assistance in selecting a major, planning for a career or finding a job, the CAP Center is the place for you. Through our office you can visit with a career counselor; take an interest/skill inventory; complete a computer aided guidance program; or participate in career development workshops. The CAP Center's Career Resource Library provides information on more than 21,000 careers, major employers in the United States, various academic majors at SDSU and the employment status of SDSU graduates. The College of General Registration in conjunction with the College of Education and Counseling offers CHRD 101 Academic and Career Exploration, a one credit class for students who desire help in exploring the world of work.

VI. Experiential Education Program

The University's Experiential Education (Field Experience, Cooperative Education and/or Internships) Programs provide the student an opportunity to integrate classroom study with periods of planned and supervised professional work experience with cooperating business, industrial, and governmental agencies.

Experiential Education can provide you with an opportunity to apply and extend classroom learning, experience "real" problems, enhance self confidence, improve interpersonal relationships, improve communication skills, develop maturity and independence, and experience early career exposure. The program can also provide you an opportunity to earn while you learn through paid career-relevant employment opportunities.

Program requirements vary from one academic department to another and include such considerations as year in school, grade point average, and academic courses completed. Students are generally eligible to participate after completion of their sophomore year, provided they have achieved a minimum grade point average of 2.0. Academic credit is generally offered for experiential education. The amount of credit students may earn varies from one department to another. The length and nature of the experience and other related academic assignments are considered in determining credit.

Experiential education offers you the opportunity to have a planned and supervised professional work experience in your chosen field. This is a very valuable asset as you seek permanent employment. To explore Experiential Educational opportunities you should first contact your academic adviser and your major department head. If you need additional experiential education information and help, contact the CAP Center.

VII. Employment/Placement Services

The CAP Center is the place to go for help with part-time, summer, intern or full-time employment seeking help and services. The staff at the Career and Academic Planning Center will assist you in preparing a resume, developing interview skills, improving your job hunting strategies, and in contacting employers.

You may call 688-4157 for further information or 688-5588 for a medical appointment.
Over 150 companies recruit on campus each year. In addition, the CAP Center annually receives between 6,000 and 8,000 job vacancy notices. These openings are published in a weekly job vacancy listing called “Job Notes.” Students may also establish a professional credentials file at the Career and Academic Planning Center. Finding the best employment opportunities takes time and effort. The CAP Center staff can help you spend your job search time wisely.

## Residential Life — Housing and Food Service

The Director of Residential Life administers programs and facilities for all on-campus housing and manages a contract between the University and a food service provider for all on-campus food services. Housing and Food Service staff members will assist you with questions regarding nearly any area of the University. Complete information and policies are printed in Residence Hall Information and Family Student Housing Information booklets distributed with contracts for on-campus housing. The Residential Life Office is located in Wecota 115. The telephone number is 605-688-5148.

**Residence Halls** — Residence Halls at SDSU are living/learning centers where students are challenged to develop as individuals, as well as to study and to meet other students. All unmarried students are required to enter into Residence Hall and Food Service contracts with the University. Students who have completed four semesters of full-time enrollment at an institution of post high school education or who are two or more years beyond graduation from high school are excused from these requirements. Release from the residency requirement must be requested in writing and postmarked on or before June 30 for Fall Semester or November 30 for Spring Semester in order to avoid a monetary penalty. University residence hall facilities rent for $648 - $1,306 per academic year. Usually, two students are assigned to each room. However, a limited number of students are assigned to triple rooms at a reduced cost, and some rooms are available for rent as single rooms, generally by students not required to live on campus. Students who do not reside in on-campus facilities may seek off-campus housing assistance from the personnel of the Student Association Off-Campus Housing Assistance Office. The Off-Campus Housing Assistance Office is located in USU 101. The telephone number is 605-688-5916.

**Residence Hall Advanced Payment** — The Residence Hall Application is activated when a $50 Advance Housing Payment (AHP) is received. However, a Residence Hall and Food Service contract is not offered until the applicant has been admitted to the University, and a hall and room assignment is not made until the contract has been signed and returned. The $50 AHP will appear as a credit on the student's final fee slip. Any person whose written request for release from the residency requirement is postmarked on or before June 30 for Fall Semester or November 30 for Spring Semester, who is released from the residency requirement, will have the $50 Advance Housing Payment refunded. Any person whose written notice of application or contract cancellation is postmarked on or before June 30 for Fall Semester or November 30 for Spring Semester will have the $50 Advance Housing Payment refunded. Any person whose application or contract is canceled at their request after these dates will be assessed a monetary penalty.

**Family Student Housing** — 80 unfurnished, one-bedroom apartments and 8 unfurnished, two-bedroom apartments are available for rent on campus. Rent for the one-bedroom apartments ranges from $154-$222 per month. Rent for the two-bedroom apartments is $262 per month. Each apartment includes a refrigerator, stove, and all utilities. Application to the University and at least one dependent are required before a student can be placed on a waiting list or be assigned. Contact Residential Life Office personnel for more information.

**Food Service** — The University Food Service is committed to providing a food service program at SDSU that is both economical and of the highest quality. SDSU's food service program utilizes a computer-based, declining cash balance system, uniquely designed to help students manage their individual food service accounts. Resident students select the meal program which best meets their particular eating needs and assume responsibility to plan their food purchases accordingly. Students may use their account at any campus dining facility during posted operation hours. Complete information about the food service program hours, costs, and discounts is printed in the University Food Service brochure distributed at registration. All SDSU students living in residence halls, except those students who are not required to live on campus but who reside in specified residence hall areas, are required to participate in University Food Service. Other students, faculty, and staff may voluntarily purchase a discounted food program at established rates either at registration or at the University Food Service office.

## Student Activities, Organizations and Government

Student involvement in campus organizations and self-government is extensive at SDSU. Complete details on campus organizations are available through the Department of Student Activities in the University Student Union.

## Student Code of Freedom and Responsibility

Academic institutions exist for the transmission of knowledge, the pursuit of truth, the development of students and the general support for the well-being of society. Free inquiry and expression are indispensable to the attainment of these goals. Freedom to teach and freedom to learn are inseparable facets of academic freedom. The freedom to learn depends upon appropriate opportunities and conditions in the classroom, on campus and in the community. You are expected to exercise this freedom with responsibility.

The Student Code, which appears in the Student Policies Manual, is the basic guideline reflecting university-student relations. The Code defines your behavior, your expectations and related university conduct and judicial procedures.

Complete details concerning disciplinary procedures and regulations pertaining to residence halls, parking and traffic, student organizations and activities will be found in the Student Policies Manual.

Copies of the manual are available at the President's office, each Dean's office, the Student Union, the Residence Halls, and the Student Affairs office.
ACADEMIC AND RESEARCH SUPPORT

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Computing Services .......................................................... 40
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Animal Disease Research and Diagnosis ............................ 40
McCrory Gardens ............................................................... 41
Museums/Collections ....................................................... 41
Engineering and Environmental Research Center ............... 41
Northern Great Plains Water Resources
  Research Center ............................................................. 41
Engineering Extension ...................................................... 41
Equipment service provides for classroom delivery, extended assignment and repair of most major kinds of audio visual equipment. The latest in technology including video, multi-image and computer projection are available.

The photo lab is a full service lab with in-house processing of all black and white services as well as production and processing of color slides. The photo lab processes slide films requiring E-6 processing and contracts for color print services.

The graphics section boasts the latest in computer graphics. High resolution slides and transparencies along with other graphics make this service one of the most complete in South Dakota.

Production services include video tape production and duplication in addition to traditional audio production services. Slide tape programs, multi-image, and other specialized production services are available.

The Learning Resource Laboratory, located in the Nursing-Home Economics Building, serves as an electronic instructional resource center. Audio and video programs made available by instructors are programmed for independent review by students.

The Rotunda for Arts and Science is a modern rear-projection classroom building. Audio visual materials are rear projected onto large glass screens. IMC personnel support users and operate a satellite support center in the Rotunda.

Telecommunications: SDSU operates a state-of-the-art two way interactive video telecommunications system. The system is used to deliver distance education opportunities to SDSU outreach centers.

**Hilton M. Briggs Library**

Library services and collections are housed in the spacious three-level Briggs Library, which is named for President Emeritus Hilton M. Briggs. Open 98 hours per week, the Library contains seating for more than 1,000 readers. The library collections contain more than 450,000 bound volumes, 375,000 government publications, and 500,000 items on microfilm, microfiche, or microcards in addition to newspapers, maps, and pamphlet materials.

More than 3,400 periodical titles are received currently. Photocopying equipment, microcomputers, typing rooms, and conference rooms are maintained for the use of students and faculty.

**Animal Disease Research and Diagnosis**

There is an Animal Disease Research and Diagnostic Laboratory (ADRDL) located on campus. The State provides a general fund appropriation for the research faculty and staff, and user fees pay for the balance of the laboratory's support. This laboratory provides knowledge and diagnostic assistance in the area of animal health, food safety, and public health to livestock industries for the benefit of all South Dakota citizens.
McCrorory Gardens

McCrorory Gardens is nationally recognized as one of the top ten small ornamental display gardens in the U.S. It is operated by the Department of Horticulture, Forestry, Landscape and Parks.

McCrorory Gardens has grown to its present stature primarily through donations by Friends of McCrorory Gardens and corporate donations. Primary goals are teaching, public education, and ornamental research. It is composed of a 20 acre public display area, and a 45 acre arboretum.

Museums/Collections

Several museums or unique collections are located on campus. The State Agricultural Heritage Museum is dedicated to the preservation, study and interpretation of objects relating to South Dakota agricultural history and heritage from 1860 to the present. The collection is housed in the old Stock Judging Pavilion which was placed on the National Register of Historic Places in 1978. The South Dakota Art Museum houses permanent collections of Harvey Dunn paintings, Oscar Howe paintings, Sioux tribal art and the complete collection of the world famous Marghab embroidered linens. It is one of only two museums in South Dakota accredited by the American Association of Museums. The College of Home Economics has a 2,300 item historic costume collection, unique because it is dominated by the clothing of everyday life, and a 150 piece Asian art collection.

Engineering and Environmental Research Center (EERC)

The EERC, established in 1986, exists to serve the University, citizens, and industry in South Dakota. Five complementary research and/or technology transfer programs make up the EERC. Thus, the knowledge gained from one program can often be used to support or strengthen another program. The five programs are: Engineering Experiment Station; Office of Remote Sensing; South Dakota Space Grant Consortium; Transportation Technology Transfer Service; and University/Industry Technology Service.

The EERC may undertake projects directly or use project teams composed of university faculty. These teams may be discipline-specific or interdisciplinary. The EERC has an on-line expertise database to identify potential faculty and industrial consultants. Another database contains information on the manufacturers and processors in South Dakota.

The Engineering Experiment Station (EES) is responsible for enhancing and coordinating research within the College of Engineering.

The Office of Remote Sensing (ORS) uses multispectral remote sensing to study the earth's surface, including resource mapping in South Dakota, the United States and several foreign countries.

The mission of the South Dakota Space Grant Consortium (SDSGC) is to develop South Dakota's aerospace technology and information needed to operate research and manufacturing infrastructure.

The South Dakota Transportation Technology Transfer Service (T3S) assists local governments with technology and information needed to operate their agencies.

The University/Industry Technology Service (UITS) links University resources to industry, business and government to solve technical problems and enhance economic development in South Dakota.

For information, contact LaDell R. Swiden, Acting Director, Engineering and Environmental Research Center, South Dakota State University, Box 2220, Brookings, SD 57007-2220.

Northern Great Plains Water Resources Research Center (NGPWRRC)

The Northern Great Plains Water Resources Research Center is a research center within the College of Engineering. The mission of the Center is to enhance the habitability and economic development of the Northern Great Plains through multidisciplinary research of the region's vast water and related land resources. The Center supports this mission through the conduct of engineering and related research on significant issues affecting water resources by focusing on various disciplines in higher education such as agriculture, health and social sciences, law, chemistry, and biology in partnership with engineering, to assure a critical mass of researchers working to foster multi-and interdisciplinary work on the conservation, development, management and use of water and related land resources.

Engineering Extension

The mission of Engineering Extension is to assist the private and public sectors of the state with their technical needs for the purpose of economic development. Three programs satisfy these needs: 1) Occupational safety and health surveys of the workplace for any South Dakota employers who request the service. 2) Training workshops and seminars to update skills regarding technical needs and to certify individuals who are required to work under specific government regulations, i.e., asbestos.

3) Technical assistance that provides "hands-on" expertise that will solve technical problems for small industries, government agencies and others through industrial/mechanical engineering technologies.
COLLEGES

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The academic program in the College of Agriculture and Biological Sciences is two-fold: One deals with the traditional field of agriculture and the other biological sciences. A core curriculum is available in each of these two broad fields of endeavor.

Agricultural work is divided into four areas — resident instruction, research, extension, and statewide services. Experiments and investigations for the benefit of agriculture are done in connection with problems of livestock, soils, field crops, veterinary science, horticultural crops, agricultural economics, plant pathology, rural sociology and mechanized agriculture. The results of research form the basis for classroom instruction, for extension work, and for a means of answering inquiries coming to the College. The Extension Service takes the work of instruction statewide by bringing results of research to every home.

Agriculture includes technical, professional, and business occupations dealing with producing, processing, and distributing farm products. The agricultural teachers, agricultural researchers, men and women who assist the farmer with their complex needs, farmers and ranchers themselves, processors of farm products, and retailers are all part of modern-day agriculture.

Work in biological sciences is mainly in the departments of Biology and Microbiology, Dairy, and Wildlife and Fisheries Sciences. One also must realize that biological science is an integral part of all departments that deal with plant and animal sciences. Many future biology teachers, wildlife biologists, plant and animal physiologists and geneticists will find the program in biological sciences a fruitful one to follow.

The biological sciences include all technical and professional occupations dealing with the basic fields of plant and animal life, collectively called biology. Such public agencies as high schools, colleges and universities, park services, fish and wildlife agencies, etc., are all demanding educated individuals capable of assuming responsible positions in society. All curricula lead to the Bachelor of Science degree.

Most students in the College of Agriculture and Biological Sciences will be required to take basic core courses. The greater share of these courses should be taken during the first and second years of college.

### Agricultural and Biological Science Curricula

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Curriculum</th>
<th>Department Administering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Business</td>
<td>Agriculture</td>
<td>Economics</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>Agriculture</td>
<td>Economics</td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>Agriculture</td>
<td>Director of Academic Programs</td>
</tr>
<tr>
<td>Agricultural Extension</td>
<td>Agriculture</td>
<td>Director of Academic Programs</td>
</tr>
<tr>
<td>Agricultural Journalism</td>
<td>Agriculture</td>
<td>Director of Academic Programs</td>
</tr>
<tr>
<td>Agronomy</td>
<td>Agriculture</td>
<td>Plant Science</td>
</tr>
<tr>
<td>Animal Science</td>
<td>Agriculture</td>
<td>Animal &amp; Range Sciences</td>
</tr>
<tr>
<td>Biology</td>
<td>Biological Science</td>
<td>Biology &amp; Microbiology</td>
</tr>
<tr>
<td>Botany</td>
<td>Biological Science</td>
<td>Biology &amp; Microbiology</td>
</tr>
<tr>
<td>Dairy Manufacturing</td>
<td>Agriculture</td>
<td>Dairy Science</td>
</tr>
<tr>
<td>Dairy Production</td>
<td>Agriculture</td>
<td>Dairy Science</td>
</tr>
<tr>
<td>Environmental Mgmt.</td>
<td>Biological Science</td>
<td>Biology &amp; Microbiology</td>
</tr>
<tr>
<td>General Agriculture</td>
<td>Agriculture</td>
<td>Director of Academic Programs</td>
</tr>
<tr>
<td>Horticulture</td>
<td>Agriculture</td>
<td>Horticulture, Forestry Landscape and Parks</td>
</tr>
<tr>
<td>Landscape Design</td>
<td>Agriculture</td>
<td>Horticulture, Forestry Landscape and Parks</td>
</tr>
<tr>
<td>Mechanized Agriculture</td>
<td>Agriculture</td>
<td>Ag Engineering</td>
</tr>
<tr>
<td>Microbiology</td>
<td>Agriculture</td>
<td>Biology &amp; Microbiology</td>
</tr>
<tr>
<td>Park Management</td>
<td>Agriculture</td>
<td>Horticulture, Forestry Landscape and Parks</td>
</tr>
<tr>
<td>Pre-Veterinary Science</td>
<td></td>
<td>Veterinary Science</td>
</tr>
<tr>
<td>Range Science</td>
<td>Agriculture</td>
<td>Animal &amp; Range Sciences</td>
</tr>
<tr>
<td>Rural Sociology</td>
<td>Agriculture</td>
<td>Rural Sociology</td>
</tr>
<tr>
<td>Wildlife &amp; Fisheries Sciences</td>
<td>Biological Science</td>
<td>Wildlife &amp; Fisheries Sciences</td>
</tr>
<tr>
<td>Zoology</td>
<td>Biological Science</td>
<td>Biology &amp; Microbiology</td>
</tr>
</tbody>
</table>
Freshmen may enter these curricula without specifying a major. You, however, should make your major and option choice by the last semester of the sophomore year. The purposes, objectives, and requirements of various majors and options are outlined in the discussions under the various departments. If at any time you desire a change in major and/or option, you should report to the director of academic programs for your adviser reassignment.

You must complete a minimum of 25 semester credit hours in courses numbered 300 or above to qualify for the B.S. degree. Mathematical Analysis 224-225 may be counted toward the total.

At the discretion of various departments a minimum of 24 semester credit hours shall constitute a major; 16 credits a minor.

The core curricula which follow include the over-all college and university requirements. You should make every effort to complete these requirements as early as possible in the four-year program.

Agriculture and Biological Sciences Curricula

Core Curriculum in Agriculture

Leading to the Bachelor of Science degree

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>2</td>
</tr>
<tr>
<td>Communications (total 11 cr)</td>
<td></td>
</tr>
<tr>
<td>Composition, Engl 101 &amp; 300</td>
<td>6</td>
</tr>
<tr>
<td>Fund. of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Communications elective*</td>
<td>2</td>
</tr>
<tr>
<td>Social Science (Total 9 cr.)</td>
<td></td>
</tr>
<tr>
<td>Intro. to Sociology, Soc 100</td>
<td>3</td>
</tr>
<tr>
<td>Macroeconomics Principles, Econ 201 or Microeconomics Principles, 202</td>
<td>3</td>
</tr>
<tr>
<td>Social Science Elective*</td>
<td>3</td>
</tr>
<tr>
<td>Humanities electives*</td>
<td></td>
</tr>
<tr>
<td>Science &amp; Mathematics (total 17 cr)**</td>
<td>4</td>
</tr>
<tr>
<td>Algebra, Math 112, or Algebra &amp; Trigonometry, Math 113</td>
<td>3 or 5</td>
</tr>
<tr>
<td>Introductory Physics, Phys 101 or Elementary Physics, Phys 111</td>
<td>4</td>
</tr>
<tr>
<td>Biological Science*</td>
<td>3</td>
</tr>
<tr>
<td>Science and/or Math electives§</td>
<td>1-3</td>
</tr>
<tr>
<td>Group 1 Courses in Ag (See list following)</td>
<td>12</td>
</tr>
<tr>
<td>Departmental and Option Requirements &amp; General electives</td>
<td>71</td>
</tr>
<tr>
<td>Total Hours for Graduation</td>
<td>128</td>
</tr>
</tbody>
</table>

*Communications elective to be selected from the following:
Technical Communication, Engl 303; Writing in the Sciences, Engl 307; Newswriting and Reporting, MCom 210; Publicity Methods, MCom 313; Magazine Writing and Production, MCom 315; Writing for Radio and Television, MCom 330; Radio and Television Production, MCom 331; Broadcast Programming, MCom 335; Interpersonal Communications, SpCm 201; Public Speaking, SpCm 315; Discussion, SpCm 334.
*See approved listing, page 26, 27.
**4 credits must be taken from approved sequential course listing.
§Most department curricula will have specific requirements in this area, but for those which do not, the courses should be selected from the fields of Biology, Botany, Chemistry, Entomology, Geology, Mathematics, Microbiology, Physics, Plant Pathology, Zoology and Wildlife and Fisheries Sciences (Ornithology, WL 363 and Ichthyology, WL 367). Courses in Group I which are of a basic nature, PS 305, PS 223, cannot be counted toward this requirement unless they are over and above the 12 credit minimum for Group I courses.

Group I Courses in Agriculture

A minimum of 12 credits from courses listed below must be selected and should be completed during the first two years. Some departments require all or specific courses, while others leave the selection entirely to the student and the adviser.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to Animal Science, AS 101</td>
<td>3</td>
</tr>
<tr>
<td>Animal Nutrition, AS 223</td>
<td>3</td>
</tr>
<tr>
<td>Meat: Production to Consumption, AS 241</td>
<td>3</td>
</tr>
<tr>
<td>Poultry Management, AS 366</td>
<td>3</td>
</tr>
<tr>
<td>Intro to Dairying, DS 130</td>
<td>3</td>
</tr>
<tr>
<td>Dairy Foods, DS 231</td>
<td>3</td>
</tr>
<tr>
<td>Farm &amp; Ranch Management, AgEc 271</td>
<td>3</td>
</tr>
<tr>
<td>Ag Marketing, AgEc 354</td>
<td>3</td>
</tr>
<tr>
<td>Gen Horticulture, Ho 111</td>
<td>3</td>
</tr>
<tr>
<td>Parks and Society, PR 101</td>
<td>3</td>
</tr>
<tr>
<td>Landscape Design, La 321</td>
<td>3</td>
</tr>
<tr>
<td>Ag Mechanics, MA 202 or</td>
<td></td>
</tr>
<tr>
<td>Farm Power &amp; Machinery, MA 213;</td>
<td></td>
</tr>
</tbody>
</table>

Electricity for Farm & Home, MA 242; or Soil & Water Mechanics, MA 333
Crop Production PS 103
Soils, PS 113
Plant Pathology, PS 223
Insect Pest Management, PS 307
or Hort. Insects, PS 295 or Gen. Entomology, PS 305
Introduction to Range Management, Rang 205
Environmental Conservation, WL 210

In addition to the basic program as outlined above, three options are possible under the core in Agriculture. These options are Business, Science, and Production.

Business Option

For students who plan to enter any of the business phases of agriculture, i.e., sales, administration, public relations, technical advances, etc. Those interested in farming or ranching may also consider this option since these activities are becoming significant business enterprises. Students selecting this option will complete the general requirements listed in the College Core for Agriculture plus the following requirements to complete their work for a Bachelor of Science degree. The more specific requirements are listed under the appropriate option in each departmental curriculum.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macroeconomics Principles, Econ 201</td>
<td>3</td>
</tr>
<tr>
<td>Microeconomics Principles, Econ 202</td>
<td>3</td>
</tr>
<tr>
<td>Prin. of Accounting I, Actg 210</td>
<td>3</td>
</tr>
<tr>
<td>Business Management, BAdm 360</td>
<td>3</td>
</tr>
<tr>
<td>Business electives*</td>
<td>12</td>
</tr>
</tbody>
</table>

The business electives must be chosen from the following courses: Principles of Accounting II, Actg 211; Personal Finance, BAdm 380; Business Finance, BAdm 310; Business Law I, BAdm 350; Business Law II, BAdm 351; Money and Banking, Econ 330; Marketing, Econ 353; Agricultural Marketing, AgEc 354; Marketing Management, Econ 412; Statistical Methods I, Stat 341.

Science Option

The student who desires a strong emphasis in the physical and biological sciences will be more able to cope satisfactorily with rapidly occurring scientific advances. This option will also place you in a good position to do graduate work in most agricultural fields. Students majoring in this option will complete the general requirements listed in the College Core in Agriculture plus the following additional requirements. The more specific requirements are listed under the appropriate option for each departmental curriculum.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics, Chem or Physics</td>
<td>15</td>
</tr>
<tr>
<td>Biological Science*§</td>
<td>9</td>
</tr>
</tbody>
</table>

These courses must be selected from at least 2 of the following areas: Biology, Botany, Entomology, Microbiology, Plant Pathology, Wildlife and Fisheries Sciences, and Zoology.

Production or Technical Option

For the student who desires a broad and more general education in agriculture. Those who plan to return to the
The General Agriculture curriculum is designed for the student undecided as to a major field of study within the area of agriculture and for the individual planning to return to the farm or ranch after college. A large number of free electives are available allowing you to search for a major or take courses in the different disciplines needed to manage a production unit. Two options are included in this curriculum: a two-year Associate of Arts degree and a four-year Bachelor of Science degree.

Curriculum in General Agriculture, Two-Year Degree Option

A two-year program is designed for the student who does not find it advisable or possible to enter a regular four-year college program. A typical student in this situation could be one who desires some education but not necessarily four years before returning to the farm or ranch. The core requirement is as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>2</td>
</tr>
<tr>
<td>Speech</td>
<td>3</td>
</tr>
<tr>
<td>Science and/or mathematics</td>
<td>6</td>
</tr>
<tr>
<td>Major field of concentration</td>
<td>16</td>
</tr>
<tr>
<td>General electives</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
</tr>
<tr>
<td>Graduation ratio</td>
<td>1.9</td>
</tr>
</tbody>
</table>

All major field of concentration courses must be from departments within the College of Agriculture and Biological Sciences and be related to agriculture. All courses in the major field of concentration need not be in one department, although this may be a possibility. Consult with your adviser in the selection of major field of concentration courses. These courses should relate to your career interests.

General electives may be selected from any area. Electives are offered so students may develop special talents or interests in General Agriculture. The choice of subjects is left to the student, providing the selections made are consistent with the academic standards of the University and of the College of Agriculture and Biological Sciences.

Students entering this program cannot transfer to a four-year degree program until they have satisfactorily completed 3 credits of English or Speech, 3 credits of Mathematics, 3 credits of Natural Science and 3 credits of Social Science with a GPA of 2.0. In addition, students not meeting the minimum high school course requirements for admission to a four-year baccalaureate program will be allowed to enter the baccalaureate program only after they have satisfied any deficiencies as outlined in Section II (Provisional Admission) under the Admission Requirements.

Curriculum in General Agriculture, Four-Year Degree Program

Consists of approximately one-fourth agriculture; one-fourth basic science;
one-fourth social science, communications, and humanities; and one-fourth elective subjects. When qualifying for a Bachelor of Science degree a student may, through a choice of electives, complete courses in business, prepare for graduate study, or enroll in special areas of study such as plant and/or animal science.

### Freshman Year

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr. Comp, Engl 101</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1</td>
</tr>
<tr>
<td>Intro Biology, Bio 151-153</td>
<td>3</td>
</tr>
<tr>
<td>Crop Production, PS 103</td>
<td>3</td>
</tr>
<tr>
<td>Algebra, Math 112 or Algebra &amp; Trigonometry, Math 113</td>
<td>3 or 5</td>
</tr>
<tr>
<td>Intro. to Animal Science, AS 101</td>
<td>3</td>
</tr>
<tr>
<td>Free electives (300 level or above)</td>
<td>6</td>
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### Sophomore Year

<table>
<thead>
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<th>Course Title</th>
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<tr>
<td>Gen. Chem, Chem 110 or 112</td>
<td>4</td>
</tr>
<tr>
<td>Farm &amp; Ranch Management, AgEc 271</td>
<td>3</td>
</tr>
<tr>
<td>Fund. of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Entomology elective (see PS)</td>
<td>3</td>
</tr>
<tr>
<td>Macroeconomics Principles, Econ 201</td>
<td>3</td>
</tr>
<tr>
<td>Soils, PS 113</td>
<td>3</td>
</tr>
<tr>
<td>Plant Pathology, PS 223</td>
<td>3</td>
</tr>
<tr>
<td>Free electives (300 level or above)</td>
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### Junior Year

<table>
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<th>Course Title</th>
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<tbody>
<tr>
<td>Advanced Comp, Engl 300</td>
<td>3</td>
</tr>
<tr>
<td>Animal Nutrition, AS 223</td>
<td>3</td>
</tr>
<tr>
<td>Elementary Organic Chem, Chem 120</td>
<td>4</td>
</tr>
<tr>
<td>Gen. Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>Intro. to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Social Science Elective*</td>
<td>3</td>
</tr>
<tr>
<td>Free electives (300 level or above)</td>
<td>6</td>
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</table>

### Senior Year

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Communications Elective†</td>
<td>2-3</td>
</tr>
<tr>
<td>Genetics, Bio 371</td>
<td>3</td>
</tr>
<tr>
<td>Intro. Physics, Phys 101 or Elementary Physics I</td>
<td>4</td>
</tr>
<tr>
<td>Phys 111</td>
<td>4</td>
</tr>
<tr>
<td>Humanities Elective*</td>
<td>3</td>
</tr>
<tr>
<td>Special elective†‡</td>
<td>3</td>
</tr>
<tr>
<td>Free electives (300 level or above)</td>
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</tbody>
</table>

*See approved listing.
†Communications Elective to be selected from the following: Engl 303, 307, MCom 210, 313, 315, 320, 331, 335; SpCm 201, 313, 334.
‡To be chosen from the fields of mathematics, statistics, computer science, accounting or business.

### 494, 495, 496* Cooperative Education/Internship/Field Experience Program

(May be repeated for credit.) A maximum of 12 credits is applicable toward the B.S. degrees in Agriculture and Biological Sciences. If you have the opportunity to become involved in off-campus activity which promises to contribute significantly to your education, you may enroll for and receive 1-12 credits at a maximum rate of 1 credit per week. You must obtain permission to register for such credits from the department in whose discipline and under whose supervision the project will be completed. The experience planned and method of evaluation of grading should be established by an instructor in consultation with you and under the general supervision of the department head. The project requires approval of the departmental faculty. Grades will be based on either the A-F or E, F system. Upon project termination, copies of the final examination, report or other evaluation is placed in your cumulative file in the dean’s office.

### Activities

Nationally known agricultural fraternities for men, Alpha Gamma Rho and Farmhouse, and for women, Ag and Sigma Delta, an agricultural honor society for seniors with high academic ability, also has an SDSU chapter.

The largest extracurricular activity involving students in the College of Agriculture and Biological Sciences, with participation open to all university students, is the Little International. A two-day function patterned after the International Livestock Exposition in Chicago, Little I is held each year during...
late winter or early spring. Much experience is gained by students in planning, producing, and managing this event.

Most departments in the College of Agriculture and Biological Sciences have one or more student organizations. You are encouraged to become involved with at least one of these organizations, especially that which is most closely associated with your major field.

**International Agriculture Option**

Leading to the B.S. in Agriculture or Biological Science

For those who plan to enter any of the various phases of international service that deal with agriculture. In some situations, this service could immediately follow the receipt of the B.S. degree; in other cases, further education in a specific professional area, that leads to a M.S. or a Ph.D. could also be advantageous.

Opportunities of an international nature could involve positions with the following agencies: Peace Corps, AID, World Bank, United Nations, Foreign Agricultural Service, and philanthropic organizations such as the Rockefeller and Ford Foundations. Those who plan to work for commercial companies in another country or those who plan to become agricultural missionaries could also benefit considerably from this option.

Two Years of same International Language........................................... 14
Required Electives* ........................................................................... 12
Group I Electives** ................................................................. 12
International Experience and Seminar*** .................................. 2

*From the following listed courses one course each must be selected from three of the following course areas: economics, geography, history, and political science. The remaining credits to make up the total of 12 may be chosen from any of the remaining courses in the listing.

Gen Anthropology, Anth 320; Cultural Anthropology, Anth 329; Individual & the Family, CDFR 141; Microeconomics Principles, Econ 202; Marketing, Econ 353; Comparative Econ Systems, Econ 405; Econ of the International Sector, Econ 440; Intro to Human Geography, Geog 200; Geography of Latin America, Geog 313; Geography of the USSR, Geog 314; Geography of Europe, Geog 315; Geography of Asia, Geog 316; Geography of Africa, Geog 317; World Crop & Soil Resources, Geog 433; History of Russia, Hist 345; History of Latin America, Hist 417-418; History of Latin America, Hist 417-418; History of Latin America, Hist 417-418; History of Latin America, Hist 417-418.

** The Group I Electives (ag) are presently included in all curricula leading to the B.S. degree in agriculture but under this option they would also be required for a degree leading to a B.S. in Biological Science.

*** A work experience or experience at a university in another country through international student exchange or other means. You may also participate in international travel/study courses or international travel tours with consent. Student should register for credit using the 494, 495, or 496 series in their major.
Arts & Science

The College of Arts and Science serves two significant functions within the university. It provides instruction in the university core requirement for a liberal education as well as training in specific disciplines.

A liberal education gives students the means to test ideas, beliefs, and facts. It exposes them to a variety of academic disciplines that will broaden and deepen their perspectives and enable them to continue the learning process as educated citizens. Students study the ways of thinking and expression that are intrinsic to the arts, humanities, social sciences, and natural sciences. Through this students are trained in the scientific method, critical thinking, analysis, synthesis, and cogent expression. They are helped to develop intellectual skills, humanistic understanding, and aesthetic appreciation. Such an education increases the usefulness of career planning and specialization by laying a foundation for lifelong values.

The fifteen departments in the College of Arts and Science offer major and/or minor programs leading to one of three undergraduate degrees. In addition, five departments in other colleges offer majors and/or minors in programs administered through the College of Arts and Science.

Programs

General Studies Degree. Students may pursue either the B.A. or B.S. degree outside the confines of a normal departmental major. This allows students to construct a program of advanced courses that meet their special needs. Permission to begin the program must be obtained from the General Studies Coordinator. All university and college graduation requirements must be met along with the specific program requirements developed by the adviser and student. Dr. Rodney Bell, Coordinator.

Elective Courses

Students in most majors are allowed to choose a substantial number of elective courses. In many cases students choose to take a second major or take courses in one or two minor areas. Students in the B.A. or B.S. in the College of Arts and Science have the option of enrolling in up to 12 credits of unpenalized electives. (See Unpenalized Electives in index.)

Secondary Education Courses

Students planning to teach high school should start taking professional education courses during their sophomore year. Students must apply for admission to the supervisor of student teaching before being admitted to the education sequence. (See College of Education and Counseling for further details.)

Cooperative Education, Field Experience and Internship Programs.

These programs allow students to work in various off-campus environments under supervised conditions and earn credit for their activity as long as the work contributes significantly to the students' educations. A maximum of 12 credits may be applied to degrees granted by the College of Arts and Science. Students must obtain permission to register for any credit from specific departments before registration and before starting the work.

Undergraduate Course Specials Program (1-5 credits) or Special Topics Courses. Many departments offer courses on topics of current interest. The duration, subject matter, amount of credit and mode of grading will be planned by the instructor under the general supervision of the head of the department.

The Directed Studies Program or Special Problems Courses. Independent study by a student with a professor may be arranged when a student's program requires such work. A maximum of 9 credits is applicable toward the B.A., B.M.E., and B.S. degrees granted by the College of Arts and Science. An individualized field program usually arises from a student's interest in a theme, a field of knowledge or a need to acquire a particular skill in which a faculty member is competent but which is not covered by the regular courses.

Preprofessional Curricula. (Dentistry, Law, Medicine, Theology, Optometry, Chiropractic, etc.) Nearly all professional schools require students to obtain a bachelor's degree before entering. Many programs in the College of Arts and Science are appropriate undergraduate major fields for these professional schools. Courses required by practically all such schools are available and every assistance is given to students to assure meeting the requirements of the professional school selected. National tests must often be taken during the junior or senior year for admission to professional schools. Staff in the College of General Registration can direct students to special advisers who give help in the selected area of study.

Activities

A variety of activities, including many extracurricular activities, are administered within the College of Arts and Science.

Most departments sponsor organizations open to students majoring in the department.

Dramatics and Forensics. The Speech Department supervises a forensics program in debate, extemporaneous speaking, oral interpretation and oratory. State University Theatre presents a program of major and experimental productions each year. During the summer a season of plays in repertory are given by the Prairie Repertory Theater in Madison and Brookings.

Music Groups. The Music Department sponsors a variety of vocal and instrumental groups. Membership is by audition, arranged with the appropriate director, and is open to all University students regardless of major. Credit is awarded for participation.

Choral: Concert choir, Statesmen (Men's Chorus) Pasquettes (Women's Chorus).

Instrumental: Civic/University Symphony Orchestra, Marching Band (The "Pride of the Dakotas"), Pep Bands, Symphonic Band, Concert Band, Jazz Ensembles and various Percussion, Woodwind & Brass small ensembles.

The Ritz Art Gallery. The Ritz Gallery sponsors an annual program of professional and student exhibitions, including the Juried Student Exhibition which is open to all SDSU students.

Intramural Recreation, Sports Clubs and Intercollegiate Athletics.

The Intramural Office in the Depart-
ment of Health, Physical Education, and Recreation sponsors 35 male, female, and coed intramural sports activities. The office also supervises nine sports clubs.

The University is a member of the North Central Intercollegiate Athletic Conference and Division II of the NCAA. Nine sports for women and ten sports for men are offered in the athletics program under the supervision of the Department of Health, Physical Education and Recreation.

### Arts and Science Curricula

<table>
<thead>
<tr>
<th>Major and Minor Fields</th>
<th>Options</th>
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<tr>
<td>Aerospace Studies Minor</td>
<td>(Air ROTC)</td>
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<tr>
<td>Biology and Microbiology Department</td>
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</tr>
<tr>
<td>Biology (B.S.)</td>
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<tr>
<td>Microbiology (B.S.)</td>
<td></td>
</tr>
<tr>
<td>General Chemistry (B.A., B.S.)</td>
<td>Applied Chemistry (B.S.) Teaching Option</td>
</tr>
<tr>
<td>Professional Chemistry (B.S.)</td>
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<tr>
<td>Food and Nutrition Chemistry (B.S.)</td>
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<tr>
<td>Clinical Laboratory (medical) Technology (B.S.)</td>
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<tr>
<td>Economics (B.A., B.S.)</td>
<td>Business Economics, General Economics, Teaching Option</td>
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<tr>
<td>English (B.A.)</td>
<td>English Education</td>
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<tr>
<td>European Area Studies Program</td>
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<tr>
<td>Foreign Languages Department</td>
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<td>French (B.S., B.A.)</td>
<td>Business Specialization, Teaching Option</td>
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<tr>
<td>German (B.S., B.A.)</td>
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<tr>
<td>Spanish (B.S., B.A.)</td>
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<td>General Studies Degree (B.A., B.S.)</td>
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<tr>
<td>Health, Physical Education and Recreation (B.A., B.S.)</td>
<td>Coaching Certification, Elementary Physical Education</td>
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<td>Physical Therapy (B.S.)</td>
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<tr>
<td>Concentration</td>
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<td>Public Recreation (B.A., B.S.)</td>
<td>Teaching Option</td>
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<tr>
<td>Athletic Training (B.S.)</td>
<td>Fitness-Wellness Option</td>
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<td>Dance Education Minor</td>
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<td>Health Education Minor</td>
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<td>Physical Education Minor</td>
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<td>History (B.A., B.S.)</td>
<td>Teaching Option</td>
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<td>Indian Area Studies Minor</td>
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<tr>
<th>Major and Minor Fields</th>
<th>Options</th>
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<tbody>
<tr>
<td>Journalism (B.A., B.S.)</td>
<td>Advertising, Broadcast Journalism, News-Editorial, Science and Technical Writing</td>
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<td>Journalism Department</td>
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<td>Printing-Education (B.S.)</td>
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<td>Printing-Journalism (B.S.)</td>
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<td>Printing-Management (B.S.)</td>
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<td>Latin American Area Studies</td>
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<td>Mathematics (B.A., B.S.)</td>
<td>Teaching Option</td>
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<td>Military Science Minor</td>
<td>(Army ROTC)</td>
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<td>Music (B.A., B.S.)</td>
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<td>Music Merchandising (B.S.)</td>
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<td>Science Teaching General</td>
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<td>Political Science (B.A., B.S.)</td>
<td>Teaching Pre-Law, Public Administration, Criminal Justice General</td>
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<td>Psychology (B.A., B.S.)</td>
<td>Applied Pre-Professional</td>
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<td>Psychological Services (B.A., B.S.)</td>
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<tr>
<td>Sociology (B.A., B.S.)</td>
<td>General Teaching Social Work, Human Services, Criminal Justice Personnel Services</td>
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<tr>
<td>Communication Studies and Theatre Department (B.A., B.S.)</td>
<td>General Speech Theatre, Speech Communication, Mass Communication, Communication Disorders Speech Education</td>
</tr>
<tr>
<td>Women's Studies Minor</td>
<td></td>
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College of Arts & Science Degree Requirements

General Degree Requirements
Below are listed the general requirements for each of the three degrees offered within the college.

Bachelor of Science Semester Degree Hours
Fr Comp, Engl 101 ................... 3
Advanced Comp, Engl 300 ........... 3
Fund of Speech, SpCm 101 .......... 3
Fitness & Lifetime Activities, PE 100, 2 semesters .................. 2
Mathematics Core Requirement 3
Humanities (from approved university list, p.26; from at least 2 disciplines; see requirement #5 below) ........... 9
Natural Science (from approved university list including two courses in sequence, list on p.27) ................ 6
Biological Sciences .................. 6
Physical Sciences .................... 8
Social Sciences (from approved university list, p.27); from at least 2 disciplines; see requirement #5 below) .......... 12

Bachelor of Arts Degree Semester Hours
Fr Comp, Engl 101 ................... 3
Advanced Comp, Engl 300 ........... 3
Fund of Speech, SpCm 101 .......... 3
Fitness & Lifetime Activities, PE 100, 2 semesters .................. 2
Mathematics Core Requirement 3
Foreign Languages* (in 1 language unless approved by head of Foreign Languages Department) ......... 14
Humanities (from approved university list p.26; from discipline other than a foreign language; see requirement #5 below) .......... 6
Natural Sciences (from approved university list including two courses in sequence, list on p.28) .................. 8
Social Sciences (from approved university list, p.28; from at least 2 disciplines; see requirement #5 below) .......... 12

Bachelor of Education Degree Hours
Fr Comp, Engl 101 ................... 3
Advanced Comp, Engl 300 ........... 3
Fund of Speech, SpCm 101 .......... 3
Fitness & Lifetime Activities, PE 100, 2 semesters .................. 2
Mathematics Core Requirement 3
Humanities (from approved university list p.26; 8 hours of Foreign Language recommended; 5 hours must be in discipline(s) other than music) .......... 11
Natural Science (from approved university list including two courses in sequence, list on p.28) .................. 8
Psychology 101 ...................... 3
History 368 or Anthropology 421 .......... 3
Social Sciences (from approved university list, p.28) .......... 3

Additional Requirements

All general university requirements must be met to qualify for the bachelor's degrees in the College of Arts and Science. In addition, the following special requirements and rules have been established for all graduates of the College of Arts and Science:

(1) The requirements of one of the College of Arts and Science departmental majors must be met. Specific requirements are listed under each department. Courses taken in the major subject may be used to fulfill university core requirements if the department allows it.

(2) 40 semester credits of the 128 total required for graduation must be upper division (300 and above) credits.

(3) Six credits must be taken in the area of International Studies. These courses may duplicate humanities or social science core courses. The list of courses that count toward the International Studies requirement are listed below.

(4) General examinations during the freshman, sophomore and/or senior year and an exit examination in a student's major field are required for graduation.

(5) For 3 credits in both the humanities and social sciences in the B.A. and B.S. degrees in the College of Arts and Science students may take courses listed in the university core (pp.25-26) or any courses not listed in the university core in the following Arts and Science Core listing. Humanities: Any course in the following departments: Art, Music, English (except Engl 303), Philosophy and Religion, or courses prefixed with Theater (in Communication Studies and Theatre) or Dance (in HPER). Foreign Language may be used to fulfill the Humanities requirement in the B.S. degree. Social Sciences: Any course in the following departments: Psychology, Geography, History and Political Science. (6) No more than 6 credits in one discipline may be counted toward the humanities or social science core requirements for any College of Arts and Science degree.

(7) The curriculum printed in the catalog at the time a student enrolls in the college will normally, but not always, be the curriculum required for graduation. Upon recommendation of the dean and the department head, students may be required to change their major if the quality of work is considered unsatisfactory. Less than a "C" average in courses in the major will be regarded as unsatisfactory unless departments have established another standard.

(9) Transfer students should note that the College of Arts and Science does not accept transfer grades of "D" or less from other institutions, for credit.

The following courses fulfill the International Studies Requirement (3)

Students may fulfill their university core and international studies requirements with the same course. Courses marked with an asterisk (*) are also part of the university core as listed on pages 25-26.

International Studies/Humanities
Art History
100* Art and Design Appreciation
211* Survey of Art and Architecture
212* Western Traditions in Art and Architecture
412* Studies in Modern or Contemporary Art and Design

Dance
132* International Folk Dance

English
213* World Literature Through the Renaissance
215* Modern World Literature
321* 322* English Literature

European Studies
300* Topics in European Culture

Foreign Languages
134* Foreign Cultures
All other courses except FL 420
French
101*, 102*, 201*, 202*
All other courses
German
101*, 102*, 201*, 202*
All other courses

50 College of Arts and Science
<table>
<thead>
<tr>
<th>Department</th>
<th>Courses</th>
</tr>
</thead>
</table>
| **Spanish**                                    | 101*, 102*, 201*, 202*  
All other courses                                        |
| **Russian**                                    | 101, 102, 201, 202  
All other courses                                        |
| **Japanese**                                   | All courses  
All other courses                                        |
| **Chinese**                                    | All courses                                                        |
| **History**                                   | 121*-122* History of Western Civilization  
322* Ancient History  
Latin American Area Studies  
301* Latin American Cultures  
401 Directed Studies in Latin American Cultures |
| **Music**                                      | 230* Music History and Literature III  
231* Music History and Literature IV |
| **Philosophy**                                 | 312* Great Ideas of the Western World  
423 Political Philosophy  
424 Modern Political Theory |
| **Religion**                                   | 338* World Religions                                                  |
| **Anthropology**                               | 320* Cultural Anthropology                                             |
| **Economics**                                  | 405 Comparative Economic Systems                                      |
| **European Studies**                           | 301* Topics in European Society                                       |
| **Geography**                                  | 200* Introduction to Human Geography                                  |
| **History**                                    | 210* World Regional Geography                                         |
| **Economics**                                  | 313 Geography of Latin America                                         |
| **Geography**                                  | 314 Geography of USSR                                                  |
| **Philosophy**                                 | 315 Geography of Europe                                                |
| **Religion**                                   | 316 Geography of Asia                                                  |
| **History**                                    | 317 Geography of Africa                                                |
| **International Studies/Social Sciences**      | 310 Topics in Latin American History                                   |
| **Anthropology**                               | 325 Medieval History                                                   |
| **Economics**                                  | 326 Renaissance & Reformation                                           |
| **European Studies**                           | 327 Early Modern Europe                                                |
| **Geography**                                  | 330 Topics in European History                                         |
| **History**                                    | 342 English History                                                    |
| **Political Science**                          | 345 History of Russia                                                  |
| **Anthropology**                               | 417-418 History of Latin America                                       |
| **Economics**                                  | 421-422 Contemporary European History                                 |
| **Philosophy**                                 | 447 Modern Germany                                                    |
| **Religion**                                   |                                                                         |
| **History**                                    |                                                                         |
College of Education and Counseling


There are special graduate programs for those who wish to prepare for counseling in schools, agencies, and student personnel for teaching and for school administration.

SDSU has been appointed for vocational agriculture teacher training by the State Board of Education. The office administers vocational education under the provisions of the Vocational Education Amendments of 1976, providing federal aid for such work.

Governance of Teacher Education

The Dean of the College of Education and Counseling is responsible to the Vice President for Academic Affairs for the general administration and coordination of the teacher education program. In this governance, the Dean is assisted by the Teacher Education Faculty which consists of all SDSU faculty who teach professional education courses.

Accreditation

The college is accredited by the National Council for Accreditation of Teacher Education. NCATE is an independent, autonomous, voluntary accreditor of teacher education programs. The most recent accreditation by this agency was 1985. Also, the college has been approved by the South Dakota Division of Education. The last visit of the state agency and the granting of approval occurred during the spring of 1989.

Objectives

The objectives for the college are to:
1. Prepare students to teach in secondary schools.
2. Provide for the continuing growth of teachers, school administrators, and other school service personnel through summer school sessions and extension courses.
3. Provide course work at the graduate level especially designed for school administrators, counselors, classroom teachers, specialized school workers, and related occupations.
4. Cooperate with the South Dakota Division of Education in public school curriculum revision, in-service education, and educational research.
5. Cooperate with professional education and counseling organizations in advancing the welfare of education and counseling in the state.
6. Organize and conduct conferences and workshops for the improvement of education and counseling in South Dakota.
7. Provide consultant services to schools and agencies of the state.

Organizations and Honor Societies

The students in the various education programs are encouraged to be active members of their professional organizations.

- Alpha Tau Alpha: An honor society in Ag Education. Requirements for membership are 3.0 GPA and at least sophomore level.
- Agricultural Education Club: To develop an interest in agricultural teaching. Open to all students in Ag Education.
- Collegiate Future Farmers of America: Open to former members of high school FFA Chapters and others interested in maintaining FFA affiliation.
- Kappa Delta Pi: An honor society that recognizes outstanding contributions to education. Members must be at least junior level with a 3.0 GPA.
- Student National Education Association: To develop an appreciation of education and stimulate student interest in education. Membership is open to all students in education.
- Phi Delta Kappa: An international professional organization dedicated to quality research, service, and leadership in education. Membership is open to persons engaged in the field of education and graduate students in education.

Preparation for Teaching

You should have personal attributes and interpersonal skills appropriate for working with people. It is also essential that you have an adequate general education background, usually attained in the first two years of college, along with a specialized background gained through at least one major and one minor area of study.

You should major in the subject you expect to teach and you must complete prescribed courses needed for certification.

The South Dakota Division of Education, in issuing the teacher certificate, reviews subject matter background and professional education courses taken by the candidate.

Teaching majors and minors are generally chosen from college majors and minors. The required education and psychology courses do not count as credits in the major or minor but are requirements for the teaching certificate. Because of the nature of the work of the high school curriculum in small and medium sized high schools, a more general preparation of teachers seems desirable. Since teachers may expect to teach in more than one area of specialization, majors, along with the major, can enhance their preparation.

For example, in science, teachers should plan their preparation for all typical subjects taught in science in secondary schools, rather than in just one specific science area in science. In social studies, teachers should plan their preparations for various areas in social studies rather than just one special area such as history or sociology. It is also advisable for teachers to acquire expertise in directing one or several extra-class activities.

Admission to Teacher Education

If you desire admission into professional courses in education for the purpose of earning a teaching certificate you must fulfill the following requirements:
1. Demonstrate proficiency in speaking, writing, reading, and mathematics.
2. Possess an overall GPA of 2.5.
3. Successfully complete the two courses in Professional Semes...
Admission to Professional Semester III: Student-teaching:

You should plan to complete Professional Semester III during the first or second semester of the senior year. You should contact the appropriate Supervisor of Clinical Experiences during the junior year to make arrangements for placement in a school for student teaching.

Teaching Minors for Students in Teacher Education

Frequently students in the teacher education program complete a combination of courses that constitute a minor. These would be courses not included in a student's major. For detailed information consult with the Dean of the College of Education and Counseling who is the minor adviser. These minors are listed below:

Social Science Minor
The minimum requirements for a Social Science Minor at South Dakota State University are 24 credit hours. The student must have an emphasis in two of the three following subject areas:
- U.S. History - Hist. 151, 152, electives
- American Government - PolS 100, 102, 210
- Geography - Geog 200, 210, elective

A student may choose the remaining 8 credits from one of the following subject areas or the remaining third area from above:
- Economics - Econ 201, 202, elective
- Psychology - Psyc 202, 262, elective
- Sociology - Soc 150, 301, 310
- History of Western Civilization - Hist 121, 122, elective

Language Arts Minor
Fr & Advanced Comp, Engl 101, & 300 electives
English electives
Fund of Speech, SpCm 101
Speech electives
Newswriting & Reporting, MCom 210
Journalism electives

General Science Minor*
Biology, Bio 151, & 153...................... 6
Intro Physics, Phys 101 & 103 or 111 & 113........................................ 7
Gen Chem, Chem 110 & 120 or 112 & 114........................................ 7
Electives........................................ 4
Any physical geography course
Intro Entomology, PS 105
Anatomy, Zool 221
Plant Kingdom, Bot 201
Environmental Conservation, WL 363
Climatology and Meteorology, AE 353
Geology, PS 243
Intro Oceanography, Bio 353

Biological Science Minor*
Biology, Bio 151-153........................... 6
Genetics, Bio 371.............................. 3
Prin of Ecology, Bio 211........................ 3
Cell Biology, Bio 343........................... 3
Electives in Botany, Zoology, Biology, Microbiology, or Wildlife........ 9

Physical Science Minor*
Elem Physics I-II, Phys 111-113............. 8
Atomic Physics, Phys 331........................ 3
Chemistry, Chem 112, 114..................... 8
Elem Organic Chem, Chem 120............ 4
Physics elective......................................................... 1

*Strategies in Science Teaching, ScEd 416 - strongly recommended as an elective for all science teaching minors.

To be qualified for student teaching, you must meet the following qualifications:
1. Possess a 2.5 overall GPA.
2. Possess a 2.6 overall GPA in the major area of study.
3. Possess a 2.6 GPA in professional education courses.
4. Have demonstrated competencies in speaking, writing, reading, and mathematics.
5. Be recommended by the department in which you are majoring.

The Admission and Scholastic Standards Committee will respond to requests for waiver of admission requirements.

Exit Standards:
To be eligible for recommendation for certification, upon graduation, you must meet the following criteria.
1. Possess a 2.5 overall GPA.
2. Possess a 2.6 overall GPA in the major area of study.
3. Possess a 2.6 GPA in professional education courses.
4. Complete student-teaching with a satisfactory grade and a satisfactory recommendation.
5. Complete the departmental exit exam.

Curricula for Teachers of Special Areas
The curricula for special groups such as Agricultural Education, Consumer Affairs and Home Economics Education, and Physical Education are found elsewhere in this bulletin (see index).
# Education Curriculum for Teachers of Academic Subjects

Professor Steinley, Head, Undergraduate Teacher Education

## Professional Semester I (Sophomore or Junior Year) F S

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Gen Psychology, Psyc</em></td>
<td>3 or 3</td>
</tr>
<tr>
<td>Practicum &amp; Professional Laboratory Experiences, SeEd 287</td>
<td>2 or 2</td>
</tr>
<tr>
<td><strong>Human Relations</strong></td>
<td>3 or 3</td>
</tr>
</tbody>
</table>

## Professional Semester II (Junior or Senior Year) F S

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers in Teaching, EdFn 385</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Ed Psychology, EPsy 302</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Teaching Special Needs Students, EdFn 370</td>
<td>1 or 1</td>
</tr>
<tr>
<td>The Teaching of Reading, SeEd 450</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Supervised Clinical/Field Experience, SeEd 314</td>
<td>1 or 1</td>
</tr>
<tr>
<td>History of American Indians, Hist 368 or Indians of North America, Anth 421</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Special Methods (depending on student's major)</td>
<td></td>
</tr>
<tr>
<td>Elective: The Exceptional Child, EPsy 303</td>
<td>3</td>
</tr>
</tbody>
</table>

## Professional Semester III (Senior Year) F S

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First part of the Semester: Methods of Teaching in Sec Schools, SeEd 400</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Classroom Management and Discipline, SeEd 410</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Second Half of Semester: Supervised Student Teaching in Sec Schools, SeEd 488</td>
<td>10 or 10</td>
</tr>
</tbody>
</table>

*Psyc 101 or Soc 100 is a prerequisite to education courses but does not count as education credit for the teaching certificate. In order to complete the Education Curriculum as outlined above, the prospective teacher should take Psyc 101 in the freshman or sophomore year.*

**Course is being developed; check with department for course number.
Engineering

The College of Engineering offers a variety of courses with a faculty characterized by high academic attainment and significant accomplishments in engineering practice. Undergraduate professional programs are offered leading to baccalaureate degrees in Agricultural Engineering, Civil Engineering, Electrical Engineering, and Mechanical Engineering. Undergraduate programs are also offered leading to the baccalaureate degree in Technology, in Computer Science and in Engineering Physics. In addition to the undergraduate degree programs, course selections are available from the broad offering of undergraduate courses in engineering specialization. The professional programs in engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). Through General Engineering, courses of application to all of the professional disciplines are offered. These include engineering graphics, engineering shops, mechanics, and engineering economics. Computer aided design and computer aided manufacturing instruction are also offered in General Engineering.

The Bachelor of Science degree in Technology is a program administered by the General Engineering department. In this program, you may choose to major in Electronic Engineering Technology.

A high technology emphasis is provided through the Bachelor of Science degree program in Engineering Physics. This program offers a practical engineering oriented approach for the application of physics principles to high technology problems and provides options related to an electrical or mechanical engineering emphasis.

Computer Science is a Bachelor of Science degree program open to a limited number of students with a grade point average of 2.75 or better. This program also offers a minor in Computer Science for qualified students.

Goals for Engineering

The engineering program endeavors to develop the ability to apply logical thought and rational actions to the identification, description, and solution of problems. If you are a mature student who aspires to contribute to the solution of society's problems, you are invited to consider the wide range of the engineering and technology programs.

Opportunities in Engineering

Engineering efforts of ever increasing magnitude will be required if our society is to continue to support a growing population. Thus, the demand for engineers and technologists will grow in a number of challenging areas.

The search will continue for energy conversion processes that meet the requirements of little pollution, high efficiency, and low price. The elimination of waste contamination of land, air and water is a major materials handling and processing problem that will challenge the best engineers.

The ever-growing needs for better forms of housing, transportation, communications, health care, and community planning are engineering problems of immense proportions.

International competition has come to challenge the technical leadership of the United States. It is the responsibility of engineers and technologists to face the challenges in creativity and management that will serve as an example to the rest of the world.

Technologists are in demand as the operations supervisors, the quality control specialists, planners, and ultimately as the factory managers, technical sales persons and the process controllers.

The many needs of engineering in the research, development and production and sales facets of the commercial market are relatively unchanging. Graduate study in engineering is essential as the technical problems that we face become more complex. Opportunities have long existed for engineers with advanced degrees.

The many needs of engineering in the research, development and production and sales facets of the commercial market are relatively unchanging. Graduate study in engineering is essential as the technical problems that we face become more complex. Opportunities have long existed for engineers with advanced degrees.

The Master of Science in Industrial Management is a graduate program of appeal to both engineers and technologists.* New opportunities grow as graduate schools of business, medicine, and law discover that their better students often have engineering baccalaureate degrees.

Good engineering students are actively recruited by these other professional schools.

Please refer to General Engineering for specific details on this program.

Preparing for the Engineering Curricula

Engineering achievement rests heavily upon a foundation of mathematics and science. Furthermore, the successful practice of engineering demands, as a primary requisite, the ability to communicate facts and ideas. The engineer must comprehend and present ideas with precision and clarity. The prospective engineering student should, therefore, prepare by the proper selection of courses in junior high and senior high school. It is desirable that you present high school credits as follows: four years of English, one year of graphics (mechanical drawing, etc.), one year of physics, one year of chemistry, and four years of mathematics including two years of algebra, one year of geometry and one-half year of trigonometry. If you do not have these courses you may still enroll in the College of Engineering, but you should recognize that it may lengthen the duration of your program. (See admission requirements of the University).

Admission

You may be admitted to the programs in the College of Engineering upon meeting the admission requirements established by the University and the College of Engineering. You may identify the program of your choice so that your faculty adviser will be selected from that department; or, if you are undecided, you may simply enroll in General Engineering. Transfers between departments in the College of Engineering can be accomplished easily by consulting with your adviser.

Vocational technical school graduates can apply for admission to the Technology program or other programs. Evaluation of your vo/tech transcript may result in substantial allowance of college credit applicable to the Bachelor of Science in Technology degree.

If you are enrolled in military science courses as a cadet in the US Army or US Air Force ROTC programs, you should plan to extend your undergraduate program to four and one-half years (nine semesters). ROTC courses can be accepted for substitution for specific course requirements with Dean's permission. Enrollment in the SORD Honors Program would justify a further extension to a full five-year (10 semester) program.

Transfer Students

The College of Engineering welcomes students who transfer from other accredited colleges or universities. In some cases there are questions about equivalency of courses, and in such cases an inquiry to the Office of the Dean of Engineering is welcome. Prospective transfer students should note that there are certain engineering courses in the
sophomore year that may not be available at another institution, and that in some cases it is desirable to transfer before the completion of the sophomore year to avoid extending the time necessary to complete the degree.

If you are planning to transfer to or from SDSU you should realize that credits do not automatically transfer. Each university has its own requirements. South Dakota State University is free to apply these requirements in accepting transfer credits within Regental policy. Students transferring into a department in the College of Engineering from another college on this campus or another University must have a cumulative GPA of 2.0 or greater and permission of the department head.

No department will accept transfer credits toward any degrees if the grade received at your previous institution was lower than a C, even though these grades are counted in your GPA to determine admission to SDSU and are entered on your transcript. Each department will decide at the time credits are transferred, whether or not a course taken at any other institution is equivalent in content and difficulty, and whether or not it should be accepted. As an SDSU engineering student planning to take courses at another institution, for subsequent transfer here, you should consult with the appropriate department head at SDSU to determine if those courses will be accepted.

SDSU requires the completion of at least 32 credit hours in residence to receive a degree. Also, a minimum of 20 of these credits must be in junior-and-senior-level (300 and 400) courses taken immediately preceding the awarding of the degree. The College of Engineering further specifies that these 20 credits must be taken in the engineering department at SDSU from which you expect to receive your degree.

Approved Humanities and Social Science Electives
As an Engineering Student you must satisfy the Regental core requirements of the University and the more rigorous requirements of EAC/ABET for depth in the Humanities and Social Sciences. Your chosen department will provide you with an approved list of courses. Refer to the section on Academic requirements in this catalog for details.

Activities
As an Engineering student you are encouraged to participate in activities of the student chapters of the various engineering societies and in the professional society activity of the National Society of Professional Engineers and the South Dakota Engineering Society.
General Registration

Students enrolling in the College of General Registration have elected to explore their abilities, interests and educational alternatives before declaring a major. SDSU offers more than 200 majors, minors and options and through General Registration and the Career and Academic Planning Center, assistance is provided to help you make a wise major/career choice. The College of General Registration does not offer a degree program, it is designed for undeclared pre-majors, pre-professional students and those who simply want to take a variety of courses. By the time a student reaches junior class status, he/she should be enrolled in one of the degree granting colleges.

Pre-Majors

General Registration allows you to begin college work without declaring a major. If you enroll under this classification you are assisted in planning a basic college program and are encouraged to explore various fields of study. Professional advisers in the Career and Academic Planning Center and specially designated faculty advisers help you explore your interests, aptitudes and abilities.

Proposed freshman year schedules follow. These are suggested programs only. You would work with your academic adviser to plan a program to meet your own interests and needs. Normally, your interests are reflected in the choice between social science- oriented programs and science-oriented programs, and the elective courses you choose.

Pre-Professional

SDSU is accredited by the North Central Association of Colleges and Schools; transfer credits are generally accepted by all professional schools if satisfactory grades are maintained and courses meet appropriate program requirements.

If you wish to qualify for admission to the professional schools of medicine, dentistry, optometry, law or others that require pre-professional education, you would ordinarily start in the College of General Registration. While enrolled in General Registration, students are able to consider various majors, either as possibilities for later degree objectives or as a back-up major choice in event plans to pursue professional school admission should be altered. At the time a student decides to pursue a major/degree at SDSU (usually before the Junior year), the student should transfer to that college/major by completing a Change of Additional Major (CAM) form. At that time the pre-professional "major" and adviser will be shifted to the student's second major and the new major/degree sought and adviser will be listed as the first major and adviser.

General Registration students should maintain at least a "C" grade average in freshman and sophomore subjects. This is important in gaining admittance to a degree granting college. Students are permitted to enroll in the College of General Registration for not more than two academic years.

Suggested Social Science Oriented Undeclared Major Program

Freshman Year
- Fr Comp, Engl 101, and Fund of Speech, SpCm 101
- Biological or Physical Science
- Social Sciences
- Fitness & Lifetime Activities
- Academic and Career Exploration, CHRD 101

Suggested Science Oriented Undeclared Major Program

Freshman Year F S
- Fr Comp, Engl 101 and Fund of Speech, SpCm 101
- Mathematics, Math 113, Algebra & Trigonometry, or Math 123, Mathematical Analysis
- Fitness & Lifetime Activities, PE 100
- Chemistry, 112-114
- Academic and Career Exploration, CHRD 101

Career Exploration and Interest Area Courses

Pre-Veterinary
Adviser — Dennis Nelson

The Pre-Veterinary program is administered in the College of Agriculture and Biological Sciences. Students interested in Pre-Veterinary are assigned academic advisers from the Department of Veterinary Science. A suggested curriculum for this program is outlined under the Veterinary Science department of the catalog.

Pre-Veterinary
Adviser — Dr. James O. Pedersen

Candidates for admission to chiropractic colleges accredited by the Council on Chiropractic Education are required to have a thorough grounding in the basic sciences — biology, chemistry, physics.

James O. Pedersen, Dean
Box 511
Brookings, SD 57007-1298
as well as a general education in the humanities and social sciences.

You must complete at least 60 undergraduate credits to be considered for admission to chiropractic colleges. Approximately half of these accepted have baccalaureate degrees. Pre-professional training and academic standing of the applicants must meet the standards of the school selected.

A suggested curriculum includes:

**Freshman Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Comp, Engr 101 and Fund of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Gen Chem, Chem 112-114</td>
<td>4</td>
</tr>
<tr>
<td>Algebra, Math 112 and Plane Trig, Math 120; or Algebra and Math 113 and Math Analys I, Math 123</td>
<td>3-5</td>
</tr>
<tr>
<td>Social Science and Humanities</td>
<td>6</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1</td>
</tr>
</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Organic Chemistry, Chem 326-328</td>
<td>4</td>
</tr>
<tr>
<td>Intro Biology, Bio 151-15</td>
<td>3</td>
</tr>
<tr>
<td>General Psychology, Psych 101</td>
<td>3</td>
</tr>
<tr>
<td>Elementary Physics, Phys 111-113</td>
<td>4</td>
</tr>
<tr>
<td>Electives*</td>
<td>2-3</td>
</tr>
</tbody>
</table>

*Course requirements for your major and chiropractic college of your choice.* Complete junior composition, Engr 300, in the sophomore year if you plan to apply to chiropractic colleges after completing 60 credits. Other course recommendations for electives or for the junior and senior year include: Bio 243 Call Biology, Bio 271 Genetics, or Bio 271 Heredity and Society, Zool 201 Anatomy, Zool 202 Mammalian Physiology, Zol 457 Comparative Vertebrate Anatomy, SpCm 201 Interpersonal Communication; Actg 210 Principles of Accounting I, NFS 201 Human Nutrition; and additional courses in chemistry. A course in vertebrate anatomy is also highly recommended.

**Pre-Dental Adviser** — Dr. William Jensen

Candidates for admission to dental schools usually have a rigorous undergraduate preparation. Subjects developing scientific curiosity and knowledge, such as chemistry, physics, biology, and mathematics should be taken, as well as those that develop understanding of human relations and general social awareness. The Handbook of Admission Requirements of American Dental Schools states:

"Because the dentist works and lives harmoniously with his colleagues and the public, courses which develop perception, discipline and sound judgment, as well as those of scientific nature, are essential at an early stage of education."

Dental schools in the U.S. require three years of college education, and most prefer baccalaureate degree candidates. The Council on Dental Education supports the trend in admission policies which encourages the acquisition of a baccalaureate degree prior to dental school enrollment.

There are basic pre-dental education subjects that must be completed prior to gaining admission to a dental school. Since dental schools vary as to the required pre-dental education subjects, it is recommended that the pre-dental student consult two or three dental college catalogs to determine specific requirements. Many dental school catalogs are available in The Career and Academic Planning Center. If you specify a pre-dental program choice you will be assigned to a pre-dental adviser who will help secure additional information on the requirements for admission to a dental school of your choice.

Admission to dental college is selective. You should prepare to meet the requirements of two or three colleges of your choice. Above average grades are required in pre-dental courses. Students who fail to maintain a B average should be prepared to make alternate career choices.

Requirements for admission to all accredited schools of dentistry include credit for one full year of English, biology, physics, general chemistry, and organic chemistry. These are minimum basic requirements.

The outlined program for pre-dental students is intended to serve as a guideline to meet the requirements of most of the dental colleges in the U.S. Variations in the program may be arranged with the pre-dental adviser to meet the requirements of a particular school of the student's choice.

**Freshman Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Freshman Comp, Engr 101 and Fund of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Gen Chem, Chem 112-114</td>
<td>4</td>
</tr>
<tr>
<td>Algebra, Math 112, &amp; Plane Trig, Math 120; or Algebra and Math 113, &amp; Math Analys I, Math 123</td>
<td>3-5</td>
</tr>
<tr>
<td>Social Science electives</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1</td>
</tr>
<tr>
<td>Humanities Electives</td>
<td>3 or 3</td>
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</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Chemistry, Organic Chemistry, Chem 326-328</td>
<td>4</td>
</tr>
<tr>
<td>Intro Biology, Bio 151-15</td>
<td>4</td>
</tr>
<tr>
<td>Psychology, Psych 101 Gen Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Physics, Phys 111-113 Elemtary Physics, I and II</td>
<td>4</td>
</tr>
<tr>
<td>Electives*</td>
<td>2-3</td>
</tr>
</tbody>
</table>

**Junior Year and/or Senior Year**

Plan courses according to your SDSU College and major requirements and the dental college catalog of your choice. Enroll in English 300 in Junior year to complete English requirements.

**Pre-Law Adviser** — Dr. Robert Burns

The pre-law student should be involved in an undergraduate program which is intellectually challenging and which requires rigorous academic discipline. SDSU not only has a long tradition of academic excellence, but it also offers you rich and varied social, recreational, and extra curricular opportunities.

No specific subjects are prescribed for law school admission. You may select any undergraduate major available at SDSU. Law schools welcome and encourage a variety of educational backgrounds among their students. Breadth and intellectual maturity are more important than particular subject matter. However, law schools do recommend that the pre-law curriculum be carefully selected.

The formal academic training for law includes, with few exceptions, four years as an undergraduate leading to a bachelor's degree and three years in law school. Entering students who are undecided as to major choice and desire to prepare for law school may enroll in the College of General Registration. If you enroll under this classification you are assisted by a Pre-Law adviser in planning your courses of study. Entering students who have chosen a major and desire to prepare for law school enroll in the college at SDSU that offers this particular major. They may request pre-law as an emphasis and be assigned to a pre-law adviser who will assist them in planning course schedules.

A reasonable exposure to such subjects as political science, history, literature, English composition, economics, sociology, and philosophy will provide a broad background for the full appreciation of the law. An important skill in law school is writing ability so undergraduate courses that develop this skill should be stressed. Electives such as drama and theatre arts, debate, creative writing, and speech can help in sharpening those skills needed by a member of the legal profession. Finally, the discipline used in the study of science will help prepare the student for the rigors of the law curriculum. Moreover, a basic knowledge of the physical and biological sciences will often help in the cases the lawyer pleads. Many law schools expect the student to have completed at least one accounting course.

The attorney must be a well-rounded individual with knowledge in more than law. Understanding the basic psychology of people and the philosophy behind the law, and to use the logic necessary to present a case are important.

All law schools require the Law School Admissions Test and pre-law students take it during the undergraduate senior year. It is a nationwide, half-day test of general aptitude for undertaking law studies and for writing ability. The Pre-Law adviser has application forms and sample tests. The adviser also has general information on law schools and an extensive file of law school catalogs.
is available in the Career and Academic Planning Center.

Pre-Medicine
Advisers — Dr. John Grove, Dr. Michael Hildreth, and Dr. Charles McMullen

The pre-med advisers can assist you in course selection, choosing a major, preparing for the Medical College Admission Test (MCAT), and in the application process as handled by the American Medical College Application Service (AMCAS).

The Handbook for Medical School Admission Requirements emphasizes "the major function of undergraduate education is to aid in the development of perceptive knowledgeable citizens." This handbook also points out that a career in medicine requires individuals with a diversity of educational backgrounds and wide variety of talents and interests.

Students preparing for medical careers should recognize the desirability of broad education and the need for a basic understanding of the natural sciences, including mathematics, chemistry, biology and physics. Prospective students seeking admission to a school of medicine should recognize that highly developed communication skills as well as a basic understanding of the social sciences and the humanities is necessary.

If you have indicated pre-medicine as your immediate objective you are assigned a faculty pre-medicine adviser. This adviser will have knowledge of requirements for all medical schools in the U.S. Pre-medicine students are encouraged to prepare to meet the entrance requirement for several medical schools of their choice. No particular major is required of students desiring to apply to medical school. No area of study is given preference in the selection process. The college or university selected for undergraduate study should be based on the strength of the undergraduate program and the advising system.

The curriculum outlined below is designed to be compatible with many different majors at South Dakota State University. It includes the following typical medical school admission requirements: one year each of biology and physics with laboratory; mathematics, preferably including a course in calculus; two years of chemistry with laboratory including one year of general chemistry and one year of organic chemistry or a combination of organic and biochemistry; communications (English, literature, speech); social sciences and humanities as needed to complete the baccalaureate degree.

Pre-Medicine

**Freshman Year**
- Freshman Comp F S
- Fr Comp, Engl 101 and Fund of Speech, SpCm 101.3 3
- Electives 0-2 0-2

**Sophomore Year**
- Physics 111-113, Elem Physics I & II.4 4
- Requirements for Major and Electives 12 12

**Junior Year**
- Organic Chem 326-328 or Organic Chem 120 and Biochemistry 361.4 4
- Electives and Major Requirements 9 12

**Senior Year**
- Complete Major Requirements

Pre-Ministerial

Almost all theological seminaries require some undergraduate education. Most require a college degree. On this professional level, a broad general education is desirable. A satisfactory pre-ministerial program could be: General Studies degree in Arts and Science or selection of a major in any humanities or social science area, focusing electives around a core of religion and philosophy courses as selected from the more than 30 hours available in these areas. An additional option could be the major in Child Development: Family and Social Sciences Option with a Religious Service Concentration.

Pre-Mortuary Science
Adviser — Dr. James O. Pedersen

To meet the requirements as a mortician, funeral directors need specialized training. All states require those who embalm to be licensed. This field may require up to four years of course study of which at least one, or possibly two years, may be taken at this university. Also necessary is specialized training in an accredited school of mortuary science, and an apprenticeship in an approved funeral home. The curriculum listed below may be altered to meet your needs, depending on the licensure requirements of the chosen state and the school of mortuary science you plan to attend. There are about 20 accredited mortuary colleges in the United States. The diversity of funeral service makes it possible to successfully use nearly any academic major as a background. However, it should be noted that the education of the individual should be as diversified as the profession which you will serve. Leaders of the funeral service field are rapidly recognizing the need for educating the total person. Technical knowledge and the techniques for making a living are not sufficient in our complex society. Because the funeral director's work is a people-centered activity, you must draw upon the knowledge of sociology, psychology, as well as scientific fields, and the artistic areas which the technical needs of the profession require.

Students planning to be licensed in South Dakota must complete 60 semester credits and specific courses. Listed below is a suggested program for the freshman and sophomore years.

**Freshman Year**
- Fr Comp, Engl 101, and Fund of Speech, SpCm 101.3 3
- Gen Chem, Chem 111-120 or Chem 112-114.4 4
- Intro Biology, Bio 151-152.3 3
- Gen Psychology, Psy 101.3 or 3
- Intro to Sociology, Soc 100.3 or 3
- Electives 1 1

**Sophomore Year**
- Accounting, Actg 210-211.3 3
- Prin of Actg I & II.3 3
- Math 112, College Algebra; or Math 113, Algebra and Trig 3-5.3-5
- Anatomy, Zool 221.3
- Mammalian Physiology, Zool 325.4
- Electives 3 or 3

**Pre-Optometry**
Adviser — Dr. Ronald Utecht

There are 12 American colleges of optometry accredited by the Council of Optometric Education of the American Optometric Association. Students usually have completed three years of college work and about 60 percent of all students entering professional schools of optometry have completed their work for the bachelor's degree. You are encouraged to do this if at all possible.

The prospective optometric student should begin as early as possible to acquire an education in the fundamental sciences with the proper selection of preprofessional courses. You may transfer from pre-optometry to the professional college spending at least three to four years in the optometric school or college.

The average GPA for successful applicants is now 3.0 (B average) or above for most colleges of optometry. Required
courses include physics, mathematics, English, biological science, comparative anatomy, chemistry and psychology. The program outlined below will meet the general requirements of most professional schools of optometry within two years and provide a good background for the Optometry College Admissions Test. Certain optometry colleges may also require more credits in the humanities and social sciences.

Most of the accredited colleges of optometry, now require an Optometry College Admission Test, prepared and given by the Psychological Corporation at least three times each year. Your Pre-Optometry adviser can give you information on the Optometry College Admission Test, when it is given, and assist you in making the necessary application.

Students graduating from SDSU with above average grades and optometry test scores have been very competitive in the Admissions process.

**Freshman Year**

<table>
<thead>
<tr>
<th>Course Details</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr Comp, Engl 101, and Fund Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Intro Biology, Bio 151-153</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics, Math 112, College Algebra; Math 120, Plane Trig; or Math 113, Algebra &amp; Trig; or Math 222, Calculus for Non-Math Majors; or Math 123, Calculus &amp; Analytic Geom</td>
<td>3-5</td>
</tr>
<tr>
<td>Gen Psychology, Psyc 101</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1</td>
</tr>
<tr>
<td>Anatomy, Zool 221</td>
<td>3</td>
</tr>
<tr>
<td>Gen Chem, Chem 110-120 or Chem 112-114</td>
<td>4</td>
</tr>
<tr>
<td>Humanities elective</td>
<td>3-4</td>
</tr>
</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Course Details</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics, Phys 111-113 Elementary Physics I &amp; II, or Phys 211-213, General Physics I &amp; II</td>
<td>4-5</td>
</tr>
<tr>
<td>Junior Comp, Engl 300</td>
<td>3</td>
</tr>
<tr>
<td>Statistics, Stat 211 or Stat 341</td>
<td>3</td>
</tr>
<tr>
<td>Electives — Soc 100; Am Govt, PolS 100 or 101; Intro to Philosophy, Phil 205; SpCm 201, Interpersonal Comm; Community Health, Hlth 102; Elementary Biochem, Chem 260; Biochem, Chem 361; Genetics, Bio 370; Gen Microbiology, Micr 231</td>
<td>4-6</td>
</tr>
</tbody>
</table>

**Junior-Senior Year**

Complete requirements for your major.
Graduate School

SDSU granted its first Master’s degree in 1891. In 1957 the Graduate School was established. Both Master’s and Doctoral degrees are offered through the Graduate School. The Graduate Faculty is composed of the President, Vice President for Academic Affairs, Vice President for Administration, Graduate Dean, academic deans, heads of departments in which graduate courses are given, and other faculty members chosen on the basis of their background and experience. Faculty members are authorized to teach graduate level courses and to serve as advisers to graduate students or on advisory examining committees.

The Graduate School is committed to providing an atmosphere for qualified students to obtain rigorous advanced education in a variety of fields in preparation for service and leadership in their professions and society. It also promotes scholarly pursuits and scientific research for the advancement of knowledge within a climate of freedom of inquiry.

Graduate Credit for Seniors

A senior within 15 credits of completing the undergraduate curriculum with a grade point average of 2.5 or a junior-senior grade point average of 3.0 may receive credit for graduate courses numbered 600-699 in addition to the courses necessary to complete undergraduate work. Courses in the 700 and 800 series are not open to undergraduate students. Course load may not exceed 18 credits. Courses must be designated for graduate credit at the time of registration. Forms requesting permission to register for these courses are available at the Graduate School office and must be filed prior to taking the course. Permission to take courses for graduate credit while a senior does not constitute admission to the Graduate School.

Admission to the Graduate School

For information regarding admission to the Graduate School, departments offering graduate instruction, graduate courses available, as well as information on graduate fellowships and assistantships, write the Dean of the Graduate School, South Dakota State University, Box 2201, Brookings, SD 57007-1998, Graduate School office and must be filed prior to taking the course. Permission to take courses for graduate credit while a senior does not constitute admission to the Graduate School.

for the latest Graduate Bulletin or call the Graduate School Office (605) 688-4181.
Home Economics

The College of Home Economics prepares people for a variety of professional roles which are interdisciplinary in nature. Some majors within the College are directly related to the family and its traditional functions, such as child and family studies. With these majors, graduates are primarily prepared for careers in social service, community or government agencies, or business. Other majors are derived from functions that were traditionally performed by the family but now are often carried out by business and industry. Hotel, restaurant, institutional management, fashion retailing and interior design are examples of these majors. General programs in the College of Home Economics prepare graduates for employment in formal and non-formal education, home economics communications and community service.

All programs in Home Economics focus on the interactions of family and their environment: 1) the study of the interrelationships of food, shelter, clothing and interpersonal relations as they affect the individual and the family; and 2) the interaction of the family with other social systems and with the physical environment. All students in home economics complete core courses (HE 201, HE 301, HE 401) which provide content and experiences for understanding these interrelationships and interactions.

The College of Home Economics works within the structure of the University's goals to:

1) prepare professionals to enter the field of Home Economics as generalists or as specialists in areas of food, shelter, clothing and human development.
2) contribute to the general education of all students at South Dakota State University.
3) provide services to families, non-professional and professional groups throughout South Dakota.
4) perform research to benefit families and further the economy of the state.
5) provide a viable graduate program that leads to a Master of Science degree in Home Economics with concentrations in Human Development, Child and Family Studies, Consumer Affairs and Home Economics Education, Nutrition and Food Science, or Textiles, Clothing and Interior Design.

Home Economics Curricula

<table>
<thead>
<tr>
<th>Department</th>
<th>Major Field</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Development, Child and Family Studies</td>
<td>Human Development, Child &amp; Family Studies</td>
<td>Child and Family Services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Early Childhood</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Early Childhood Education</td>
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<tr>
<td></td>
<td></td>
<td>- Elementary Education Certification</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Cooperative programs—BHSU &amp; DSU)</td>
</tr>
<tr>
<td>Consumer Affairs and Home Economics Education</td>
<td>Home Economics Education</td>
<td>Home Economics Education (teacher certification)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Home Economics Extension</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Home Economics Business</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Home Economics Journalism</td>
</tr>
<tr>
<td>Nutrition and Food Science</td>
<td>Nutrition and Food Science Hotel, Restaurant and Institution Management</td>
<td>Dietetics Food Science</td>
</tr>
<tr>
<td>Textiles, Clothing &amp; Interior Design</td>
<td>Textiles &amp; Clothing Interior Design</td>
<td>Retailing</td>
</tr>
</tbody>
</table>

Department of Consumer Affairs and Home Economics Education

Students in this department may major in Consumer Affairs and Home Economics Education. All students develop abilities in management, planning, communication, and organization. In addition, courses in each of the major areas provide specialized skills.

Graduates of the Home Economics Education program are certified to teach Vocational Home Economics in grades 7-12, Consumer Homemaking, and Home Economics Related Occupations. A major in Consumer Affairs prepares students for careers that are available in business, communications, government and industry. Students complete courses in all areas of home economics and select courses related to business, political science or other areas to match their career goals. Graduates of this program may be involved in analyzing business and consumer trends, identifying and reporting individual and family concerns, compiling consumer information, designing public relations/market-
ing strategies, and identifying needs for new products.

The minor in Home Management and Consumer Studies prepares graduates for consumer related positions with business or industry.

Department of Nutrition and Food Science

Areas of emphasis or majors include Dietetics, Food Science, and Hotel, Restaurant, and Institution Management.

Graduates may qualify as a Registered Dietitian through the pre-clinical dietetics program.

A major in hotel, restaurant, and institution management provides the basis for a career in food service management, hotel/motel, and other hospitality industries.

The food science option is for the student who is interested in food production, advertising or food research and food technology.

Department of Textiles, Clothing and Interior Design

Majors in the department include Interior Design and a Retailing option in the Textiles and Clothing major. They provide the basis for careers in interior design, fashion and home furnishings retailing plus other aspects of business and industry.

An upper division professional practicum with a business or design studio provides insights and experiences transitional to a career.

Curriculum

Students enrolled in the College of Home Economics must meet the University Core requirements and the College of Home Economics Core requirements to qualify for the Bachelor of Science degree. Students must also successfully complete at least 32 hours at SDSU with a minimum of 20 credit hours of junior and senior (300-400) level courses.

In addition, each major area of study has specific required courses pertinent to the respective major area.

Minor changes occurring in programs are reflected in program guide sheets issued once a year. Entering students must meet the program requirements for graduation listed on the guide sheets, which will reflect the curriculum changes subsequent to the printing of this catalog.

Exploratory courses for those interested in specific majors offered through the College of Home Economics are:

- HDCF 141 Individual and the Family
- HE 103 Career Exploration
- CA 130 Coping Skills for Consumers
- NFS 111 Food and Man
- NFS 171 Introduction to Hospitality Industry
- TC 171 Clothing as a Human Resource
- ID 211 Design in the American Home
- ID 221 Introduction to Interior Design

Minors

Minors can be earned in each of the four departments in the college. The minors are Nutrition, Interior Design, Home Management and Consumer Studies (CAHEE Department), Textiles and Clothing, and Human Development, Child and Family Studies. Combining one of these minors with a major in one of the other departments in the college or with majors in other colleges at SDSU can strengthen preparation and employment opportunities. Also, an interdisciplinary minor in Gerontology, the study of the elderly, is available.

Experiential Education

Most of the majors in the College of Home Economics provide opportunities to become familiar with the world of work as related to the major. Field experiences, practicums, and internships are available.

Graduate Program in Home Economics

Those pursuing the MS degree in Home Economics with a concentration in any one of the subject-matter areas are enrolled in the Graduate School. The program of work is planned with a faculty adviser from the area of concentration. Specific requirements are outlined in the Graduate School Bulletin obtained from the Dean of the Graduate School, South Dakota State University, Box 2201 Brookings, South Dakota, 57007-1998.
The College of Nursing has the broad goal of improving health care and the overall quality of life in the state, the region and the nation. It strives to reach this goal through the education of health care professionals, through provision of expertise and consultative service to the health care system of the state and through research of health and illness of individuals, families, and communities. The College has established the following unifying goals which are achieved through its programs of study.

1. Provide opportunities for selected men and women to: a. obtain baccalaureate education in the profession of nursing; b. obtain coursework in health science; c. obtain graduate education in nursing; d. learn about health and health care while pursuing other majors in the University.

2. Offer undergraduate and graduate curricula which provide sound foundations for further practice and study.

3. Stimulate the professional and intellectual growth of individuals so they might assume responsible leadership in the health care of individuals, families, and communities.

4. Provide opportunities for organization and synthesis of nursing knowledge and skills adequate to prepare the graduate to address society’s health care problems.

5. Provide faculty expertise to the state in an effort to address problems related to health, health care, and general well being of the people of South Dakota.
   a. participation in voluntary and professional organizations.
   b. consultation to individuals, agencies, and/or institutions.
   c. direct problem solving.
   d. participation in or conduct of research.
   e. continuing education programs.

6. Encourage and facilitate research of health and illness of individuals, families, and communities.

Non-majors are encouraged to select courses in the College of Nursing. Courses contributing to general education include: HSC 102, 212, 432, 443. Students have the option of earning a minor in health science as detailed under Health Science course offerings.

Bachelor of Science Degree in Nursing

An undergraduate curriculum leading to a Bachelor of Science degree in Nursing is offered. The program consists of coursework in communication skills, the social, biological and physical sciences supportive to nursing, the student’s choice of electives, and professional nursing. Graduates of this program in nursing are eligible to write the National Council Licensure Examination to become registered nurses. They are prepared to practice in both hospital and non-hospital settings and also have the foundation for advanced study in nursing.

RN Upward Mobility Program

The RN Upward Mobility Program is an integral part of the College of Nursing’s undergraduate program. The curriculum for the upward mobility option deepens and extends the knowledge and capabilities of the already licensed registered nurse, preparing her/him to give more comprehensive nursing care, provide greater assistance in the prevention of disease and promotion of health practices and to develop further knowledge and skills for leadership roles in nursing.

Master of Science Degree in Nursing

A graduate program in adult or parent-child nursing leads to a Master of Science degree in Nursing. The graduate program in nursing consists of advanced theoretical and clinical study in nursing and advanced work in selected supportive fields. It also provides role options in teaching of nursing, in patient care management, and in advanced clinical practice (clinical nurse specialist and nurse practitioner). A gerontological emphasis is also offered.

Accreditation

The undergraduate and graduate programs at SDSU are approved by the South Dakota Board of Nursing and accredited by the National League for Nursing and North Central Association of Colleges and Secondary Schools.

Health Science Minor

The Health Science minor provides experience in health knowledge, health services, and healthful environment to undergraduate students from various disciplines.

Professional Organizations

Membership is encouraged in the local, state and national nursing student organizations. The purpose of these organizations is to prepare the student for professional activity. Phi Chapter, Sigma Theta Tau, an honor society in nursing, stimulating professional growth and creative activity in nursing, was established at SDSU in 1961. Membership is by election; criteria include status in program, demonstrated ability and leadership in nursing, and an outstanding grade point average.

Mary Adams, Acting Dean
Box 2275
Brookings, SD 57007-0098
Pharmacy

As one of the health professions, pharmacy is vitally concerned with public health and safety. Specifically, it is concerned with all activities associated with preparation, distribution and control of drugs and medicines. The aim of the College of Pharmacy is to prepare its graduates to assume their professional responsibilities as members of the profession most directly concerned with these activities. As society grows more complex, problems of providing proper medical services also grow more complex. This requires that pharmacy students must not only be provided with sound scientific and professional training, but also be given opportunity to gain as much liberal education as possible to better understand the society which they serve.

The College of Pharmacy is accredited by the American Council on Pharmaceutical Education and offers a five year plan of study leading to the degree Bachelor of Science in Pharmacy. The plan is designed to prepare students for the professional practice of pharmacy. The faculty has designed several tracks that will better prepare the graduate for community or institutional practice or to pursue graduate study in clinical pharmacy or one of the pharmaceutical sciences such as pharmaceutics, pharmaceutical chemistry, pharmacognosy or pharmacology. Students considering a specific track should consult an advisor about elective choices. In some cases substitution of elective courses for required courses may be allowed.

Graduates of the College of Pharmacy are eligible to apply for licensing in any state. Licensing as a pharmacist requires graduation from an accredited College of Pharmacy, a certified period of supervised experience, and successful completion of a series of examinations administered by the Board of Pharmacy of the individual state. These requirements vary slightly from state to state. Students interested in practicing in a particular state should contact the Board of Pharmacy of that state for information concerning requirements.

Professional Organizations

Membership in the Academy of Students of Pharmacy is open to all students in the college. The purpose of this organization is to provide a better appreciation of the scope and aims of the profession. It also provides an opportunity to develop leadership potential and to meet other pharmacy students.

College of Pharmacy Regulations

Students in the College of Pharmacy are governed in large measure by the regulations which apply to all students at SDSU. Therefore, students should be familiar with material in the general information section of the catalog. In addition to the all university rules and regulations, the College of Pharmacy has some requirements specifically for pharmacy students. These requirements are presented in detail in the Pharmacy Student Handbook.

Overall University requirements for graduation stipulate that the student must earn an average of two grade points for each credit submitted for graduation. In addition, at least two grade points must be earned for each credit hour in College of Pharmacy courses. In order to keep students who may be having academic difficulties aware of their situation, the college has instituted a set of "pharmacy probationary" standards. A student will be placed on "pharmacy probation" whenever their cumulative average in pharmacy courses drops below 2.0. The student will remain on "pharmacy probation" as long as the cumulative average in pharmacy courses remains below 2.0. If, while on probation, the semester grade point average in pharmacy courses drops below 2.0 the student will be placed on refused status from the College of Pharmacy. It should be noted that this procedure applies only to pharmacy subjects and does not affect the standing in the University which is governed by all university regulations. A minimum of 164 credit hours of acceptable course work must be completed for graduation. A maximum of six (6) credits of pharmacy prefixed courses may be transferred from another college of pharmacy on approval of the Dean. Exceptions must be approved by the faculty.

Pharmacy is a profession which demands high standards of professional and ethical conduct from its members. As part of the preparation for entry into the profession, the student is expected to develop an understanding of these standards and to practice them in all college activities. The faculty of the College of Pharmacy reserves the right to take action, including dismissal, against students for unethical, dishonest or illegal conduct.

Curriculum of Bachelor of Science in Pharmacy

The curriculum is divided into a one year pre-pharmacy segment and a four year professional program.

The 1-4 curriculum was developed to provide adequate time for clinical experiences in the fifth year and to ensure an appropriate preparation for these experiences.

The student must expect to spend four years in residence to complete the professional portion of the curriculum. Variations from the pattern may be permitted by faculty action. The first year (pre-professional portion of the curriculum) may be completed at any accredited college. Course work should be selected carefully to ensure that it will apply toward graduation from the College of Pharmacy. All students seeking admission to the second year must have completed Chemistry 114, Mathematics 222, and Biology 151 or their equivalents and possess an overall grade point average of at least 2.0.

Limitations in physical facilities make it necessary to limit the size of the second year class. Selection will be made from a pool of candidates consisting of all students seeking entry into the class.

Because the transmission of clearly defined and clearly understood information is a vital facet of pharmacy practice, a proficiency in oral communication is important for the pharmacist. Where there may be doubt concerning the oral communication ability of a candidate for admission to the second year (professional program) the candidate may be required to demonstrate a satisfactory degree of proficiency.

Bernard E. Hietbrink, Dean
Box 2202 C
Brookings, SD 57007-0099
The Official SDSU Logo

The "spirit" of Hobo Days is represented by "Weary Willie"

The Coughlin Campanile occupies a central focus on campus

SDSU's athletic mascot is the Jackrabbit

The Official SDSU Alumni Logo

The Official SDSU Seal
EXTENDED PROGRAMS

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The Summer Session

SDSU offers a wide range of courses and degree programs during the summer months as well as numerous special workshops, short courses, evening offerings, and non-credit programs. Summer programming is offered May through August and is characterized by innovation and responsiveness to your needs. Classes are comfortably sized and time is available for individual attention from the faculty member. Participants need not be regularly matriculated at SDSU but may be admitted as special students through completion of one short form.

For further information and to receive the schedule of offerings, contact the Summer Session Office, PC 201, 688-5193.

Barbara M. Audley, Director
Box 2218
Brookings, SD 57007-0599

Lifelong Learning and Outreach

The Division of Lifelong Learning and Outreach is Regentally constituted as one coordinative authority for off-campus educational programs (1963-99 BOR) and as such serves as a conduit for the University's service mission to South Dakota citizens. Lifelong Learning and Outreach is designed to be self-supporting, i.e., tuition collected covers expenses incurred, both for credit courses and non-credit conferences, short courses and workshops.

Office of Credit Programs: Outreach courses carrying academic credit are coordinated through this office. Academic standards and policies governing off-campus courses are identical to the on-campus instructional program. Hence, credit course offerings, instruction and academic standards are the responsibilities of the Vice President for Academic Affairs, deans of the colleges, and department heads. There are outreach locations throughout South Dakota where credit courses are presented each semester. Additional locations are added as need and enrollment indicate. Ask for a copy of the current Lifelong Learning Showcase for details and locations.

Office of Conferences and Institutes: The University encourages involvement of its faculty and professional staff with groups sharing common interests and expertise. Individuals and groups interested in holding conferences or meetings at the University should contact the Office of Conferences and Institutes. This office provides services ranging from simple logistics either on campus or at other locations throughout South Dakota, to program planning, staffing, financing, and evaluation.

Consulting and technical assistance to organizations is another contribution of the University to the social and economic development of the state. The Office of Conferences and Institutes will be happy to assist in matching needs with expertise within the University upon request.

For further information and copies of publications, either for credit programming or conferences and institutes, please contact the Division of Lifelong Learning and Outreach, PC 201, South Dakota State University, Box 2218, Brookings, SD 57007-0599, 605-688-5193.

Evening College

South Dakota State University adopted a new approach to adult learners when it created Evening College for part-time, non-traditional students. Evening College offers college credit courses and programs that are provided at times that are convenient for working adults. All courses taught in the Evening College are the same with regard to course number and content as those taught in the regular day courses.

More information on Evening College may be obtained through the Division of Lifelong Learning and Outreach, PC 201, South Dakota State University, Box 2218, Brookings, SD 57007-0599, 605-688-5193.
The following is a listing of the ISIS system table “SCHD.” The purpose of this table is to provide the basis for a systematic, qualitative, identification and labeling of all courses taught at public higher education institutions in South Dakota. These are now used in the semester schedule. Over time, more course descriptions will come to reflect these course types.

**Schedule Type Definitions Accepted by the Board of Regents Follow**

<table>
<thead>
<tr>
<th>Schedule Designation</th>
<th>Schedule Type/Designation</th>
<th>Course Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Studio Course/Small Group Instruction</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Competency-based/Self-paced Study</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Discussion/Recitation</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Seminar</td>
<td></td>
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<tr>
<td>G</td>
<td>Clinical Experience</td>
<td></td>
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<tr>
<td>H</td>
<td>Ensemble</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Independent Study</td>
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<tr>
<td>J</td>
<td>Design/Research</td>
<td></td>
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<tr>
<td>K</td>
<td>Alternate Laboratory</td>
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<tr>
<td>L</td>
<td>Laboratory</td>
<td></td>
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<tr>
<td>M</td>
<td>Private Instruction</td>
<td></td>
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<tr>
<td>N</td>
<td>Upward Mobility</td>
<td></td>
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<tr>
<td>P</td>
<td>PE Activity</td>
<td></td>
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<tr>
<td>Q</td>
<td>Orientation</td>
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<tr>
<td>R</td>
<td>Lecture</td>
<td></td>
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<tr>
<td>S</td>
<td>Internship/Practicum</td>
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<tr>
<td>T</td>
<td>Thesis</td>
<td></td>
</tr>
<tr>
<td>U</td>
<td>Thesis Sustaining</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>Workshop</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Special Topics</td>
<td></td>
</tr>
</tbody>
</table>

**Studio Course/Small Group Instruction (Schedule Type A)** — A course involving the demonstration of design and theory in a defined physical setting (i.e., studio). The Studio Course is characterized by significant one-on-one student/instructor interaction with student exploration and experimentation pursued under the guidance of the instructor. Section size is typically restricted (1-15 students) and is dependent upon space and equipment limitations. Includes: Small Group Applied Music; Class Music; Studio Art Classes.

**Competency-Based/Self-Paced Study (Schedule Type B)** — Students progress through a course of study at their own rate, assisted by computer or other means of augmentation. Mastery is based on structured competencies. Progress is monitored by a course instructor. May be supplemented by individual or group tutorial session.

**Discussion/Recitation (Schedule Type D)** — A course, or a subdivision of a larger course, meeting for the expressed purpose of allowing individual contribution in the form of discussion, question and answer, and other class participation techniques. Enrollments are pedagogically driven and are generally limited to 10 to 35 students.

**Seminar (Schedule Type E)** — A highly focused, topical course, typically involving formal student presentations and discussions of reports concerning current literature, practices, problems, or research. Generally offered to a limited enrollment (typically 5-20 students) at the upper division or graduate level.

**Clinical Experience (Schedule Type G)** — Participation in client and client related services occurring as an integral part of an educational program. Clinical instruction occurs in an institutional setting and involves work with clients who receive professional services from students serving under direct supervision by a faculty member and/or an approved member of the agency staff. Enrollments typically will vary by type of experience from one-on-one to a section with up to 12 students.

**Ensemble (Schedule Type H)** — Small and large group musical performance courses. The size of the section will vary with medium and requirements of the musical score. Includes: Chamber Music; Small Ensemble; Large Ensemble; Marching Band.

**Independent Study (Schedule Type I)** — A negotiated/directed plan of study with the professor specifying broad guidelines and the student or students (usually 1-10) and the professor together, identifying objectives, plan of study, and scope of work. Arranged meeting time lines vary with scope, plan, objectives and difficulties encountered. The objective of the course is not the production of a thesis or the meeting of a research requirement for a degree. Includes: Directed Studies; Special Projects; Mentored; and Special Problems.

**Design/Research (Schedule Type J)** — Optional, negotiated study focusing on design and or research and not leading to a dissertation or thesis. The plan of study is arranged between a student and professor specifying broad guidelines, identifying objectives, and scope of work. Requires extensive and intensive one-on-one interaction between the professor and the student. Arranged meeting time lines vary with scope and plan of objective. Used as a research requirement for a degree. Includes: Research/Research Problems.

**Laboratory (Schedule Type L or K)** — Courses meeting in a defined physical setting (i.e., laboratory) for the purpose of the application of methods and principles of a discipline. Laboratory courses are typically limited in enrollment of 5-25 students, with the size of a section varying according to accreditation standards, pedagogical limitations, level of offering, availability of laboratory stations, and equipment. "K" is used to designate an alternate laboratory—the second type of laboratory required.

**Private Instruction (Schedule Type M)** — Individual instruction with emphasis on arranged one-to-one demonstration, return demonstration, and critique of a performance area such as music, fine arts or performing arts, or flight instruction. The use of this code is related to the formula process.

**Upward Mobility (Schedule Type N)** — A program of study characterized by courses that are delivered with specialized advising, individual assessment and individualized assignments. The use of this code is related to the formula process. Includes: Upward Mobility Nursing.

**PE Activity (Schedule Type P)** — A course devoted to participation in or the performance of some form of physical activity. Knowledge associated with the proper performance of the activity is presented. The size of section is limited by level of instruction, type of activity, safety considerations, and the availability of facilities, usually 10-35 students.

**Orientation (Schedule Type Q)** — Course designed to provide students with information and skills necessary to be successful in a given environment. The environment may be envisioned as the college or university as a whole (the focus is on learning strategies and skills, academic planning and traditions, time and money management, etc.) or as that of a specific discipline (content involves issues of career planning and preparation, opportunities, professionalism, and standards of ethics as related to the discipline). Size of section varies with purpose and design of the specific orientation program. The course may be offered either for credit or as a non-credit course.

**Lecture (Schedule Type R)** — A formal method of instruction by which the instructor gives an oral presentation of facts or principles. Normally, instruction takes place in a traditional classroom setting. Size of section is often in excess of 30 but may vary widely by level, discipline, and campus.

**Internship/Practicum (Schedule Type S)** — Applied, monitored and supervised, field-based learning experience for which the student may or may not be paid. The content of the experience is based on a negotiated and/or
directed plan of study with the major objective of the student gaining practical experience. The nature of supervision may vary from intensive one-on-one relationships to those more characteristic of small groups of students (1-15). The use of this code is related to the formula process. Includes: field work/experience; supervision courses; student teaching; and cooperative education.

**Undergraduate Thesis (Schedule Type T, Level 01)** — A formal treatise presenting the results of study, investigation or research which is submitted in partial fulfillment of the requirements of an undergraduate degree. The process requires extensive and intensive one-on-one interaction between the candidate and major professor with more limited interaction between and among the candidate and the other members of the committee.

**Graduate Thesis (Schedule Type T, Level 02)** — A formal treatise presenting the results of study, investigation or research which is submitted in partial fulfillment of the requirements of an advanced degree. The process requires extensive and intensive one-on-one interaction between the candidate and major professor with more limited interaction between and among the candidate and the other members of the committee. Sometimes used interchangeably with the term "dissertation," but as used here both Masters and Doctoral levels are included. The use of this code is related to the formula process.

**Thesis Sustaining (Schedule Type U)** — Minimal credit for continuing thesis or dissertation work while research and writing is in progress. After satisfactory completion of the plan of study for thesis or dissertation, a student must register during the academic year and summer until the degree is awarded.

**Other Important Definitions**

**Multi-Numbered (Not considered a course type)** — A multi-numbered course is a single course specifically designed for simultaneous delivery at two or more levels with the two or more numbers taught simultaneously. In some instances, the course may be offered for credit at different levels (i.e., courses may be offered for upper/lower division credit or for undergraduate/graduate credit). The multi-numbered course may also be cross-listed.

**Cross-Listed (Not considered a course type)** — A cross-listed course is a course which carries more than one course prefix (i.e., Hist, PolS, Geog) with credit being offered under any one of the listed prefixes at the same time. Students choose to take the course under the prefix that is more beneficial to their course of study. All students meet at the same time in the same place, with the same instructor(s). A cross-listed course may also be multi-numbered.
The following two programs are open to qualified male and female full-time students.

**Four Year Program**

Designed for students completing a four-year college degree; however, it is easily modified to accommodate students with 3 to 5 years of academic studies remaining before graduation. Consists of four semesters of General Military Courses (freshman and sophomore years), a four week Field Training Unit, four semesters of Professional Officer Courses (junior and senior years).

**Two Year Program**

Designed primarily for transfer and graduate students with 2 years of academic studies remaining before graduation. However, other students who did not participate in Air Force ROTC during Freshman and Sophomore years may also participate. The two-year student must contact the Aerospace Studies Department no later than the Spring Semester before entering the program to allow time for selection, medical examination and scheduling for Field Training during the summer. Successful completion of the Field Training Unit is mandatory before entering the two-year program. The program consists of a six-week Field Training session, four semesters of Professional Officer Courses.

**Aerospace Studies Minor**

A minor in Aerospace Studies requires 16 semester hours, including all four AFROTC courses and Field Training.

**Veterans/National Guard Members**

Students with prior military training or service are evaluated by the Professor of Aerospace Studies for advanced placement in the four-year program. In some cases, completion of the general military courses is not a prerequisite for entrance into Professional Officer Courses. Veterans are eligible for AFROTC Scholarships and AFROTC subsistence payments in addition to Veterans' Educational Benefits.

**Financial Assistance**

All AFROTC cadets who are South Dakota residents and who are not on an Air Force scholarship receive a 50% tuition reduction for four semesters of their junior and senior years.

- **SCHOLARSHIPS.** Qualified students can compete for 4-year, 3-year, 2-year, and 1-year scholarships, which cover full tuition, books, laboratory expenses, incidental fees, and $100 per month tax-free subsistence allowance. Scholarship competitions are held at intermediate times to fill vacancies in the nationwide scholarship program. Awards are based upon officer potential. Applicants are nominated on the basis of: Air Force Officer Qualifying Test scores, ACT or SAT college aptitude scores, academic major, grade point average, and personal evaluation by the Professor of Aerospace Studies. Final selection is made by Air Force ROTC Headquarters.

**NOTE:** High school students should contact their high school counselor for a 4-year AFROTC Scholarship Application Request form, to be completed following the junior year or early in the fall of the senior year. They can also contact any Air Force Recruiter for more information.

- Air Force ROTC courses are tuition free.
- Military uniforms, textbooks, and equipment are furnished for all AFROTC classes.
- Cadets enrolled in the Professional Officer Course receive the same $100 per month tax-free subsistence allowance that scholarship students receive.
- Qualified cadets selected for pilot training receive flight ground school and approximately 14 hours of flight training.
The Air Force ROTC Curriculum

THE GENERAL MILITARY COURSE (GMC). The first two years of Air Force ROTC are general survey courses open to all. The courses provide an orientation to the history, organization and career opportunities of the USAF. This, in turn, provides the student with an orientation to an Air Force career without incurring a military service obligation.

During the last semester, qualified students interested in an Air Force Commission complete applications for the Professional Officer Corps and are scheduled for Field Training. Students also participate in leadership laboratories while in general military courses.

FIELD TRAINING. Summer Field Training Units (FTUs) are conducted at operational Air Force bases and give the cadets an in-depth look at Air Force life and activities without incurring a military service commitment. It also gives the Air Force ROTC instructors a look at the students outside the university environment before they are accepted in the Professional Officer Course. Both the 4-week and the 6-week FTU include cadet orientation, junior officer training, survival training indoctrination, physical conditioning, career orientation, small arms familiarization, and a look at the organization and functions of an Air Force base. The 6-week FTU, the additional two weeks are mainly used to complete the course material and leadership laboratory training missed by not participating in the General Military Courses on campus. Students are provided transportation. At camp they receive free room, food, medical care, and $18.00 (eighteen) pay per day.

PROFESSIONAL OFFICER COURSE (POC). The last two years of the Air Force ROTC program are designed for cadets accepting a commitment to enter the Air Force as commissioned officers upon graduation. Consequently, each cadet needs to develop proficiency in subject matter related to future effectiveness as an Air Force Officer. The curriculum of the Professional Officer Corps has been designed to acquaint the cadet with military management concepts and the relationship of the Air Force to American society. Cadets practice leadership concepts as cadet officers in the cadet corps. PROFESSIONAL OFFICER CORPS SELECTION CRITERIA. Have four full time semesters remaining; complete the General Military Course or its equivalent; successfully complete Field Training; meet academic standards; choose one of the available career categories; qualify on the Air Force Officer Qualifying Test and the ACT or SAT college aptitude test; qualify on the Air Force medical evaluation; be of sound moral character.

LIGHT AIRCRAFT TRAINING ROTC (LATR). A three-week screening program for AFROTC cadets qualified and selected to become Air Force pilots. The program is conducted during the summer at sites in Texas. LATR consists of both ground school and approximately 14 hours of flight instruction. It is required for all pilot candidate cadets who do not have a private pilot's license and must be successfully completed in order to enter Air Force pilot training.

LEADERSHIP LABORATORY. General Military Course and Professional Officer Course cadets attend two hours of Leadership Laboratory a week. This course is conducted by and for the cadets to provide a working environment for the practice of leadership and management techniques. The Cadet Corps is organized with a commander and staff — together with all the functions and positions that exist in a normal military organization. Cadets study Air Force customs and courtesies; drill and ceremonies; career opportunities in the Air Force; the life and work of an Air Force junior officer. This typically includes one or two field trips to Air Force installations.

General Military Courses

101 Aerospace Studies 100 1(1,1) F
History, doctrine, mission and organization of the Air Force strategic offensive and defensive forces; mission, function and employment of nuclear weapons; aerospace defense, missile defense.

102 Aerospace Studies 100 1(1,1) S
U.S. general purpose and aerospace support forces; mission, resources and operation of tactical air forces, with special attention to limited war; review of Army, Navy and Marine general purpose forces.

201 Aerospace Studies 200 1(1,1) F
Air Power from balloons and dirigibles through 1947; Air Force mission, concepts, doctrine and use of air power.

202 Aerospace Studies 200 1(1,1) S
History of air power from 1947 to present. Air Force relief missions and civic action programs in the late 1960's.

Professional Officer Courses

301 Aerospace Studies 300 3(3,1) F
Individual motivational and behavioral processes; leadership and group dynamics provide a foundation for development of professional skills as an Air Force officer — includes speaking and writing as they apply to the Air Force.

302 Aerospace Studies 300 3(3,1) S
Basic management processes of planning, organizing, decision-making, controlling and use of analytical aids. The manager's world of power, politics, strategy, tactics and value conflicts discussed within the context of the military organization.

401 Aerospace Studies 400 3(3,1) F
Commissioned military service as a profession. The complex interaction between military and civilian society. Theory and workings of National Defense policy.

402 Aerospace Studies 400 3(3,1) S

Agricultural Education
(see Education)

Agricultural Engineering
(AE)

College of Engineering
Associate Professor Acock, Head; Professors Chu, DeBoer, Durland, Hellickson; Professors Emeriti Lytle, Moe, Pahl, Wiersma; Associate Professors Ullery, Werner; Assistant Professors Adelaine, Anderson, Bender, Bischoff, Humburg, Julian, Kelley, Schipull, Stange.

Agricultural Engineering is the science of engineering applied to the facilities and processes of agriculture and related industries. You are given foundation courses in mathematics, physics, and chemistry with engineering emphasis in a wide variety of technical areas: irrigation, drainage, water resources development, machine dynamics and design, agricultural power, electrical power utilization, processing of biological materials, environmental control for livestock, control and disposal of agricultural wastes, agricultural structures, and instrumentation. Courses are also offered in the fields of meteorology, climatology, and micro-climatological engineering and teaching students in other colleges who are interested.

To earn the Bachelor of Science Degree in Agricultural Engineering a student must have an average grade of C or better in courses taken and required in the Agricultural Engineering Department. Experiential Education Programs are available in the department. Arrangements may be made for credit under
Course Numbers 494, 495, 496 and Cooperative Education, Internship and Field Experience.

For mechanized agriculture courses and curriculum, as offered by the Agricultural Engineering Department, see Mechanized Agriculture for full description. For Master of Science and Ph.D. work, see the Graduate Bulletin. Graduate level courses will be taught as listed and on demand.

Curriculum in Agricultural Engineering
(Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology)

<table>
<thead>
<tr>
<th>129 semester credits required for the Bachelor of Science Degree</th>
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</thead>
<tbody>
<tr>
<td><strong>Freshman Year</strong></td>
</tr>
<tr>
<td>Mathematical Analysis I-II, Math 123-224</td>
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<tr>
<td>Gen Chem, Chem 112</td>
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<tr>
<td>Fr Comp, Engl 101 and Speech, SpCm 101</td>
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<tr>
<td>Engineering Design Graphics I-II, EG 121-122</td>
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<td>Fitness &amp; Lifetime Activities, PE 100</td>
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<tr>
<td>Introduction to Engineering I-II, GE 110-111</td>
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<tr>
<td>Statics, EM 221</td>
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<tr>
<td><strong>Sophomore Year</strong></td>
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<tr>
<td>Mathematical Analysis III, Math 225</td>
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<tr>
<td>Gen Physics I-II, Phys 211, 213</td>
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<tr>
<td>Elementary Surveying, CE 106</td>
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<tr>
<td>Creative Design in Ag Engineering, AE 202</td>
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<tr>
<td>Introduction to Programming with FORTRAN, CSc 213</td>
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<tr>
<td>Microcomputer Appl in AE, AE 372</td>
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<tr>
<td>Dynamics, EM 222</td>
</tr>
<tr>
<td>Differential Equations, Math 321</td>
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<tr>
<td>Intro to Literature, Engl 218</td>
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<tr>
<td>Engineering Design Graphics, EG 123</td>
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<tr>
<td>†Electives</td>
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<tr>
<td><strong>Junior Year</strong></td>
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<tr>
<td>Mechanics of Materials, EM 321</td>
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<tr>
<td>Thermodynamics, ME 314</td>
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<tr>
<td>Ag Structures, AE 324</td>
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<tr>
<td>Macroeconomics Principles, Econ 201</td>
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<tr>
<td>Basic Elec. Engr. I, EE 305</td>
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<tr>
<td>Tech Comm., Engl 303</td>
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<tr>
<td>Fluid Mechanics, EM 331</td>
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<tr>
<td>Ag Power &amp; Machines, AE 314</td>
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<tr>
<td>†Electives</td>
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<tr>
<td><strong>Senior Year</strong></td>
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<tr>
<td>Electric Power &amp; Processing, AE 444</td>
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<tr>
<td>Soil &amp; Water Engineering, AE 434</td>
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<tr>
<td>Applied Instrumentation, AE 463</td>
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<tr>
<td>Seminar &amp; Inspection Trip, AE 490</td>
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<tr>
<td>Ag Engineering Concepts &amp; Design, AE 451, 455</td>
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<tr>
<td>Intro to Num. Methods, Math 373 or Math 381</td>
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<tr>
<td>Stats, Math 381 or Adv. Eng Math, Math 331 or Stat Methods, Stat 341</td>
</tr>
<tr>
<td>Biological or Natural Resource Science Elective</td>
</tr>
<tr>
<td>†Electives</td>
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</tbody>
</table>

*If you do not receive a "C" or better in Engl 303, you must pass Engl 307 with a grade of "C" or better.
†Elective courses permit the student to concentrate on the applied technical area of his or her particular interest, and to provide for further cultural growth and education in the humanities/social sciences area. Accordingly, the elective program for each student must be approved by his/her adviser. This will include at least 9 credit hours of technical electives of which at least 5 credits are 300 or above level courses in the College of Engineering. In addition, the student's program must include at least 16 social science/hu-

**Biological or Natural Resource Science Electives:**

<table>
<thead>
<tr>
<th>Animal Nutrition, AS 223</th>
<th>Credits</th>
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<tbody>
<tr>
<td>General Microbiology, Micr 231</td>
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<tr>
<td>Crop Production, PS 103</td>
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<tr>
<td>Crop and Livestock Insects, PS 293</td>
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<tr>
<td>Physical Environment of Soils &amp; Plants, PS 352</td>
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<tr>
<td>World Crop &amp; Soil Resources, PS 433</td>
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<tr>
<td>Anatomy, Zoöl 221</td>
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**Technical Electives:**

Electives in all options. Physical Climatology & Meteorology, AE 353; Special Topics, AE 493; Special Problems in AE, AE 492; Cooperative Education/Internship/Field Experience, AE 494, 495, 496; all 500 level courses listed in Agricultural Engineering; Statistics 341 or Math 381, Advanced Engr. Math, Math 331; Computer Operation, CSc 314; PL/1 Programming, CSc 316; Special Topics in Computer Science, CSc 493; Microcomputer Applications, CSc 425; Computer Architecture & Organization, CSc 426; Engineering Economy, EE 422*; Biology, Bio 153; Soils, PS 113 or Soils Engineering, CE 446.

| Structures & Environment                                    |
|------------------------------------------------------------|---------|
| Steel Design, CE 455                                       |         |
| Concrete Theory & Design, CE 456                           |         |
| Industrial Engineering, ME 362                            |         |
| Engineering Administration*, AE 475                       |         |
| Heating, Ventilating & Air Conditioning, ME 411            |         |
| Heat Transfer, ME 415                                      |         |
| Structural Theory, CE 353                                  |         |
| Soils Engineering, CE 446                                 |         |
| General Microbiology, Micr 231                             |         |

*Technical elective credit not given for both CE 475 & EE 422.

**Power and Machinery**

<table>
<thead>
<tr>
<th>Mechanisms, ME 321</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Vibrations, ME 322</td>
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<tr>
<td>Metallurgy, ME 341</td>
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<tr>
<td>Industrial Engr., ME 362</td>
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<tr>
<td>Internal Combustion Engines, ME 412</td>
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<tr>
<td>Heat Transfer, ME 415</td>
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<tr>
<td>Design of Machine Elements, ME 421</td>
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<tr>
<td>Machine Design, ME 428</td>
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<tr>
<td>Physical Environment of Soils &amp; Plants, PS 352</td>
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</table>

**Electric Power & Processing**

<table>
<thead>
<tr>
<th>Industrial Engineering, ME 362</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Heating, Ventilating &amp; Air Conditioning, ME 411</td>
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<tr>
<td>Heat Transfer, ME 415</td>
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<tr>
<td>Heating, Ventilating &amp; Air Conditioning II: Design, ME 419</td>
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<tr>
<td>Automatic Controls, ME 451</td>
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<tr>
<td>General Microbiology, Micr 231</td>
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<tr>
<td>Electronics I, EE 320</td>
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<tr>
<td>Electromagnetic Field Theory I, EE 385</td>
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<tr>
<td>Energy Conversion, EE 430</td>
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</table>

**Water Resources Engineering**

<table>
<thead>
<tr>
<th>Physical Environment of Soils &amp; Plants, PS 352</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Irrigation—Crop &amp; Soil Practices, PS 483</td>
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<tr>
<td>Hydrology, CE 333</td>
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<tr>
<td>Water Supply Engr., CE 327</td>
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<tr>
<td>Hydraulic Engineering, CE 433</td>
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<tr>
<td>Soils Engineering, CE 446</td>
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<tr>
<td>Soils, PS 113</td>
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</table>
Food and Biological Materials Engineering

Food and Biological Materials Engineering is a new and unique educational major in the College of Engineering that provides students with an exceptional opportunity to serve the food and fiber processing industry. The processing of biological materials adds value to agricultural commodities and provides additional capacity for economic growth in the region. Graduates will have the capability to design, install, and maintain the new technology that is used in the food and fiber industry.

Students are given foundation courses in mathematics, physics, chemistry and microbiology. Additional course work stresses communication skills, engineering mechanics, food science and engineering design. This program of study will prepare you for entry-level positions with fruit and vegetable processors, grain millers and bakers, beverage companies, oil crop processors, chemical companies, pharmaceutical companies, and meat processors. Food and Biological Materials Engineering offers an outstanding career opportunity to the student who has an interest in the biological and physical sciences.

136 semester credits required for the Bachelor of Science Degree

Freshman Year

Math Analysis I & II, Math 123 & 224.................. 5 4
Gen & Org Chem, Chem 112 & 120..................... 4 3
Fr Comp, Engl 101 & Speech, SpCm 101.............. 3 3
Engineering Graphics I & II, EG 121 & 122........... 1 1
Fitness & Lifetime Activities, PE 100.................. 1 1
Introduction to Engineering, GE 110 & 111........... 1 1
Statics, EM 221....................................... 3

Sophomore Year

Mathematical Analysis III, Math 225................... 3 4
Gen Physics I & II, Phys 211 & 213.................... 4 4
General Microbiology, Micr 231....................... 4 4
Creative Design, AE 202............................... 2 2
Engr Graphics III, EG 123.............................. 1 1
Differential Equations, Math 321...................... 3 3
Macroeconomics Principles, Econ 201................. 3 3
Intro to Programming with FORTRAN, CSc 213........ 3 3
Dynamics, EM 222.................................... 2 2
Non-Technical Electives................................ 3 3

Junior Year

Mechanics of Materials, EM 321....................... 3 3
Thermodynamics, ME 314............................... 3 3
Basic Elec. Engr, EE 305............................. 3 3
Food Microbiology, Micr 311........................... 4 4
Intro to Literature, Engl 218........................... 3 3
Principles of Food Processing, NFS 351.............. 3 3
Tech Comm., Engl 303.................................. 4 4
Fluid Mechanics, EM 331............................... 4 4
Biochemistry, Chem 361............................... 2 2
Technical Electives................................... 4 4

Senior Year

Engr Prop of Biological Materials, AE 343............ 3 3

Technical Elective Courses

At least 9 credits from the following list:

- Advanced Food Science, NFS 341................... 4
- Applied Instrum, AE 463............................. 3
- Seminar, AE 471.................................. 3
- Microcomputer Appl, AE 372........................ 2
- Microcomputer Appl, AE 372........................ 2
- Electric Power & Processing, AE 444.............. 4
- AE Design, AE 451, 453............................. 1 3
- Non-Technical Electives.............................. 3 3
- Technical Electives................................ 4 4

Additional Suggested Technical Elective List Credits

- Introductory Biology, Bio 151....................... 3 3
- Introductory Biology, Bio 153....................... 3 3
- Environmental Microbiology, Micr 310............. 4 4
- Food Chemistry, NFS 360.......................... 4 4
- Environmental Chemistry, Chem 380................ 4 4
- Meat Processing Lab, AS 242........................ 1 1
- Meat Technology, AS 34................................ 3 3
- Technical Control of Dairy Products, DS 221...... 3 3
- Dairy Product Processing I, DS 321................ 5 5
- Dairy Product Processing II, DS 322................. 5 5
- Processing Equip for Ag Products, MA 443......... 3 3
- Agricultural Waste Mgmt., MA 463.................. 3 3
- Grain & Seed Processing, PS 312.................... 2 2
- Waste Water Engineering, CE 423................... 3 3
- Industrial Waste Mgmt., CE 524..................... 3 3
- Ag Power & Machine, AE 314........................ 4 4
- Ag Structures, AE 324................................ 4 4
- Physical Climatology & Meteorology, AE 353........ 3 3
- Soil & Water Engineering, AE 434................... 4 4
- Design of Machine Elements, ME 421.............. 4 4
- Business Management, Econ 360.................... 3 3
- Math Statistics, Math 381........................... 4 4
- Statistics, Stat 341................................. 3 3

Undergraduate Courses

202 Creative Design in Ag Engineering 2(1,3) F

- Analysis of farm machinery and equipment design, development and evaluation. P, sophomore standing.

314 Ag Power & Machines 4(3,2) F

- Analysis of factors affecting field machine and tractor performance, engine design, transmissions, traction, hitches, hydraulic systems, economics. P, EM 222, concurrent with ME 314.

324 Ag Structures 4(3,2) S


343 Engineering Properties of Biological Materials 3(2,2) F

- Engineering Properties of biological and interacting materials within a system. Relationships between composition structure, and properties of various biomaterials including food and plant and animal tissues. Definition and measurement of mechanical, physical, thermal and electromagnetic Properties and their variability. Use of these properties in engineering applications.

353 Physical Climatology & Meteorology 3(2,2) FS

- Physical description of daily weather changes and circulation of the atmosphere. Long time means and variation from means of climatological parameters. Application of meteorological and climatological principles to various problem areas.

Agricultural Engineering 75
434 Soil & Water Engineering 4(3,3) F

444 Electric Power & Processing 4(2,3) S
Electrical energy, basic electrical circuits, motors, lighting and agricultural electronics. Principles and applications of agricultural product processing and handling equipment, facilities and systems. P, EE 305 concurrent.

451, 453 Engineering Concepts & Design I & II 1(1,0) 3(1,4) FS
Procedure, theory, concepts and design of agricultural equipment for soil and water, structures and environment, electric power and processing and farm machinery applications.

463 Applied Instrumentation 3(2,2) F
The generalized measurement system consisting of the detector-transducer, intermediate modifying stage and terminating stage is considered. Applied use of oscilloscopes, oscillographs, potentiometers, operational amplifiers, x-y plotters and other basic instruments. Electronic instrumentation and microprocessor-based data acquisition systems. P, EE 305.

490 Seminar & Inspection Trip 1(1,0) F

492 Special Problems in Ag Engineering 1-3 FSSu
The solution must be written up in a final report. P, must have approval of the adviser and head of department.

493 Special Topics 1-4 (1-4, 0-2)
(On demand.) Individual or group study. P, consent.

494-495-496 Cooperative Education/Internship/Fielo Experience 1-6 FSSu
Planned and supervised professional experience related to agricultural engineering which takes place outside the formal classroom with private business or industry, or public agencies. P, consent of department program coordinator.

Graduate Courses

503-603 Energy & Environment 3(3,0) S93 F94
Discussion of conventional energy sources, their historic and projected use patterns, predicted resources and energy conservation. Evaluation of alternate energy sources such as solar, wind, biomass, tidal, geothermal, ocean thermal, oil shale and nuclear. Energy and the environment and energy and the agricultural industry.

512-612 Advanced Agricultural Tractors & Machines 2(2,0) 3(3,0) S93 F94
Units of instruction will be selected from the following areas: tractor chassis mechanics and dynamics, transmissions, hydraulics, human factors considerations for agricultural machine operators, soil dynamics in tillage and machine-plant concepts. P, Math 321 and AE 464 or equivalent.

522-622 Bio-environmental Engineering 2(2,0) F92 S94
Analysis of farm animals and their environment employing engineering principles combined with biological principles. Homeothermic mechanisms of animals and the influence of thermal environment upon growth and production. P, AE 324.

533-633 Advanced Irrigation Engineering 3(2,3) F93 S95
Basic soil-water crop relationships. Theory and design of pumping plants, surface, sprinkler and drift irrigation systems. P, 434 or consent.

542-642 Engineering Phases of Crop Processing 2(2,0) F93 S95
Physical properties of agricultural crops and engineering principles as they apply to cutting, shearing, collecting, packaging, transporting, drying, handling and storing agricultural products. P, AE 444.

700-701 Seminar 0-1

732 Advanced Hydrology in Agriculture 2(2,0) F93 S95

733 Ground Water Engineering in Ag 3(3,0) F92 S94

752 Theoretical Micro-Climatology 2(2,0) S93 F94

763 Instrumentation 3(2,3) S93 S94

770 Special Problems in Ag Engineering (1-2 on demand)

771 Graduate Seminar 1(1,0) F92 F93

772 Similitude 2(2,1) F92 S94

773 Programming Agricultural Systems 3(2,2) S93 F94

790 Thesis FSSu

791 Thesis Sustaining 1 FSSu

792 Research Report/Design Paper 2 FSSu (On demand)

795 Special Topics on Demand

890 Dissertation, Ph.D. Various

891 Dissertation, Ph.D. Sustaining Various

Agricultural Extension

(AgEx)

College of Agriculture and Biological Sciences
Lloyd H. Hansen, Extension Program Development Coordinator

The Cooperative Extension Service is the off-campus educational function of the College of Agriculture and Biological Sciences. The Service extends the SDSU campus to every community and the advantages of higher education to all people. Through its extension agents, and supporting statewide specialists, the Cooperative Extension Service disseminates the findings of research and encourages the application of knowledge to solution of problems encountered in everyday living.

The Agricultural Extension curriculum is designed for students who wish to prepare for Extension education work as Extension Agents in the Cooperative Extension Service. The major will also prepare students for opportunities in agriculture, farming and ranching, public service with various state, federal or international agencies, or graduate study which may lead to a career in teaching, research or extension. Since there are many courses in common with Agricultural Education, some students may desire to complete the requirements for both extension and teaching.

Curriculum in Agriculture
Agricultural Extension Major
Leading to the Bachelor of Science Degree

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Year</td>
<td>F S</td>
</tr>
<tr>
<td>Fr. Comp., Engl. 101</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1</td>
</tr>
<tr>
<td>Crop Production, PS 103</td>
<td>3</td>
</tr>
<tr>
<td>Algebra, Math 112</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Animal Science, AS 101</td>
<td>3</td>
</tr>
<tr>
<td>General Horticulture, Ho 111</td>
<td>3</td>
</tr>
<tr>
<td>General Psychology, Psy 101</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Dairy Science, DS 130</td>
<td>3</td>
</tr>
<tr>
<td>Introductory Biology, Bio 151</td>
<td>3</td>
</tr>
<tr>
<td>General Chemistry, Chem 110</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>16</td>
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</table>

<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th>F S</th>
</tr>
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<tbody>
<tr>
<td>Fundamentals of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Sociology, Soc 100</td>
<td>3</td>
</tr>
<tr>
<td>General Microbiology, Mic 231</td>
<td>4</td>
</tr>
<tr>
<td>Elementary Organic Chem, Chem 120</td>
<td>4</td>
</tr>
<tr>
<td>Soils, PS 113</td>
<td>3</td>
</tr>
<tr>
<td>Introductory Physics, Phys 101</td>
<td>4</td>
</tr>
<tr>
<td>Weed Science, PS 343 or Forage Crops &amp; Pasture Mgmt, PS 313 or Principles of Pl Path, PS 223</td>
<td>3</td>
</tr>
</tbody>
</table>

76 Agricultural Extension
Insect Pest Management, PS 307 or Hort

Practical Range Mgt., Rang 200................. 3

General Elective (See suggested list)............... 3

Junior Year

Advanced Composition, Engl 300.................. 3

Animal Nutrition, AS 223............................ 3

Macroeconomics Principles, Econ 201............ 3

Educational Psychology, E Psy 302................. 2

Humanities Elective*................................... 3

Farmland Units, MA 213.................................. 3

Farm & Ranch Mgt, AgEc 271.......................... 4

Practicum in Agricultural Education, AgEd 301. 1

General Electives (See suggested list)............. 3

Field Practice in Ext., AHEd 496 (Preferred summer between junior and senior year)......... (2-5) 16

Senior Year

F S

Animal Diseases and Their Control, Vet 403...... 3

Humanities Elective*................................... 3

Swine Production, AS 478, or Sheep & Wool Production, AS 477............................... 3

Beef Production, AS 474.................................. 3

Feed Technology, AS 333............................... 3

Publicity Methods, MCom 313.......................... 2

Discussion, SpCm 334..................................... 2

General Electives (See suggested list)............. 8

(2-5) 16

Electives for Agricultural Extension majors should be selected from the following courses: (Those with asterisks should be given priority consideration.) To broaden the student's scope and knowledge, consideration should be given to selecting at least one elective course from each of the Extension program and general categories listed below.

If you desire a specific minor or double major, you should choose your elective from that curriculum.

Agriculture:

Livestock Evaluation and Marketing, AS 285........ 4

Diseases of Field Crops, PS 333.................... 3

Irrigation — Crop and Soil Practices, PS 483 (992, 994)................. 3

Farm Building Mechanization, MA 423.............. 3

Ag Waste Management, MA 463..................... 3

Anatomy & Physiology of Livestock, Vet 323........ 3

Vegetable Growing, HO 316........................... 3

Landscape Design I, LA 321............................ 3

Natural Resources:

Introduction to Wildlife & Fisheries Management, WL 220......................... 2

Principles of Ecology, Bio 211...................... 3

World Crop & Soil Resources, PS 433................ 3

Community Development:

Sociology of Rural America, Soc 240................ 3

Population Problems, Soc 362....................... 3

General Anthropology, Anth 200..................... 3

Public Finance, Econ 433............................... 3

Comparative Economic Systems, Econ 405........... 3

Agricultural Policy, AgEc 479....................... 3

Leadership & Group Organization, Soc 533.......... 3

Youth Development: Credits

Social Problems, Soc 150.............................. 2

Recreation Leadership, Recr 360..................... 2

Management in Family & Personal Living, HE 241. 3

Communication and Leadership Skills: Credits

**Public Speaking, SpCm 315.......................... 3

**Television Production, MCom 331.................... 3

Public Administration, PolS 320...................... 3

Other: (Applicable to all Extension programs) Credits

**Microeconomics Principles, Econ 202............ 3

**Marketing, Econ 353.................................... 3

**Indians of North America, Anth 421................ 3

**Statistical Methods, Stat 341........................ 3

**Programming in Basic, CSc 110..................... 2

Agricultural Journalism

(See Department of Journalism)

Agronomy

(See Plant Science)

Animal Science (AS) and Range Science (Rang)

College of Agriculture and Biological Sciences

Professor Males, Head; Professors Costello, Gartner, Gee, J. Johnson, Libal, Romans, Slyter; Professors Emeriti Carlson, Dearborn, Dinkel, Embry, Kamstra, Kohler, Kortan, Lewis, Luther, McCarty, Minyard, Plumart, Wahlstrom; Associate Professors Boggs, Hamilton, Marshall, Miller, Pritchard, Pruitt, Wagner; Associate Professors Emeriti Bonzer, Bush, McConie; Assistant Professors Birkenlo, Goehring, Held, Insel, P. Johnson, McFarland, Nesvold, Sowell, Thaler; Adjunct Professors Emerick, Haas, Lilly, Swanson.

The department offers instruction leading to the Bachelor of Science degree with majors in Animal Science or Range Science.

The departmental curriculum is designed to prepare students for careers in livestock production, related agriculture business enterprises, farming and ranching, public service with various state, federal or international agencies or graduate study which may lead to a career in teaching, research or extension.

The application of various disciplines to the breeding, feeding, management and marketing of livestock and livestock products are stressed. Emphasis is placed on developing an understanding of the basics of genetics, nutrition, physiology, range and meats as they affect production and management of livestock and range lands. Master of Science and Doctor of Philosophy Degrees may be earned in Animal Science with specialization in animal breeding, nutrition, reproductive physiology, meats or range.

Animal Science Major. Majors receive instruction in animal breeding, feeding and nutrition, management, selection and evaluation, marketing, meats and wool. Courses pertain to beef cattle, horses, poultry, sheep and swine. Instruction in livestock production under both farm and ranch conditions is presented. All students selecting the major will complete the same basic core of courses. In addition, the student chooses one of three options: (a) Business, (b) Production, or (c) Sci...
ence. Students are encouraged to supplement their class and laboratory instruction with practical experience in the line of work they plan to pursue after graduation.

Curriculum in Agriculture, Animal Science Major
Leading to the Bachelor of Science Degree

<table>
<thead>
<tr>
<th>Credits</th>
<th>Freshman Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Opp. in Animal Science, AS 100 ....</td>
</tr>
<tr>
<td></td>
<td>Fr. Comp, Eng 101 ..................</td>
</tr>
<tr>
<td></td>
<td>Fund of Speech, SpCm 101 ...........</td>
</tr>
<tr>
<td></td>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
</tr>
<tr>
<td></td>
<td>Intro to Animal Science, AS 101 ...</td>
</tr>
<tr>
<td></td>
<td>Intro to Sociology, Soc 100 ..........</td>
</tr>
<tr>
<td></td>
<td>Intro Biology, Bio 151, 153 ........</td>
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<tr>
<td></td>
<td>Elective and option courses ..........</td>
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</table>

Freshman Year (Continued)

<table>
<thead>
<tr>
<th>Credits</th>
<th>Sophomore Year</th>
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<tbody>
<tr>
<td></td>
<td>Animal Nutrition, AS 223 ...........</td>
</tr>
<tr>
<td></td>
<td>Meat: Production to Consumption, AS 241</td>
</tr>
<tr>
<td></td>
<td>Macroeconomics Principles, Econ 201</td>
</tr>
<tr>
<td></td>
<td>Social Science Elective* ............</td>
</tr>
<tr>
<td></td>
<td>Genetics, Bio 371 ....................</td>
</tr>
<tr>
<td></td>
<td>Elective and option courses ..........</td>
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</table>

<table>
<thead>
<tr>
<th>Credits</th>
<th>Junior Year</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Advanced Composition, Engl 300 ....</td>
</tr>
<tr>
<td></td>
<td>Prin of Animal Breeding, AS 332 ....</td>
</tr>
<tr>
<td></td>
<td>*Humanities electives ...............</td>
</tr>
<tr>
<td></td>
<td>Engl 303 or MCom 313 ...............</td>
</tr>
<tr>
<td></td>
<td>Feed Technology, AS 333 ............</td>
</tr>
<tr>
<td></td>
<td>Animal Sci. Junior Seminar, AS 390 .</td>
</tr>
<tr>
<td></td>
<td>Option and elective courses ..........</td>
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<table>
<thead>
<tr>
<th>Credits</th>
<th>Senior Year</th>
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<tbody>
<tr>
<td></td>
<td>Livestock Reproduction, AS 433 ......</td>
</tr>
<tr>
<td></td>
<td>Animal Science Seminar, AS 490 ......</td>
</tr>
<tr>
<td></td>
<td>AS Production Courses (See options)</td>
</tr>
<tr>
<td></td>
<td>Option &amp; elective courses ...........</td>
</tr>
</tbody>
</table>

*See approved list.

<table>
<thead>
<tr>
<th>Credits</th>
<th>Production Option</th>
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<tbody>
<tr>
<td></td>
<td>Algebra, Math 112 or Algebra &amp; Trig, Math 113 ...</td>
</tr>
<tr>
<td></td>
<td>Gen Chem, Chem 110 ..................................</td>
</tr>
<tr>
<td></td>
<td>Intro Physics, Phys 101 or Elementary Physics I, Phys 111 or General Physics I, Phys 211</td>
</tr>
<tr>
<td></td>
<td>Organic Chem, Chem 120 .............................</td>
</tr>
<tr>
<td></td>
<td>Biochemistry, Chem 361 .............................</td>
</tr>
<tr>
<td></td>
<td>Livestock Evaluation and Marketing, AS 285 ....</td>
</tr>
<tr>
<td></td>
<td>Anatomy &amp; Physiology of Livestock, Vet 323†</td>
</tr>
<tr>
<td></td>
<td>Gen Microbiology, Micr 231 .......................</td>
</tr>
<tr>
<td></td>
<td>AS Production Courses. Elect two from: AS 365, 366, 474, 477, 478 — one must be 474, 477 or 478</td>
</tr>
<tr>
<td></td>
<td>Group I electives ..................................</td>
</tr>
<tr>
<td></td>
<td>General electives .................................</td>
</tr>
</tbody>
</table>

†Students planning graduate work or who plan to go into veterinary science should take Zool 221 and 325.

<table>
<thead>
<tr>
<th>Credits</th>
<th>Science Option</th>
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<tbody>
<tr>
<td></td>
<td>Gen. Chem., Chem 112, 114 ..................</td>
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<tr>
<td></td>
<td>Organic Chem., Chem 120 ..................</td>
</tr>
<tr>
<td></td>
<td>Biochemistry, Chem 361 ....................</td>
</tr>
<tr>
<td></td>
<td>Algebra &amp; Trig, Math 113, &amp; Calculus for non-Math majors, Math 222, or Algebra, Math 112; Plane Trig, Math 120 &amp; Calculus for non-Math Majors, Math 222</td>
</tr>
<tr>
<td></td>
<td>Gen Microbiology, Micr 231 ...............</td>
</tr>
<tr>
<td></td>
<td>Elementary Physics I-II, Phys 111-113 or Gen Physics I-II, Phys 211-213</td>
</tr>
<tr>
<td></td>
<td>Anatomy, Zool 221 and Mammalian Physiology, Zool 325 or ..................</td>
</tr>
<tr>
<td></td>
<td>Anat. and Physiol. of Livestock, Vet 323†</td>
</tr>
<tr>
<td></td>
<td>AS Production Courses. Elect two from: AS 365, 366, 474, 477, 478, one must be 474, 477 or 478</td>
</tr>
<tr>
<td></td>
<td>Group I electives* ..............................</td>
</tr>
<tr>
<td></td>
<td>General electives ...............................</td>
</tr>
</tbody>
</table>

*Except 101 and 223 which are required of all Animal Science majors.

Business Option

<table>
<thead>
<tr>
<th>Credits</th>
<th>Business Option</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Algebra, Math 112 or Algebra &amp; Trig, Math 111 ...</td>
</tr>
<tr>
<td></td>
<td>Intro Physics, Phys 101 or Elementary Physics I, Phys 111 or General Physics I, Phys 211</td>
</tr>
<tr>
<td></td>
<td>Gen Chem., Chem 110 ..................................</td>
</tr>
<tr>
<td></td>
<td>Organic Chem, Chem 120 .............................</td>
</tr>
<tr>
<td></td>
<td>Microeconomics Principles, Econ 202 ..............</td>
</tr>
<tr>
<td></td>
<td>Prin of Accounting I, Actg 210 ....................</td>
</tr>
<tr>
<td></td>
<td>Livestock Evaluation and Marketing, AS 285 ......</td>
</tr>
<tr>
<td></td>
<td>Anatomy &amp; Physiology of Livestock, Vet 323†</td>
</tr>
<tr>
<td></td>
<td>Communications elective in addition to core requirement*</td>
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<tr>
<td></td>
<td>Business Management, BAdm 360 ....................</td>
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<tr>
<td></td>
<td>AS Production Courses. Elect two from: AS 365, 366, 474, 477, or 478, one must be 474, 477, or 478</td>
</tr>
<tr>
<td></td>
<td>Business electives ................................</td>
</tr>
<tr>
<td></td>
<td>Group I electives ..................................</td>
</tr>
<tr>
<td></td>
<td>General electives .................................</td>
</tr>
</tbody>
</table>

*To be chosen from Engl 303, 307; MCom 210, 313, 315, 330, 331, 335, SpCm 201, 315, 334, 335.

Animal Science majors who desire to prepare to teach vocational agriculture need to plan on completing a double major in Animal Science and Agricultural Education. The Production Option meets the Animal Science part of the requirement. Contact an adviser in Agricultural Education not later than the Sophomore year for details about qualifications for Teacher Certification.

The Animal Science degree has a minimum requirement of 128 semester credits. The double major would necessitate completing 140 to 146 semester credits. This could be accomplished in an extra semester or by attending two summer sessions.

Animal Science Minor

19 cr. of AS courses including: 101, 223, 285; one of 332, 333 or 433; two of 241, 365, 366, 474, 477, 478, one must be 474, 477 or 478.

Undergraduate Courses

100 Opportunities in Animal Science 1(0,2)F
An overview of opportunities in Animal Science.

101 Intro to Animal Science 3(2,2) FS
Adaptation, breeding, feeding, marketing, behavior, classification, growth, genetics, reproduction, and animal health as they apply to farm animals.

105 Light (Saddle) Horses 1(1,2) FS
Breeds of horses, gaits, grooming, equipment, diets; basic instruction with suitable equipment.

106 Heavy (draft) Horses 1
Breeds of draft horses, gaits, grooming, handling, safety, equipment, diets, and basic instruction with suitable equipment (single and team).

223 Animal Nutrition 3(3,0) FS
Functions of various nutrients; digestion and metabolism of nutrients by different animal species. Chem 120 desirable antecedent. P, 101.
494-495-496 Cooperative Education/Internship/Field Experience 1-12 SSU
Supervised experience with a livestock enterprise or related agribusiness for exposure to industry problems and solutions, evaluation of career objectives and final career preparation.

Graduate Courses
591-691 Research Problems 1-3 FSSu

592-692 Special Topics 1-6 FS
Advanced study of one or more selected topics: breeding, management, product technology, physiology, nutrition, research methods or marketing.

711 Ruminology 3(3,0) F Odd Years
712 Ruminant Nutrition 3(3,0) S
723 Population Genetics 3(3,0) S Odd Years
731 Experimental Procedure 2(2,0) F Odd Years
732 Advanced Physiology of Reproduction 3(2,2)S Even Years
733 Vitamins and Minerals 3(3,0) S Odd Years
734 Protein and Energy Nutrition 3(3,0) F Even Years
736 Monogastric Nutrition 3(3,0) F
750 Animal Growth and Development 3(3,0) S Even Years
753 Meat Science 3(2,2) F Even Years
781 Graduate Seminar 1(1,0) FS
790 Thesis M.S. FSSu (as arranged)
791 Thesis Sustaining, M.S. (as arranged)
890 Dissertation, Ph.D. FSSu (as arranged)
891 Dissertation Sustaining, Ph.D. (as arranged)

Range Science (Rang)
The Range Science Program offers a diverse curriculum which prepares students for careers in the management of rangelands, the nation's largest natural resource. Both the practical and theoretical aspects of rangeland management are stressed, with emphasis placed on livestock grazing, forage production, ecology, soil conservation, wildlife habitat, watershed values and outdoor recreation. All Range Science students complete a basic core of courses. Each student also selects one of three options which allows him/her to specialize in a major area of the field: a) Business, b) Science, or c) Technical. The Business option prepares students for careers in ranching, rural real estate or banking. Students wishing to pursue graduate studies and/or employment in rangeland research or university teaching should select the Science option. Students who choose the Technical option will qualify for employment in a number of state, federal and international agencies; they also meet all the qualifications for Range Conservationist positions with federal agencies such as the Soil Conservation Service, Bureau of Land Management, Forest Service and Bureau of Indian Affairs. Students are strongly encouraged to seek opportunities to gain practical experience in their chosen field prior to graduation.

Curriculum in Agriculture, Range Science Major
Leading to the Bachelor of Science Degree

Freshman Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Intro Animal Science, AS 101</td>
<td>Intro Animal Science</td>
<td>3</td>
</tr>
<tr>
<td>Intro Biology, Bio 151</td>
<td>Intro Biology</td>
<td>3</td>
</tr>
<tr>
<td>Intro Biology, Bio 153 or Plant Structure and Function, Bot 200</td>
<td>Intro Biology</td>
<td>3</td>
</tr>
<tr>
<td>Algebra, Math 112 or Algebra and Trig, Math 113</td>
<td>Algebra</td>
<td>3 or 5</td>
</tr>
</tbody>
</table>

Animal and Range Sciences 79
### Undergraduate Courses

**205 Introduction to Range Management 3(2,2) F**
- Basic principles and application of range science including ecosystem structure, function and management. Water and nutrient cycles, energy flow, plant physiology, grazing management and vegetation systems will be discussed. Identification and management of important range plants in the Northern Great Plains are included. Range management principles such as seeding, fertilization, brush control, and prescribed burning will be introduced. Desirable antecedent, Bio 151 or 211.

**321 Wildland Ecosystems 3(3,0) S Even years**
- Structure, function and multiple-use management of the major wildland ecosystems of North America. Ecological concepts and renewable resource management strategies will be examined. Desirable antecedents 205, Bio 151, 153.

**325 Natural Resource Measurements 3(2,3) F Even years**
- Principles of sampling, field sampling methods, analysis of data and problem solving. Emphasis will be placed on measurement of important plant, animal and climatic attributes and on factors important in interpretation of that information. Field trips required. P, Stat 241. Desirable antecedent, 205.

**400 Judging Teams 1**
- Section 4 - Range Plant ID 1(0,2)S
- Instruction and practice in judging important range plants of North America.

**415 Range Improvements and Grazing Management 3(3,0) F Odd years**
- Management of rangelands for various products with emphasis on grazing animals. Planning and application of grazing systems, fire management, mechanical treatments, seeding, and fertilization will be included. Two weekend field trips will be required.

**421 Range Ecology Field Trip 3(3,0) Su* Even years**
- Two week extended field trip to study major range ecosystems of the Great Plains and Rocky Mountains. Management problems of private ranches, public lands, wildlife refuges, and mining lands will be studied. Course scheduled independent of regular Summer Session. P, consent of instructor.

**475 Natural Resource Management on Public and Private Lands 3(2,3) S Even years**
- Natural resource planning in the context of both public (federal and state) and private lands. Similarities and differences in management of natural resources between the two sectors will be examined considering historic, legal, economic, political and sociological influences.
Army ROTC
(See Military Science)

Biochemistry
(See Chemistry)

Aviation Education (Avia)
College of Education and Counseling
Instructor Jim Behnken

Aviation education at South Dakota State University offers a unique series of courses designed to permit individuals the opportunity to explore aviation. 200 level courses introduce aviation to beginning aviators, while 300 level courses focus on a more professional utilization of aircraft and aviation as a career. Federal Aviation Administration written examinations are administered upon successful completion of classroom courses for those wishing to pursue pilot certification. Flight courses are conducted on an individual basis under the supervision of FAA certified flight instructors. Instructor consent is required for registration in flight courses.

270 Introduction to Aviation
3(3,0) FS
Aerodynamics, principles of flying, Federal air regulation, meteorology, radio and navigation.

272 Introduction to Flight I
2 FSSu
Dual instruction given in basic flight maneuvers required for solo flight. Preflight and post-flight briefings held with each flight. P, Avia 270. Fee $500.

273 Introduction to Flight II
2 FSSu
Advanced phases of flying, including solo, cross-country flights and all phases of flight training. Course given in full compliance with FAA regulations. P, Avia 272 or equivalent. Fee $500.

370 Complex Aircraft Systems and Operations
3 F
Performance, flight characteristics, and the safe operation of complex and high performance propeller driven aircraft. P, Avia 270. Phys 111 is also recommended.

371 Instrument Aircraft Operations
3(3,0) S
Radio navigation principles and procedures, aircraft operations within the air route traffic control system, FAA regulations, and meteorology as pertinent to the safe operation of aircraft in restricted visibility. P, Avia 370, Geo 337 or AE 353 is also recommended.

372 Advanced Flight Training
1-8
Individual instruction in preparation for advanced Federal Aviation Administration certificates and ratings. Students will be expected to complete a minimum of 25 hours of flight training, as assigned, per credit hour. Repetitive registration will be allowed for a total of 8 credit hours. Special fees and instructor consent required.

Biology (Bio) and Microbiology (Micr)

Including the areas of Botany (Bot)
Environmental Management (EnvMgmt) and Zoology (Zool)

College of Agriculture and Biological Sciences
Professor McMullen, Head; Professors Chen, Granholm, J. Haertel, L. Haertel, Hutcheson, Larson, Myers, Peterson, Song, Westby, Whalen; Professors Emeriti Baker, Hartwig, Huggins, Morgan, Pengra, Semenink, Taylor; Associate Professors Gibbons, Hildreth, Kayongo-Male, Morrill, Westfall; Assistant Professors Bell, Bleakley, Cheesbrough, Hurley, Reese; Adjunct faculty Benfield, Diggins, Francis, German, Henning, Jackson, Libal, Myers, Reidel, Tieszen, West, Woodson.

The Biology and Microbiology Department offers curricula leading to the Bachelor's degree with majors in Biology, Environmental Management, and Microbiology. Flexibility in the curricula allows you to follow pre-professional programs such as medicine, dentistry and optometry (see College of General Registration for details), and physical therapy (see coordinator of PT program in HPER); this flexibility may also allow you to obtain a second major in Chemistry, Clinical (Medical) Laboratory Technology (see coordinator of CLT program in Chemistry Department), or another supporting area. The Department offers a program for teaching in secondary schools through substitution of education courses for general electives (Biology major only).

The courses taught in this department are designed to: 1) prepare you for specific fields in biological science; 2) provide fundamental principles for advanced work in various fields of biological science, agriculture and health professions; 3) present the general biological principles required to comprehend the complexities of living systems and their interactions.

Curriculum for all majors in the Department

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr Comp, Engl 101</td>
<td>3</td>
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<tr>
<td>Fund of Speech, SpCm 101</td>
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<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
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<tr>
<td>Gen Chem, Chem 112, 114</td>
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<tr>
<td>Math 113 or Math 112 &amp; Math 120</td>
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<tr>
<td>Intro Biology, Bio 151, 153</td>
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<tr>
<td>Microcomputer Literacy, CSc 112</td>
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<tr>
<td>Electives*</td>
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Sophomore Year

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<tr>
<th>Course</th>
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<tr>
<td>Organic Chem, Chem 326 &amp; 328 (or Chem 120 &amp; Chem elective (Recommend Chem 361))</td>
<td>8</td>
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<tr>
<td>Gen Microbiology, Micr 231</td>
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<tr>
<td>Major Courses, Emphasis and Electives*</td>
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<tr>
<td>Sophomore Seminar, Bio 290</td>
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<tr>
<td>Social Science Electives** (See Major Requirements for your College)</td>
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<tr>
<td>Electives*</td>
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Junior Year

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<tr>
<td>Genetics, Bio 371</td>
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<tr>
<td>Advanced Composition, Engl 300</td>
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<tr>
<td>Elementary Physics, Phys 111-113</td>
<td>8</td>
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<tr>
<td>Major Courses, Emphasis and Electives*</td>
<td>10-12</td>
</tr>
<tr>
<td>Humanities Electives (See Major Requirements for your College)</td>
<td>6-8</td>
</tr>
</tbody>
</table>

Biology and Microbiology 81
Major Courses, Emphasis and Electives (Recommend *See approved list).

B.S. in Biological Sciences:
- 12 Hours of Social Science
- 6 Hours of Humanities

B.S. in Agriculture:
- 9 Hours of Social Science including Econ 201 and Soc 100
- 6 Hours of Humanities
- 12 Hours of Group 1 Agriculture Electives including PS 113

B.S. in Arts and Science:
- 12 Hours of Social Science
- 6 Hours of Humanities

Seminar, Bio 490 or Micro 490

Credits

Year

Senior

Communications Elective
Seminar, Bio 490 or Micro 490
Major Courses, Emphasis and Electives
(Recommend Stat 341 or Math 222 for general electives)
General Electives**(Arts and Science See Social Science and Humanities Requirements)

2-3
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*See selected Majors, Emphases, and Electives.
**Individual College Requirements.

B.S. in Agriculture:
- 9 Hours of Social Science including Econ 201 and Soc 100 plus 1 Social Science Elective (See approved list).
- 6 Hours of Humanities (See approved list).
- 12 Hours of Group 1 Agriculture Electives including PS 113 (See approved list).

B.S. in Biological Sciences:
- 9 Hours of Social Science including Econ 201 and Soc 100.
- 6 Hours of Humanities (See approved list).

At least 25 semester credits of the 128 total for graduation must be upper division (300 and above).

At least 25 semester credits of the 128 total for graduation must be upper division (300 and above).

At least 25 semester credits of the 128 total for graduation must be upper division (300 and above).

Biology Major (Bio)

Courses of the Biology major core curriculum, Bio 151-153, 290, 371, 490, and Micro 231, form a foundation upon which specialized areas can be built. The biological science electives selected to build around this "core" may be taken in departments other than Biology and Microbiology, including Wildlife and Fisheries Sciences, Plant Science, and Animal Science. Depending upon your background and needs, the undergraduate Biology major has two different programs from which to choose: The B.S. in Biological Science or the B.S. in Arts and Science. These two programs are identical except for the individual college requirements, and they are equally suited to advanced studies and careers in Biology.

The major in Biology meets the requirements for the minor in chemistry. As a Biology major, you are encouraged to declare the Chemistry minor prior to graduation in order to receive credit for the minor on your transcript. For those planning to teach in the secondary schools, the department recommends that physics or mathematics be considered as an additional minor field since combination science and math teachers are in greater demand than full-time biology instructors. Certification for athletic coaching (See Undergraduate Coordinator in HPER for requirements) also improves options for the potential biology teacher since many secondary teaching positions involve coaching responsibilities.

Students majoring in Biology will select among three areas of emphasis depending upon their particular interests and needs: (1) Biology, (2) Botany, and (3) Zoology. These emphasis areas are designed to permit flexibility in the selection of courses within the major field while insuring a well balanced exposure to diverse aspects of biological science. Selection of an area of emphasis can wait until the sophomore or junior year, allowing you to gain experience in varied areas of Biology before making the choice.

The Biology emphasis prepares a student to work in a large variety of areas of the biological sciences. The advancement of biotechnology, genetic engineering and other areas of the living world need people who have a good background in the biological sciences. The biology emphasis can be the basis for many advanced studies and prepares the student for the teaching and health-related professions. This emphasis provides you with a balanced background in the biological sciences and is a good background for entry into government, private sector or advanced degrees.

The Botany emphasis concentrates on the scientific study of plants. As a science, botany explores how plants function from the molecular to the ecosystem level (plant physiology, morphology and ecology), how they are organized as living things (plant anatomy) and how they are classified, identified and related (plant systematics). Introductory courses in Botany are intended to expand your cultural background in plant biology and to help you appreciate their diversity and their roles in the environment and in our day to day lives.

Other courses prepare you for more specialized courses in Botany and related fields such as Agronomy and Horticulture. The graduate with an emphasis in Botany is qualified for professions in plant research and industry. Graduates wishing to pursue a career in a specialized area of Botany are encouraged to consider an advanced degree program. Above all, the Botany emphasis is designed to provide the student with a thorough understanding and appreciation of the Green World around us.

The Zoology emphasis highlights the scientific study of animal life. Among the basic disciplines are morphology (both gross and microscopic anatomy), development (developmental biology), physiology, ecology, behavior, and parasitology. Included within these disciplines are many important aspects such as environmental relationships of the vast array of animals, both vertebrate and invertebrate. Zoology provides the basis for many related disciplines such as medicine and health sciences, veterinary science and oceanography, and the Zoology emphasis is excellent for those wanting to enter those fields. Graduates with the Zoology emphasis frequently pursue advanced degree programs which enhance their employment opportunities in federal and state government agencies, private research laboratories, educational institutions, health professions, museums, and zoological parks. The Zoology emphasis also provides for persons having a purely cultural interest in the field; it is a branch of knowledge which can enrich the life of the educated person.

Each area of emphasis requires a minimum of 45 credit hours from the following lists. A minimum GPA of 2.0 must be maintained in the major and chemistry courses.

The following courses are required for all Biology Majors:

Biology
Bio 151-153
Bio 290, Sophomore Seminar
Bio 490, Senior Seminar
Bio 371, Genetics
Micro 231, General Microbiology

6
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1
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17
All Environmental Management majors are required to take the following courses:

Principles of Ecology, Bot 211 .......................... 3
Environmental Microbiology, Micr 310 .. 4
Soils, PS 133 .................................. 3
Geology, PS 243 ................................ 3
Plant Ecology, Bot 415 .................. 4

At least two (2) courses from the following list are required; additional courses from this list may be taken as electives:

Zool 203 Animal Kingdom 3
Zool 221 Anatomy 3
Zool 355 Mammalogy 3
Zool 357 Invertebrate Zoology 4
Zool 365 Vertebrate Zoology 4
Zool 441 Vertebrate Histology 4

At least two (2) courses from the following list are required; additional courses from this list may be taken as electives:

Bio 211 Principles of Ecology 3
Bio 343 Cell Biology 3
Bio 373 Evolution 3
Bio 427 Plant Physiology 4
Micr 422 Immunology 4
Micr 436 Molecular and Microb Gen 4
Zool 301 Animal Behavior 3
Zool 325 Mammalian Physiology 4
Zool 383 Embryology 4

Biological Science Electives — Any Bio, Bot, Zool, WL, or Micr prefixed courses (with the exception of Seminars)

In addition, Environmental Management Majors are required to take 22 hours from the following list of approved electives: AE 353, 434; Bio 343, 353, 372, 373, 453; Bot 201, 301, 305, 427; Chem 232, 340, 341, 352, 361, 380; Geol 310, 365, 464; HSC 432, 440, 443; La 324; Math 123, 222, 224, 225, 381; MA 463; Micr 412, 422; Phys 331, 433; PS 223, 305, 310, 362, 372, 375; PolS 320, 408; Rang 300, 321, 411, 421, 470, 471; Soc 362; Stat 341, 441; WL 210, 363, 367, 411, 412; Zool 203, 325, 355, 357, 365, 467.

Microbiology (Micr)

This curriculum is designed to provide basic knowledge in the sciences as well as a liberal arts education. The faculty will acquaint you with specialties such as environmental, food, soil, and medical microbiology as well as immunology. Three curricula in Microbiology are available through the department. A Bachelor of Science in Agriculture, major in Microbiology, and a Bachelor of Science in Biological Science, major in Microbiology, are offered in the College of Agriculture. A Bachelor of Science with a major in Microbiology is also available in the College of Arts and Science. These programs meet the standards set by the educational division of the American Society for Microbiology (ASM) for official recognition. Upon completion of either program, students will be prepared to take the national registry exam administered by the American Academy of Microbiology (a branch of ASM). Successful completion of this exam confers the title of RM (Registered Microbiologist).

Graduates are equipped for technical work in a variety of jobs such as in diagnostic and research laboratories, public health, food industry, pharmaceutical companies, etc. With
the recommended electives the graduate is prepared to enter graduate school to pursue a Master's or Doctor's degree.

Departmental requirements are held to a minimum to allow for greater flexibility in the individual's development. Many students select a second major in either Clinical Medical Technology (CLT), Chemistry, or Biology. A microbiology major is often taken along with the pre-professional programs of Medicine, Dentistry, and Veterinary Medicine. The goal is to provide a sound but varied educational experience with a specialty in Microbiology.

A major in Microbiology is offered with satisfactory completion of the Departmental Core Curriculum, as well as 28 credits in Microbiology and 24 credits in Chemistry from the courses outlined in the following lists. A minimum GPA of 2.0 must be maintained for the required 28 credits in microbiology and the required 24 credits in chemistry.

The following microbiology courses are required of all majors:

- Micr 231 General Microbiology .......................................................... 4
- Micr 322 Microbial Physiology, lecture .................................................. 2
- Micr 333 Microbial Physiology, lab ....................................................... 2
- Micr 436 Molecular and Microbial Genetics ........................................... 4
- Micr 422 Immunology ............................................................................ 4
- Micr 490 Seminar 2 at ............................................................................ 1 cr. each

One (1) course in applied microbiology from the following list is required; additional courses from this list may be taken as electives:

- Micr 432 Pathogenic Microbiology ........................................................ 4
- Micr 310 Environmental Microbiology ................................................. 4
- Micr 311 Food Microbiology ....................................................................
- Micr 412 Soil Microbiology .................................................................... 3

Other elective courses in microbiology to complete the 28 credit minimum. Electives may be chosen from the following list (or from the list above):

- Micr 414 Anaerobic Microbiology ...........................................................
- Micr 492 Microbiology Problems .........................................................
- Bio 467 Parasitology ...............................................................................
- Micr 493 Special Topics .......................................................................... 0
- Micr 494, 495, 496 Cooperative Education/Internship/Field Experience ...
- Vet 592 Virology .....................................................................................

The following courses are required:

- Chem 112, 114 General Chemistry I and II, 8 cr.
- Chem 326, 328 Organic Chemistry I and II, 8 cr. (or Chem 120 Elementary Organic Chemistry and an approved chemistry elective)(Note: 1 year of organic chemistry is required before entering the Microbiology Graduate Program)
- Chem 361 Biochemistry, 4 cr.
- Chem 232 Quantitative Analysis, 4 cr.
- Stat 341 Statistical Methods, 3 cr. (or Math 222 Calculus for Non-math Majors, 5 cr.; or Math 123 Calculus and Analytical Geometry I, 5 cr.)

The Minor in the Department

The Minor in Biology consists of Bio 151, 153, 211, 343, 371; Bot 201; Zool 203. It is recommended that one semester of Chemistry, Physics, and Microbiology be taken.

The Minor in Botany consists of Bio 151, Bot 200 or 201, 301, 415 and 421.

The Minor in Microbiology consists of completion of 16 credits to include Micr 231, and either Micr 332/333, Micr 436 or Micr 422.

The Minor in Zoology must include Bio 151, 371, Zool 357, 365 plus department approved courses to total a minimum of 17 credits.

Graduate Study

The department offers the following graduate majors: M.S. degree in Biology and Microbiology; Masters in Science Teaching (MST); and Ph.D. degree in Biological Sciences. For further information, consult the graduate bulletin.

Biology (Bio) Undergraduate Courses

101 Introduction to Biology 4(3,3) FS

An introduction to the biological concepts common to our life forms, including humans. Emphasis on the cell, genetics, structure and function, development, evolution, behavior and ecological adaptations. Intended for those not majoring in Biology or related fields. Duplicate credit for Bio 101 and 151 not allowed. B average in 101 will serve as prerequisite for subsequent Biology department courses requiring Bio 151 as P.

151 Introductory Biology 3(2,3) FSSu

Fundamental concepts: the cell structure, function, chemistry and reproduction; molecular and Mendelian genetics; plant and animal diversity through evolution; and ecology.

153 Introductory Biology 3(2,3) FSSu


211 Principles of Ecology 3(3,0) F

Environmental interactions with organisms, populations and communities; population interactions and evolution, community organization and succession, energy flow, biogeochemical cycles; human ecology. P, Bio 151 and 3 hours Bioscience.

271 Heredity & Society 2(2,0) FS

Principles of heredity with emphasis on humans. May not be substi­tuted for Bio 371 and credit will not be granted for both.

290 Sophomore Seminar 1(1,0) F

Student will explore the various career opportunities in the biological sciences and procedures for employment.

292 Special Problems 1-4 FSSu

Independent study in specialized area of the biological sciences. Objectives, scope of work and plan of study specified by instructor and student(s). P, Bio 151 and consent of instructor and department.

343 Cell Biology 3(2,2) S

Cell structure and function with laboratory techniques of culturing and handling cells. P, Bio 151, Chem 120.

353 Introduction to Oceanography 3(3,0) S

Physical chemical, geological and biological aspects of oceanography. Ocean resource use. P, 1 year college science.

371 Genetics 3(3,0) FSSu

Principles governing the nature, transmission and function of hereditary material with application to plants, animals, humans, and microorganisms. P, Bio 151.

372 Genetics Laboratory 1(0,2) FS

Experiments with Drosophila and other organisms, illustrating probability, meiosis, sex linkage, independent assortment, crossing over, interference and biochemical genetics. To be taken concurrently with Bio 371, but not required for 371.

373 Evolution 3(3,0) S

Provides an understanding of the processes which have brought about long-term changes in living systems. Surveys evidences of plant and animal evolution, achievement in evolution theory and examines mechanisms responsible for genetic change. P, Bio 151.

375 Water Quality in Agriculture 3(3,0) S


383 Bioethics 4(4,0) F

Ethical, social and policy dilemmas in medicine and biology. P, Bio 151. Cross-listed as Phil 383.

445 Histological Techniques 3(1,6) S

Graduate Courses

525-625 Biology of Aging 2(2,0)F

553-653 Advanced Genetics 3(3,0)F (even years)
- Procedures in genetic studies as they relate to molecular and classical genetic applications. P, Bio 371 Cross listed with Plant Science.

562-662 Eukaryotic Molecular Biology 3(3,0) S

595-695 Strategies in Science Teaching 3(3,0) F
- Training in identifying and teaching certain processes deemed fundamental to science and scientific behavior. Cross listed with SeEd 416.

597-697 Special Topics 1-5 FS

740 Metabolic Responses to Environmental Stress 3(3,0)F (even years)

751 Biology of Algae 4(2,5) F (odd years)

762 Eukaryotic Molecular Biology Laboratory 1(0,3) S

773 Cytogenetics 2(3,3) F (odd years)
- Cross listed PS 773

780 Developmental Genetics 3(3,0) S

782 Special Problems 1-4 FSSu

790 Thesis 1-7 FSSu

791 Thesis Sustaining 1 FSSu

792 Graduate Seminar 1(1,0) FSSu

793 Biological Research Problems 1-3 FSSu

890 Dissertation — Ph.D. 1-7 FSSu

892 Ph.D. Seminar 1(0,1) FS

Botany (Bot) Undergraduate Courses

200 Plant Structure and Function 3(2,2) S

201 Plant Kingdom 3(2,2) S
- Survey of the major plant groups, their origins and evolutionary contributions. P, Bio 151.

301 Plant Systematics 4(2,4) S
- Principles of phylogeny, classification and nomenclature; demonstrations, field study and laboratory practice in collecting, preserving and identifying plants. P, Bio 153 or Bot 200 or Bot 201.

305 Agrostology 3(1,4) F
- Systematic study of grasses, their classification and nomenclature; laboratory practice in recognition and identification of grasses. P, Bio 153 or Bot 200 or Bot 201.

415 Plant Ecology 4(3,2) F

421 Plant Anatomy 3(2,3) F

427 Plant Physiology 4(3,3) F
- Plant functions and adjustments. P, Bio 151, 153 or Bot 200 or Bot 201, desirable antecedent Chem 120.

492 Special Problems 1-4 FSSu
- Independent study in specialized area of the botanical sciences. Objectives, scope of work and plan of study specified by instructor and student(s). P, Bio 151 and consent of instructor and department.

Graduate Courses

512-612 Morphology of Non-Vascular Plants 3(1,3) F (odd years)

513-613 Morphology of Vascular Plants 3(2,3) S (even years)

705 Aquatic Plants 3(1,4) F (even years)

715 Advanced Plant Ecology 4(3,3) S

727 Advanced Plant Physiology 4(2,4) S (even years)

730 Plant Molecular Biology 3(3,0) F (odd years)

781 Plant Tissue Culture 3(2,3) F (even years)

782 Special Problems 1-4 FSSu

785 Growth and Development 4(2,4) S (odd years)

797 Special Topics 1-5 FS

Microbiology (Mier) Undergraduate Courses

231 General Microbiology 4(2,4) FS
- Principles of basic and applied Microbiology. P, Chem 110 or 112.

310 Environmental Microbiology 4(2,4) S

311 Food Microbiology 4(2,4) F
- Microbiology of fresh and processed meats, dairy products, vegetables and modern convenience foods. Laboratory quality study of food preservation, processing and spoilage. P, 231.

322 Microbial Physiology 3(2,0) S
- Cytology, nutrition, metabolism, and growth of microorganisms. P, 231.

333 Microbial Physiology Lab 2(0,4) S
- Media preparation, sterilization, microscopy, assay of microbial enzymes, DNA purification. P, Mier 231 and 332 or concurrent in 332.

412 Soil Microbiology 3(2,3) S
- Microbial species of agricultural soils and biochemical changes brought about by these microorganisms. P, 231.

414 Anaerobic Microbiology 3(2,3) F
- Techniques used for the anaerobic cultivation of microorganisms. P, 231.

422 Immunology 4(3,3) F
- Immunology and immunochemistry, mechanisms of immunologic injury, and their application to clinical immunobiology. Serological techniques for detecting and measuring the presence of antigens or antibodies in specimens and production of immune serum. P, 231.

423 Pathogenic Microbiology 4(2,4) S
- Host-parasite relationships, pathogenesis, pathology, laboratory diagnostic tests, and treatment of animal and human diseases. Laboratory study of morphology, cultural characteristics, and specific diagnostic techniques for the etiologic agents. P, 231.

436 Molecular and Microbial Genetics 4(4,0) F
- A basic course in molecular genetics. Examples to illustrate genetic principles are drawn from all forms of life. P, Bio 371 and Mier 231.

490 Seminar 1(1,0) FS
- Familiarization with the Microbiology profession and presentation of topics based on microbiological literature in scientific journals. P, senior status or consent, Mier 231.

492 Microbiology Problem 1-3 FSSu
- Microbiological problems associated with current research or teaching. Practical laboratory experience is encouraged for seniors majoring in Microbiology. 6 credits maximum. P, consent of instructor and senior standing, Mier 231.
Zool 467 General Parasitology 3(2,3) S
(See description in Zoology)

493 Special Topics (1-4) FS
Selected topics to provide specific knowledge and technical experience in current areas of research and development. P, senior standing and consent of instructor, Mier 231.

494-495-496 Cooperative Education/Internship/Field Experience 1-12 FSSu
Supervised practical experience or internship in Microbiology. Prior arrangements must be made with a staff member to be eligible. A maximum of 4 credits will count toward minimum requirements of major. P, consent of instructor.

Graduate Courses

524-624 Virology 4(3,4) S
Basic course discussing the characterization, structure, and replication of viruses and the pathogenesis of viral disease in man and animals. Laboratory exercises emphasize techniques in virus isolation, characterization, and detection by immunological assays. P, Mier 422 or consent. Cross listed as Vet 524-624.

537-637 Systematic Bacteriology 4(2,4) F
Techniques for isolation, identification, classification, and preservation of bacterial cultures are presented. Current topic areas and selection, characterization, and detection by immunological assays. P, Mier 422 or consent. Cross listed as Vet 524-624.

552-652 Advances in Microbiology 1-4 S
In-depth study of selected areas or specialties within Microbiology to strengthen and expand the current knowledge and technical skills of advanced undergraduate and graduate students in Microbiology. Prerequisites will vary depending upon the area studied. P, 231 and consent of instructor.

713 Industrial Microbiology 4(2,4) F
738 Microbial Metabolism 4(2,4) S
742 Graduate Seminar 1(1,0) FS
782 Microbiology Problem 1-4 FSSu
790 Thesis 1-7 FSSu
791 Thesis Sustaining 1 FSSu

Zoology (Zool) Undergraduate Courses

123 Human Biology 3(3,0) F
Presents key biological principles that are characteristic of living things in general and human beings in particular, focusing on the application of these principles to the concerns of contemporary life. Not intended for life science majors.

203 Animal Kingdom 3(2,3) FS
Principles of animal classification, the theories of evolution, how animals grow and reproduce, and distribution of animal life. Provides an understanding of kinds and numbers of animals, structure of representatives of different groups, body processes and ways that animals live. P, Bio 151 or consent.

221 Anatomy 3(2,3) FSSu
Structure of various systems of the body as basis for physiology. Models and charts are used with reference to skeletons. Injected and embalmed rats are used for a limited amount of dissection.

301 Animal Behavior 3(3,0) S
Animal behavior from many aspects, including communication, social organization, orientation, imprinting, courtship and mating, agonistic behavior, control systems, and the evolution of behavior patterns. P, Bio 151 or consent.

325 Mammalian Physiology 4(3,3) FS
Basic cell physiology. Neural, hormonal and neuroendocrine control systems. Coordinated body functions. P, 8 credit hours of Chemistry and Zool 221 or consent.

335 Mammalogy 3(2,2) F
Identification of game, fur-bearers, and small mammals; taxonomy of these groups, life histories and habits, preparation of study skins and skeletons; special reference to those occurring in Northern Great Plains areas. P, Bio 151.

357 Invertebrate Zoology 4(3,2) S
Phyla of invertebrate animals, emphasis on taxonomy, morphology, ecology, phylogenetic relationships, and economic importance. Some field work. P, Bio 151.

365 Vertebrate Zoology 4(3,3) F
Structure and ways of life of the vertebrate classes. General anatomy, organ systems, and special characteristics of each class of vertebrates as well as detailed classification of the major taxa down to the family level. P, Bio 151.

388 Embryology 4(2,4) S

441 Vertebrate Histology 4(2,5) F
Microscopic study of cells and fundamental tissues. Structures of organs and systems are stressed to integrate structure and function. P, Bio 151.

467 General Parasitology 3(2,3) F
The broad field of animal parasitology, including protozoa, helminths, and arthropods. Emphasis on identification, life histories, control, and economic and medical importance. Laboratory includes morphology and identification of representative groups of parasites, as well as techniques of diagnosis of parasitic disease. P, Bio 151.

495 Special Problems 1-4 FSSu
Independent study in specialized area of Zoology. Objectives, scope of work and plan of study specified by instructor and student(s). P, Bio 151 and consent of instructor and department.

498 Special Topics in Zoology 1-5 FSSu
(As arranged) Qualified students may investigate special topics under supervision of department staff in the following and other selected areas: Human Genetics, Principles of Animal Taxonomy, Helminthology, Herpetology.

Graduate Courses

723 Systemic Physiology 4(3,3) F (even years)
Cross listed as Vet 723
725 Systemic Physiology 4(3,3) S (odd years)
Cross listed as Vet 725
782 Special Problems 1-4 FSSu
797 Special Topics in Zoology 1-5 FS
Business Area Studies

Business Area Studies

The following group of business related courses represents offerings from all academic departments (or in cooperation with other institutions) of interest to majors in the various business related curricula of the university. They are particularly useful as an adjunct to majors in agri-business, agricultural economics, agronomy, animal science, crop science, dairy manufacturing, dairy production, economics, horticulture, interior design, mechanized agriculture, pest management, printing management, pharmacy, restaurant management, soil science, textiles and clothing, and for those following the various engineering major curricula.

Accounting (Actg)

210 Principles of Accounting I 3(3,0) FS
211 Principles of Accounting II 3(3,0) FS
310 Intermediate Accounting I 3(3,0) F
311 Intermediate Accounting II 3(3,0) S
320 Cost Accounting 3(3,0) S
430 Tax Accounting 3(3,0) F

Agricultural Economics (AgEc)

271 Farm & Ranch Management 4(3,2) FS
352 Agricultural Law 3(3,0) F
354 Agricultural Marketing and Prices 3(3,0) FS
373/PS 373 Rural Real Estate Appraisal 3(2,2) F
454 Economics of Grain and Livestock Marketing 3(3,0) F
478 Agricultural Finance 3(3,0) F
Business Administration (BAdm)
310 Business Finance 3(3,0) FS
326 Operations Research 4(4,0) FS
350 Business Law I 3(3,0) FS
351 Business Law II 3(3,0) F
360 Business Management 3(3,0) FS
380 Personal Finance 3(3,0) FS
427 Business Policy 3(3,0)FS
450 Principles of Selling 3(3,0) FS

Computer Science (CSci)
271 Computer Programming 4(3,2) FS
313 COBOL Programming 3(2,2) F

Economics (Econ)
353 Marketing 3(3,0) FS
382 Labor, Law and Economics 3(3,0) S
391 Consumers and the Market 3(3,0) FS
452 Marketing Management 3(3,0)
453 Risk Management — Personal and Business 3(3,0)

Geography (Geog)
454 Industrial and Commercial Site Selection 3(3,0) FS

Mathematics (Math)
241 Mathematics of Finance 3(3,0) S

Mass Communications (MCom)
313 Publicity Methods 2(2,0) FSSu
370 Principles of Advertising 3(3,0) F

Political Science (PolS)
428 Personnel and Budgetary Administration 3(3,0) S

Printing (Prtg)
312 Media Personnel Management 3(3,0) FS
313 Media Labor Management 3(3,0) S
314 Sales Promotional Circulation 3(3,0) FS

Psychology (PsyC)
331 Business and Industrial Psychology 3(3,0) F

Speech (SpCm)
201 Interpersonal Communication 3(3,0) S
315 Public Speaking 3(3,0) FS

Textiles, Clothing and Interior Design (TCID)
275 Fashion Economics 3(3,0) F
373 Retailing 3(3,0) S

Chemistry (Chem)
Including the areas of Medical Technology (MEDT), Biochemistry, and Master of Science Teaching Chemistry (MSTC)

Computer Science (CSci)
271 Computer Programming 4(3,2) FS
313 COBOL Programming 3(2,2) F

Economics (Econ)
353 Marketing 3(3,0) FS
382 Labor, Law and Economics 3(3,0) S
391 Consumers and the Market 3(3,0) FS
452 Marketing Management 3(3,0)
453 Risk Management — Personal and Business 3(3,0)

Geography (Geog)
454 Industrial and Commercial Site Selection 3(3,0) FS

Mathematics (Math)
241 Mathematics of Finance 3(3,0) S

Mass Communications (MCom)
313 Publicity Methods 2(2,0) FSSu
370 Principles of Advertising 3(3,0) F

Political Science (PolS)
428 Personnel and Budgetary Administration 3(3,0) S

Printing (Prtg)
312 Media Personnel Management 3(3,0) FS
313 Media Labor Management 3(3,0) S
314 Sales Promotional Circulation 3(3,0) FS

Psychology (PsyC)
331 Business and Industrial Psychology 3(3,0) F

Speech (SpCm)
201 Interpersonal Communication 3(3,0) S
315 Public Speaking 3(3,0) FS

Textiles, Clothing and Interior Design (TCID)
275 Fashion Economics 3(3,0) F
373 Retailing 3(3,0) S

Chemistry (Chem)
Including the areas of Medical Technology (MEDT), Biochemistry, and Master of Science Teaching Chemistry (MSTC)

College of Arts and Science Professor Hilderbrand, Head;
Professors Emerick, Evenson, Fitzgerald, Gehrke, Grove, Hecht, Houglum, Jensen, Kenefick, Matthees, Palmer, Rue, Spinar; Professors Emeriti Brandwein, Gastler, Halverson, Johnson, Klug, McRoberts, Olson, Webster, Wadsworth, Whitehead; Associate Professors Kayongo-Male, Lewis, Rice, West; Assistant Professors Inman, Majerle, McFarland, Utecht; Instructor Pravecek.

The Chemistry department is on the approved list of the American Chemical Society for training professional chemists. Graduates are certified to the American Chemical Society as being eligible for full membership following two years of graduate work or other experience in chemistry.

Department courses serve three general purposes. First, since chemistry is so closely related to other fields of study, a number of courses are offered to provide sufficient chemical background to meet professional needs. Second, a minor can be obtained by students wanting more extensive chemistry without majoring in chemistry. Third, you can major in chemistry by choosing one of the following curricula. Note: No grade below "C" in chemistry courses will be accepted toward a major in chemistry.

General Chemistry
The general chemistry curriculum prepares you for careers in the following: agricultural chemistry, chemical business, environmental chemistry, industrial quality control, and the teaching of chemistry. These various areas will require the appropriate additional courses. For example, students who have teaching in mind should begin taking courses in education at the start of the junior year in order to meet the requirements for teachers. Majors in general chemistry may work toward either the Bachelor of Science or Bachelor of Arts degree. Students desiring to be certified to teach Chemistry must take a course, Instruct. or t.ward.

Food and Nutrition Chemistry
The curriculum is designed to train you for positions in the field of food processing industry, Agricultural Research Service, Food and Drug Administration and to prepare you for graduate work in the field which may lead to college teaching.

Professional Chemistry
The curriculum in professional chemistry is intended for students planning to pursue graduate work in chemistry or to work in research in governmental or industrial laboratories. The degree is certified by the American Chemical Society.

Biochemistry
The curriculum in biochemistry is intended for students planning to pursue graduate work or research in biochemistry or a wide range of related areas in agricultural or health related professions.

5-Year M.S. Programs
Plans of study have been formulated whereby you may obtain both an undergraduate degree and a Master's degree in five years (including two summer terms). You can obtain the M.S. degree in Professional Chemistry, Biochemistry, or Agricultural Chemistry. Consult the department head if interested in this type of program.

Minor in Chemistry
A minor in chemistry should include: Chem 112, 114 (4 credits), 120 (4 credits), and 232 or 361, or acceptable substitutes for these. A graduation ratio of 2.0 in chemistry courses is required.

Graduate Study
The Department of Chemistry offers instruction leading to the Master of Science and Doctor of Philosophy degrees in Chemistry and the Master of Science Teaching in Chemistry. See Graduate Catalog or contact the Department for details.
Curriculum in Arts and Science, General Chemistry Major
Leading to the Bachelor of Arts Degree

Freshman Year
Fr Comp, Engl 101 and Fund of Speech, SpCm 101.......................... 3 3
Gen Chem, Chem 112-114..................................................... 4 4
Mathematical Analysis, Math 123 or Calculus for non-Math Majors, Math 222.... 5
Biological Science.................................................................. 3 3
Fitness & Lifetime Activities, PE 100........................................ 1 1
Intro to Chem Sci, Chem 101.................................................. 1 1
Electives*........................................................................... 1 4

Sophomore Year
Fund of Organic Chemistry, Chem 326-328.............................. 4 4
Elem Physics I-II, Phys 111-113.............................................. 4 4
Electives*........................................................................... 7 5

Junior Year
Quantitative Analysis, Chem 232............................................ 4 4
Physical Chemistry, Chem 340 or 342.................................... 3
Physical Chemistry Lab, Chem 341 or 343............................... 1
Advanced Comp, Engl 300.................................................... 3
Electives*........................................................................... 9 12

Senior Year
Chemistry Elective**......................................................... 3-4
Electives*........................................................................... 11-12

*Electives must include 2 years of a foreign language, 1 additional humanities course, and 12 hours of social sciences. At least 1 social science course must be designated international studies. Students are also strongly urged to incorporate one of the emphasis programs listed below into their curriculum.

**At least 6 hours of chemistry selected from the following courses must be taken. Chem 330, 344, 345, 352, 361, 380, 382, 434, 461.

Suggested courses for those interested in associated careers in:

Allied Health
Bio 151; Zool 221, 325, 467; Micr 231, 422, 423; Chem 330, 361, 382; Stat 341; CSc 271

Biological Sciences
Chem 330, 361, 461; Biological Science upper division, 9 credits; Bio 151

Education
Chem 322, 361, 380; Education Requirements

Environmental
Chem 330, 361, 380; Micr 310; PS 322; Bot 415; Bio 211; Geog 337

Quality Control
Chem 330, 354; Econ 201, 202, 301, 302; Stat 341

Curriculum in Arts and Science, Professional Chemistry Major
Leading to the Bachelor of Science Degree

Freshman Year
Fr Comp, Engl 101 and Fund of Speech, SpCm 101.......................... 3 3
Gen Chem, Chem 112-114..................................................... 4 4
Mathematical Analysis I, Math 123...................................... 5
Mathematical Analysis II, Math 224..................................... 4
First Year German, Germ 101-102......................................... 4 4
Fitness and Lifetime Activities, PE 100.................................... 1 1
Intro to Chem Sci, Chem 101.................................................. 1 1
Electives*........................................................................... 2

Sophomore Year
Quantitative Analysis, Chem 232............................................ 4 4
Mathematical Elective.......................................................... 3
Gen Physics I-II, Phys 211-213.............................................. 4 4
Electives*........................................................................... 1 2
Computer Science Course.................................................... 3

Junior Year
Advanced Comp, Engl 300.................................................... 3
Inorganic Chemistry, Chem 352.............................................. 4
Physical Chem, Chem 342-344............................................. 5
Electives*........................................................................... 4 11

Senior Year
Instrumental Analysis, Chem 434............................................ 4
Advanced Chem elective........................................................ 3
Advanced Physics elective..................................................... 3
Electives*........................................................................... 9 8

*Electives must include one humanities course (not German), and 12 hours of social sciences, and 6 hours of biological sciences. At least one social science course must be designated international studies.

Curriculum in Arts and Science, Biochemistry Major
Leading to the Bachelor of Science Degree

Freshman Year
Fr Comp, Engl 101.............................................................. 3 3
Fund of Speech, SpCm 101..................................................... 3
Gen Chem, Chem 112, 114..................................................... 4 4
Math Analysis I, Math 123.................................................. 5
Math Analysis II, Math 224.................................................. 4
Intro Bio, Bio 151, 153......................................................... 3 3

88 Chemistry
### Junior Year

**Fall (F)**
- Advanced Comp, Engl 300 ................................. 3
- Physical Chemistry, Chem 342 ............................... 5
- Biochemistry, Chem 361....................................... 4
- Intermediate Biochem, Chem 461............................ 3
- General Science electives..................................... 1

**Sophomore Year**

**Fall (F)**
- Quantitative Analysis, Chem 23Z ............................ 4
- Gen Physics I, II, Phys 211-213.............................. 4
- Fund of Organic Chem, Chem 326, 328...................... 4
- Humanities (Germ 101, 102) ................................. 4
- Biological Science electives.................................. 3
- General electives............................................... 1

**Spring (S)**
- Analytical Chemistry, Chem 340-341 ........................ 4
- Math elective ..................................................... 5
- Fitness and Lifetime Activities, PE 100.................... 1

**Junior Year**

**Fall (F)**
- Applied Curriculum in Arts and Science, Chem 89 ......... 3
- Instrumental Analysis, Chem 434............................ 4
- Math Electives ................................................... 3
- General electives............................................... 7

**Spring (S)**
- Biochemistry, Chem 361....................................... 4
- General electives............................................... 8

**Curriculum in Arts and Science, Food and Nutrition Chemistry Major**

**Leading to the Bachelor of Science Degree**

### Freshman Year

**Fall (F)**
- Fr Comp, Engl 101 and Fund of Speech, SpCm 101 ......... 3
- Gen Chem, Chem 112-114...................................... 4
- Algebra and Trig, Math 113................................... 5
- Foods: Principles, NFS 141.................................. 3
- Fitness and Lifetime Activities, PE 100.................... 1
- Intro to Chem Sci, Chem 101................................ 1
- **Electives** ..................................................... 5

**Sophomore Year**

**Fall (F)**
- Mathematics or Statistics Elective ......................... 3-5
- Elementary Organic Chem, Chem 120 ........................ 4
- Quantitative Analysis, Chem 23Z ............................ 4
- Anatomy, Zool 221............................................. 3
- General Microbiology, Micr 231.............................. 3
- Macroeconomics Principles, Econ 201 ........................ 3
- Meat: Production to Consumption, AS 241 .................. 3
- Dairy Foods, DS 231........................................... 5
- **Electives** ..................................................... 5

**Spring (S)**
- Nutrition, Av 351............................................... 3
- Intro to Nutritional Science, NFS 232 ........................ 3
- General Science electives..................................... 3
- **Electives** ..................................................... 10

### Junior Year

**Fall (F)**
- Advanced Comp, Phys 300.................................... 3
- Biochemistry, Chem 361....................................... 4
- Elem or Gen Physics, Phys 111-113 or 211-213 ............ 4
- Human Nutrition, NFS 321................................... 3
- Applied Chem Instrumentation, Chem 330 ................... 3
- Experimental Food, NFS 341 ................................. 3
- Experimental Testing and Dev. in Food Science, NFS 342. 3
- **Electives** ..................................................... 3

**Spring (S)**
- Elementary Phys Chem, Chem 340-341 ....................... 4
- Mammalian Physiology, Zool 325 ............................ 4
- Food Microbiology, Micr 311................................ 3
- **Electives** ..................................................... 10

**Senior Year**

**Fall (F)**
- Intro Biology, Bio 151........................................ 3
- General Science electives.................................... 3
- Fitness and Lifetime Activities, PE 100 ..................... 1
- Intro to Chem Sci, Chem 101................................ 1
- **Electives** ..................................................... 3

**Spring (S)**
- Electrochemistry, Chem 330.................................. 3
- Elective .......................................................... 4

*Note: A year of a foreign language is strongly recommended. See other Arts and Science requirements on pages 50-51, and University core requirements pages 25-26.

### Clinical Laboratory Technology

**Professor J. A. Grove, Coordinator**

**Medical Directors of Affiliated Schools of Medical Technology:**
- **Qalbani A. Ali**, M.D., Marion Health Center, Sioux City, IA;
- **John Barlow**, M.D., Rapid City Regional Hospital, Rapid City, SD;
- **Bruce Hyde**, M.D., St. Paul Ramsey Medical Center, St. Paul, MN;
- **David W. Ohrt**, M.D., Sioux Valley Hospital, Sioux Falls, SD;
- **Gene N. Herbek**, M.D., St. Luke's Medical Center, Sioux City, IA.

**Program Directors/Education Coordinators of Affiliated Schools of Medical Technology:**
- **Marilyn Barnett**, MT(ASCP), Sioux Valley Hospital, Sioux Falls, SD;
- **Etta Bassinger**, MT(ASCP), St. Luke's Hospital, Aberdeen, SD;
- **Consoline Brugler**, MT(ASCP), St. Paul Ramsey Medical Center, St. Paul, MN;
- **Sharon Collier**, MT(ASCP), St. Luke's Medical Center, Sioux City, IA;
- **Bonnie Fingerhut**, MT(ASCP), Rapid City Regional Hospital, Rapid City, SD;
- **Pam Keiffer**, MT(ASCP), Rapid City Regional Hospital, Rapid City, SD;
- **Mary Smith**, MT(ASCP), Marian Health Center, Sioux City, IA.

The medical technologist is an indispensable member of the modern health team. He or she makes use of hundreds of scientific procedures devised to disclose the subtle changes that diseases produce in the body. By studying cells under the microscope, analyzing the chemical composition of body fluids and secretions, he or she can pinpoint clues to illness that might not be detected any other way. Conclusive evidence for the presence of disease as well as monitoring the success of treatment depends on laboratory findings. The medical technologist also needs to be competent in areas such as personnel and resource management, administration, teaching and research.

### Clinical Laboratory Technology at SDSU

The university offers the first three years of education experience that provides scientific background in chemistry and the biological sciences required for entrance into the clinical training program. The professional internship program, usually 12 months long, at an approved hospital laboratory school, qualifies you for the Bachelor of Science degree. The Clinical training can be obtained at the affiliated hospitals listed above or at other approved schools. Internships are awarded on the basis of academic performance, recommendations, and interviews. A minimum 2.50 GPA is recommended by most hospitals. SDSU cannot guarantee every student an internship. The university has affiliation agreements with the hospitals listed above to assist you in finding an internship.

**Curriculum in Arts and Science, Clinical Laboratory Technology Major**

**Leading to the Bachelor of Science Degree**

### Freshman Year

**Fall (F)**
- Fr Comp, Engl 101 and Fund of Speech, SpCm 101 ......... 3
- Gen Chem, Chem 112-114...................................... 4
- Algebra, Math 112 or Algebra and Trig, Math 113 ......... 4
- Intro to Biology, Bio 151...................................... 3-5
- **Electives** ..................................................... 3

**Sophomore Year**

**Fall (F)**
- General Microbiology, Micr 231.............................. 3
- Metrology, Zool 221............................................. 3
- Dietetics, DS 231.............................................. 5
- **Electives** ..................................................... 5

**Spring (S)**
- Intro to Chem Sci, Chem 101................................ 1
- **Electives** ..................................................... 5

**Junior Year**

**Fall (F)**
- Biochemistry, Chem 361....................................... 4
- Organic Chemistry, Chem 120 ................................ 4
- General Science electives..................................... 4
- **Electives** ..................................................... 4

**Spring (S)**
- Microbiology, Mier 231........................................ 3
- General Science electives..................................... 3
- **Electives** ..................................................... 3

**Senior Year**

**Fall (F)**
- Intro to Nutrition Science, NFS 232 ........................ 3
- General Science electives..................................... 3
- **Electives** ..................................................... 3

**Spring (S)**
- Intro to Consumer Science, AS 241 ........................ 3
- **Electives** ..................................................... 3

*Note: A year of a foreign language is strongly recommended. See other Arts and Science requirements on pages 50-51, and University core requirements pages 25-26.*
**Electives** .................................................. 8 5

**Junior Year**
Introduction to Clin Lab Tech, Chem 382 .......................... F 4
Advanced Comp, Engl 300 ........................................ 3 2
Mammalian Physiology, Zool 325 .................................. 4 3
Quantitative Analysis, Chem 232 .................................. 4 3
Applied Chemical Instrumentation, Chem 330 ................... 3 3
Parasitology, Zool 467 ........................................... 3 4
Immunology, Micro 422 .......................................... 4 4
Pathogenic Microbiology, Micro 423 ......................... 4 4

**Senior Year**
Twelve months training in a hospital school of Medical Tech­
ology approved by the Committee on Allied Health Educa­
tion and Accreditation of the American Medical Association for which 40 semester credits will be granted. Ninety-eight (98) credit hours must be earned at SDSU prior to the intern­ship.

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**Clinical Laboratory Technology (MEDT)**

**Undergraduate Courses**

Chem 382 Introduction to Clinical Laboratory Techniques.
See description under Chemistry.

MEDT 495 Medical Technology Internship.
Students are to register for this course during the summer, fall and spring semesters of their internship year.
Credit is given by SDSU for coursework completed at affiliated hospital programs. The course descriptions below are common to most hospital programs.

**Clinical Microscopy/Urnalysis**

Lecture, supervised laboratory instruction, quality control, instru­mentation, computer applications and experience in body fluids and urine in regard to chemical and cellular composition. Anatomy and physiology, theory of renal function in health and disease.

**Clinical Hematology/Coagulation**

Lecture, supervised laboratory instruction, quality control, instru­mentation, computer applications and experience in the analysis of cellular elements of the blood and bone marrow, both normal and abnormal, and on the hemostatic mechanisms of the blood.

**Clinical Microbiology**

Lecture, supervised laboratory instruction, quality control, instru­mentation, computer applications and experience in the isolation and identification of pathogenic organisms and their susceptibility to anti-microbial agents. Includes Bacteriology, Mycology, Parasitology, and Virology.

**Clinical Serology/Immunology**

Lecture on antigen/antibody structure-function-interactions, su­ pervised laboratory instruction, quality control, instrumentation, computer applications, and experience in applying the principles of immunology to serologic diagnosis.

**Clinical Chemistry/Radiochemistry/Body Fluids**

Lecture, supervised laboratory instruction, quality control, instru­mentation, computer applications, and experience in medically oriented biochemistry as applied to normal and abnormal physiology and analysis of body constituents. Includes analyses of special body fluids such as amniotic, synovial, cerebrospinal, gastric and pleural fluids. Includes special procedures utilized for toxicology, endocrinology and radiobioassays.

**Clinical Immunohematology**

Lecture, supervised laboratory instruction, quality control, instru­mentation, computer applications and experience in theory and practice of immunohematology as applied to blood transfusion, component therapy, autoimmune diseases, immunologic diagnostic procedures and blood component preparation and administration.

**Specialized Units**
Management/Education/Research/Lectures and/or seminars on theory and techniques of laboratory oriented practice; principles of education and teaching methodologies; and research, scientific writing or projects in specialty areas of medical technology.

**Specialized Units (Special Topics)**

**Orientation to Medical Technology**
Introduction to basic techniques, principles of safety, infection control, professional ethics, personal and professional responsibilities in the clinical laboratory. Review of program's rules and regulations. Introduction to clinical significance of laboratory procedures in diagnosis and treatment.

**Phlebotomy**
Anatomy and physiology of the arm, blood collection techniques from vein, capillary, artery and difficult draw sites. Specimen variables and handling techniques. Interactive communication skills with patients and para-professionals.

**Computer Applications in the Clinical Lab**
An introduction to techniques, principles, and concepts common in laboratory data processing systems. Utilization of mini-computers in the laboratory and within instruments.

**Laboratory Mathematics/Quality Assurance**
Laboratory-oriented mathematics with emphasis on performing calculations related to units of measure, pH, Beer's law and calibration curves, Henderson-Hasselbach equation, enzyme activity, renal clearance, gastric acidity, hematology calculations. Principles and practices of quality assurance. Includes statistical techniques method evaluation, and pipette calibration.

**Chemistry (Chem)**

**Undergraduate Courses**

101 Introduction to Chemical Sciences 1(1,0) S
An introduction to chemistry and clinical laboratory technology for majors, through classroom laboratory and field experiences. Includes elements of laboratory safety, history of the profession and consideration of career preparation.

110 General Chemistry 4(3,3) FS
A one-semester introduction to chemistry. Not intended for those needing extensive chemistry background. Duplicate credit for Chem 111 and 112 not allowed.

111 Introductory Organic and Biochemistry 5(4,3) FS
A survey of the chemical principles important to biological systems. For students who do not plan to take additional chemistry. Not a prerequisite for any 200 level and above course. Duplicate credit for Chem 111 and 120 or 361 not allowed. P 110.

112 General Chemistry 4(3,3) FS
Comprehensive coverage of general chemistry. Preferred for those needing extensive background in chemistry. Duplicate credit for Chem 110 and 112 not allowed.

114 General Chemistry 3(3,0) or 4(3,3)
Continuation of 112. P, 112 or A average in 110.

115 General Chemistry Lab 1(0,3) FS
The laboratory portion of Chem 114 for those who have completed 114 for 3 credits. P, 114 (3 credits).

120 Elementary Organic Chemistry 3(3,0) or 4(3,3)FS
Compounds of carbon with emphasis on those of interest to students of Agriculture, Home Economics. P, 110 or 112. Duplicate credit for Chem 111, 120, 222 and 326 not allowed.

121 Elementary Organic Chemistry Laboratory 1(0,3) FS
The laboratory portion of Chem 120 for those who have completed 120 for 3 credits. P, 120.

232 Quantitative Analysis 4(2,6) FS
Fundamental principles and laboratory practice in gravimetric and volumetric analysis; introduction to instrumental analysis. P, 114 (4 credits).

326-328 Organic Chemistry 4(3,3) FS

327-329 Organic Chemistry Lab 1(0,3) FS
The laboratory portion of Chem 326-328 for those who have completed 326-328 for 3 credits. P, 326-328 (4 credits).
493 Techniques in Clinical Laboratory Technology 2(1,3) S
Introduction to techniques used in the clinical laboratory including urinalysis, hematology and clinical chemistry.
495 Directed Studies
See general description in College of Arts and Science alternatives and options.
494 Instrumental Analysis 4(2,6)
Theory and practice in instrumental analysis. P, 232, 328, 344, or consent.
461 Intermediate Biochemistry 3(3,0) S
Intermediate level study of biochemical processes of plants and animals, emphasizing the integration and control of their metabolic processes. P, 361.
462 Intermediate Biophysical Chemistry 3(3,0)
Kinetcis, mechanisms, and equilibrium of biochemical systems.
498 Undergraduate Course Specials
See general description in College of Arts and Science alternatives and options.
494/495/496 Cooperative Education/Internship/Field Experience (Topical) 1-4 each FSSU
Planned and supervised professional experience related to chemistry which takes place outside the formal classroom with private business or industry, or public agencies. F, consent of department program coordinator.

Graduate Courses*
(if not listed, see department for schedule of offerings)
516/616 Chemical Literature 3(3,0) F
The course will present methods of searching and chemical literature including patents and government documents. Emphasis will be placed on both traditional and computer assisted literature search procedures.
522-622 Advanced Organic Chemistry 3(3,0) F
Review and discussion of nomenclature, stereochemistry, resonance theory, equilibria, elementary kinetics, intermediate and mechanisms. Chemistry of polyamers, heterocyclics, and natural products. P, 328, 344 or concurrent registration.
532-632 Advanced Analytical Chemistry 3(3,0) S
Theoretical treatment of principles involved in noninstrumental analytical chemistry including sampling and statistics. P, 344.
542-642 Advanced Physical Chemistry 3(3,0) F
A review of the principles and applications of physical chemistry. Topics such as thermodynamics, quantum mechanics, spectroscopy, kinetics, and electrochemistry considered. P, 344.
554-654 Advanced Inorganic Chemistry 3(3,0) F
Inorganic systems including theoretical, representative group and transition metal topics. P, 344 or 352.
562-662 Principles of Biochemistry 2,3,5(3,0 or 3,6) F
Chemistry of biological processes occurring in plants and animals. P, 361.
591-691 Special Problems* (0,*)FS
720 Special Topics in Organic Chemistry 1-6
772 Synthesis of Natural Products 3(3,0)
774 Structural Determination of Organic Compounds 3(2,3)
775 Polymer Chemistry 4(3,3)
776 Physical Organic Chemistry 3(3,0)
778 Bioorganic Chemistry 3(3,0)
730 Special Topics in Analytical Chemistry 1-6
732 Analytical Ag and Environmental Chemistry 4(3,3)
734 Analytical Spectroscopy 3(3,0)
736 Chromatography and Separations 3(3,0)
738 Electroanalytical Chemistry 3(3,0)
740 Special Topics in Physical Chemistry 1-6
741 Quantum Chemistry I 3(3,0)
742 Quantum Chemistry II 3(3,0)
744 Chemical Thermodynamics 3(3,0)
745 Statistical Thermodynamics 3(3,0)
746 Atomic and Molecular Structure 3(3,0)
748 Chemical Kinetics 3(3,0)
750 Special Topics in Inorganic Chemistry 1-6
752 Descriptive Inorganic Chemistry 3(2,3)
753 Organometallic Chemistry 3(3,0)
754 Physical Methods of Inorganic Chemistry 3(3,0)
756 Coordination Chemistry 3(3,0)
760 Special Topics in Biochemistry 1-6
764 Biochemistry I 3(3,0)
766 Biochemistry II 3(3,0)
767 Biophysical Chemistry 3(3,0)
768 Plant Biochemistry 3(3,0)
769 Nutritional Biochemistry 3(3,0)
772-773 Seminar 1(1,0) FS
781 Bioinorganic Chemistry 3(3,0)
782 Radioisotope Techniques 4(3,3)S
783 Group Theory 3(3,0)
790 Thesis (M.S.) 1-7
791 Thesis Sustaining (M.S.) 1
890 Dissertation (Ph.D.) variable
891 Dissertation Sustaining (Ph.D.) 1

The following Physics courses may be used in either the graduate major or minor program.
Phys 635 Reactor Physics 3(3,0) S; Phys 637 Science of Solids 3(3,0); Phys 743 Statistical Mechanics 2(2,0); Phys 775 Advanced Quantum Mechanics 3(3,0); Phys 779 Group Theory in Quantum Mechanics 3(3,0).

Master of Science Teaching (MSTC)
701 Concepts in Chemistry 1-10
702 Environmental Chemistry 2
703 Computers in Chemistry 2
704 Industrial Processes 2
705 Instrumentation in Chemistry 2
706 Biological Chemistry 2
Child Development and Family Relations (CDFR)

(See Human Development, Child and Family Studies)

Civil Engineering (CE)
College of Engineering

Professor Rollag, Head; Professors Hassoun, Koepsell, Selim, Sigl, Zogorski; Professors Emeriti Dornbush, Larson; Associate Professors Johnson (adjunct), Kennedy, Schaefer, Tilttrim; Assistant Professors DeBoer, Taha.

Civil Engineering includes the location, design, construction, operation and maintenance of railroads, highways, airports, buildings, bridges, dams, water supply and distribution systems, waste water collection systems and treatment plants, irrigation and drainage systems, river and harbor improvements and many other facilities essential in modern life.

The course is planned to give you a foundation in the exact sciences — mathematics, physics, and chemistry; a thorough training in the technical phases of Civil Engineering — surveying, hydraulics, materials and the design principles; training in computer programming and the principles of communication — graphic, spoken and written; and an introduction to the social-humanistic area to prepare the graduates for positions of broad responsibility. Students are encouraged to purchase their own microcomputer by the time they achieve junior standing.

Certain electives are provided to give you a chance to broaden your education in the social-humanistic area and to provide some technical specialization. The 16 credits of non-technical, and 8 credits of technical electives must be approved by the department head. Humanistic and social science electives must be chosen to satisfy the University Core.

In addition, to gain “in-depth” exposure in the socio-humanistic area, students must take at least two courses in the same subject area. The Civil Engineering Department office will provide you with an approved list of courses.

To earn the B.S. degree in Civil Engineering you must have an average grade of C or better in courses taken in engineering mechanics (EM) and civil engineering (CE).

The department will assist those interested to arrange cooperative work-study programs, after the freshman year, with consulting and testing firms, governmental agencies and industry. Credit may be obtained for the work experiences by prior arrangement, by registering for CE 494 Cooperative Education, CE 495 Internship or CE 496 Field Experience. These credits will not apply toward the B.S. degree in civil engineering but will be part of your academic record.

Curriculum in Civil Engineering
(Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology)

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Calculus and Analytic Geometry I-II, Math 123-224</td>
<td>5</td>
</tr>
<tr>
<td>Gen Chem, Chem 112</td>
<td>4</td>
</tr>
<tr>
<td>Fr Comp, Engl 101 and Fund of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Fitness and Lifetime Activities, PE 100</td>
<td>1</td>
</tr>
<tr>
<td>Introduction to Engineering I-II, GE 110-111</td>
<td>1</td>
</tr>
<tr>
<td>Engineering Design Graphics I-II, EG 121, 122</td>
<td>1</td>
</tr>
<tr>
<td>Gen Chem or Elementary Organic Chem, Chem 114 or 120</td>
<td>3</td>
</tr>
<tr>
<td>Elementary Surveying, CE 106</td>
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<td><strong>Total</strong></td>
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<tr>
<td>Calculus and Analytic Geometry III, Math 225</td>
<td>3</td>
</tr>
<tr>
<td>Differential Equations, Math 321</td>
<td>3</td>
</tr>
<tr>
<td>Statics, EM 221</td>
<td>3</td>
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<tr>
<td>Engineering Surveys, CE 208</td>
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<tr>
<td>Materials, CE 216</td>
<td>3</td>
</tr>
<tr>
<td>Dynamics, EM 222</td>
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<tr>
<td>Gen Physics, Phys 211, 213</td>
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<tr>
<td>Introduction to Programming with FORTRAN, CSc 213</td>
<td>3</td>
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<tr>
<td>Engineering Design Graphics III, EG 123</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
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<table>
<thead>
<tr>
<th>Junior Year</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Fluid Mechanics, EM 331</td>
<td>3</td>
</tr>
<tr>
<td>Mech. of Materials, EM 321</td>
<td>3</td>
</tr>
<tr>
<td>Structural Materials Lab, CE 311</td>
<td>1</td>
</tr>
<tr>
<td>Advanced Comp, Engl 300 or Tech. Comm., Engl 303</td>
<td>3</td>
</tr>
<tr>
<td>Math Statistics, Math 381 or Statistical Methods I, Stat 341</td>
<td>3</td>
</tr>
<tr>
<td>Transportation Engineering, CE 363</td>
<td>3</td>
</tr>
<tr>
<td>Seminar, CE 490</td>
<td>0</td>
</tr>
<tr>
<td>Structural Theory, CE 353</td>
<td>3</td>
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<tr>
<td>Engineering Geology, CE 393</td>
<td>3</td>
</tr>
<tr>
<td>Thermodynamics, ME 314</td>
<td>3</td>
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<tr>
<td>Basic Electrical Engineering, IE 395</td>
<td>3</td>
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<tr>
<td>Water Supply Engineering, CE 327</td>
<td>3</td>
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<tr>
<td>Elective</td>
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<td><strong>Total</strong></td>
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<table>
<thead>
<tr>
<th>Senior Year</th>
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<tr>
<td>Steel Design, CE 455</td>
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<tr>
<td>Wastewater Engineering, CE 423</td>
<td>3</td>
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<tr>
<td>Geotechnical Engineering, CE 446</td>
<td>4</td>
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<td>Hydraulic Engineering, CE 433</td>
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<tr>
<td>Fluid Mechanics Lab, CE 331</td>
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<tr>
<td>Concrete Theory and Design, CE 456</td>
<td>3</td>
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<tr>
<td>Engineering Administration, CE 475</td>
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<tr>
<td>Electives</td>
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<td><strong>Total</strong></td>
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Total hours required for graduation 136

Electives 21

Technical Electives
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<tbody>
<tr>
<td>Computer App. to CE, CE 412</td>
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<tr>
<td>Sanitary Engineering, CE 427</td>
</tr>
<tr>
<td>Bituminous Materials, CE 511</td>
</tr>
<tr>
<td>Environmental Engineering, CE 523</td>
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<tr>
<td>Industrial Waste Treatment, CE 524</td>
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</table>
Undergraduate Courses

<table>
<thead>
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<th>Course Code</th>
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<tr>
<td>106</td>
<td>106 Elementary Surveying 3(1,6) FS</td>
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<tr>
<td>208</td>
<td>208 Engineering Surveying 3(1,6) FS</td>
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<tr>
<td>211</td>
<td>211 Materials of Construction 2(0,6) F</td>
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<tr>
<td>216</td>
<td>216 Materials 3(2,3) FS</td>
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<tr>
<td>304</td>
<td>304 Land Surveying 3(3,0) F</td>
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<tr>
<td>306</td>
<td>306 Photo Interpretation and Photogrammetry 3(1,6) S</td>
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<tr>
<td>311</td>
<td>311 Structural Materials Lab 1(0,3) FS</td>
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<td>327</td>
<td>327 Water Supply Engineering 3(2,3) FS</td>
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<tr>
<td>331</td>
<td>331 Fluid Mechanics Lab 1(0,3) FS</td>
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<tr>
<td>333</td>
<td>333 Hydrology 2(2,0) F</td>
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<tr>
<td>336</td>
<td>336 Engineering Geology 3(2,3)</td>
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<tr>
<td>353</td>
<td>353 Structural Theory 3(3,0) FS</td>
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<tr>
<td>358</td>
<td>358 Transportation Engineering 3(3,0)</td>
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<tr>
<td>423</td>
<td>423 Waste Water Engineering 3(2,3) FS</td>
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<td>427</td>
<td>427 Sanitary Engineering 3(1,6) S</td>
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<tr>
<td>433</td>
<td>433 Hydraulic Engineering 3(3,0) F</td>
<td></td>
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<tr>
<td>436</td>
<td>436 Computer Applications to Civil Engineering 3(2,3)</td>
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<tr>
<td>446</td>
<td>446 Geotechnical Engineering 4(3,3) F</td>
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<tr>
<td>455</td>
<td>455 Steel Design 3(1,6) FS</td>
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<td>456</td>
<td>456 Concrete Theory and Design 3(2,3) F</td>
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<td>457</td>
<td>457 Indeterminate Structural Analysis 3(2,3) S</td>
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<td>467</td>
<td>467 Highway Engineering 3(2,3) S</td>
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<td>474</td>
<td>474 Construction Methods and Equipment 3(3,0) F</td>
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<tr>
<td>475</td>
<td>475 Engineering Administration 3(3,0) S</td>
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<tr>
<td>483</td>
<td>483 Municipal Engineering 3(2,3) F</td>
<td></td>
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<tr>
<td>490</td>
<td>490 Seminar 0(1,0) FS</td>
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<tr>
<td>492</td>
<td>492 Special Problems 1-3 FSSu</td>
<td></td>
</tr>
<tr>
<td>493</td>
<td>493 Special Topics 1-3 FSSu</td>
<td></td>
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<tr>
<td>494</td>
<td>494-496 Cooperative Education/Internship/Field Experience 1-6 FSSu</td>
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</tr>
</tbody>
</table>

Civil Engineering 93
Graduate Courses

511-611 Bituminous Materials 3(2,3)
Properties of bituminous materials including their compatibility with various types of aggregates. Asphalt mixes are designed and tested. Standards tests are performed on bituminous materials with emphasis on test results. Asphalt surface evaluation techniques. P, 216.

523-623 Environmental Engineering 3(3,0) F
Relationship of man's environment to health and control of this environment from an engineering standpoint. P, consent.

524-624 Industrial Waste Treatment 2(2,0) S
Characteristics and compositions of industrial wastes, sampling and methods of analysis of these wastes and remedial measures for treatment and disposal. P, 423 or consent.

525-625 Environmental Engineering Planning 3(3,0) S
Analysis and review of basic concepts and procedures involved in environmental aspects of planning. Consideration given to local effects of projects, as well as effects on area and state or region. P, graduate standing or consent.

533-633 Open Channel Hydraulics 3(3,0) F

534-634 Fluvial Hydraulics 3(3,0) S
Erosion, transportation, and deposition of sediments by flowing water, bed load and suspended load movement, river behavior and control. P, 433.

535-635 Water Resources Engineering 3(3,0) S
Topics related to water resources engineering including: multiple purpose river development, economic analysis of flood control measures, aspects of water law, advanced topics related to surface and ground water hydrology and administrative aspects of water resources planning. P, 433.

536-636 Foundation Engineering 3(2,3)
Bearing capacity, load induced pressures and settlements, soil exploration and sampling, lateral-earth pressure, retaining walls, sheet pile structures, pile formation and caissons. P, 446.

546-646 Advanced Soils Engineering 3(2,3)

552-652 Prestressed Concrete 3(3,0)
Theory and design of prestressed concrete including pre-tensioning and post-tensioning. P, 456.

555-655 Precast Concrete Structures 3(3,0) Alternate years

556-656 Advanced Reinforced Concrete Design 3(3,0) Alternate years

557-657 Matrix Analysis of Structures 3(3,0)

559-659 Advanced Structural Mechanics 3(2,3) S
Review of principal moments of inertia; relationship of plain stresses and strains; use of rosettes; shear center; unsymmetrical bending; theories of failure; curved beams and closed rings; thick-walled cylinders; beams on continuous elastic support, miscellaneous topics in structural analysis. P, 353.

737 Hydraulic Design 3(3,0) F
P, 435, graduate standing.

738 Advanced Hydraulics 3(2,3) S
P, 435, graduate standing.

749 Structural Dynamics 3(3,0)

751 Plastic Design 2(0,6) F
P, 455, graduate standing.

754 Advanced Design of Steel Structures 3(3,0) Alternate years
P, 455, graduate standing.

763 Highway Administration and Economy 3(3,0)

764 Advanced Transportation Engineering 3(2,3)

765 Pavement Design 3(3,0) S

769 Design of Steel and Concrete Bridges 3(3,0) Alternate years
P, 455, 456, graduate standing.

770 Engineering Research or Design Project 2

790 Thesis 1-7 FSSu

791 Thesis Sustaining 1 FSSu

792 Special Engineering Problems 1-3 FS

793 Special Topics 1-3

Communication Studies and Theatre (CST)

College of Arts and Science

Professor Schliessmann, Head; Professors Emeriti Denton, Hoogestraat, Meyer, Stine; Professors Ferguson, Johnson, Widvey; Associate Professor Jorgensen; Assistant Professors Bronson, Daehn, Hefling, Lampson, Peterson, Wheeler; Instructors Haleta, Roybal.

A student may major or minor in Communication Studies and Theatre, elect courses for self improvement, take courses to meet humanities requirements, or participate in speech activities. The major may choose any of the following options:
Option A — General Speech; Option B — Theatre; Option C — Speech Communication; Option D — Radio, Television, and Film; Option E — Communication Disorders; Option F — Speech Education.

Advanced Placement in Speech
All students are required to take Speech (SpCm) 101 for graduation; however, those with previous training and experience in speech may apply to the department to take an advanced course or courses in Speech and earn credit for 101 concurrently. The disposition of the application for advanced placement rests with the departmental administrator. Application must be made by the end of the third semester or prior to the fourth semester of residence.

Co-curricular Activities

Theatre
Professor Johnson, Director of Theatre
Several major, experimental and student productions each year. You may be cast in or assist with a production. University credit may be earned. Summer theatre also offers graduate and undergraduate credit through Prairie Repertory Theatre.

Forensics
Professor Hefling, Director of Forensics
Opportunities are provided for participation in SDSU's nationally recognized intercollegiate Forensics program. Local, regional, and national participation is sponsored. Activities include debate, public speaking, and oral interpretation in contests, workshops, and public performances. Any regularly
enrolled undergraduate student is eligible to participate. University credit may be earned regardless of major.

Radio, Television, and Film
Professor Jorgensen, Supervisor
Opportunities are provided to perform and assist in production in broadcast facilities. University credit may be earned.

Speech and Hearing Clinic
Professor Lampson, Supervisor
Clinical speech, language, and hearing services are available to students under the supervision of American Speech-Language-Hearing Association certified clinicians.

Curricular Program
Major: 36 credits in Communication Studies and Theatre (Theatre Option, 37 credits), including SpCm 101, approved by the department. Not more than 13 credits chosen from the activity courses (RTVF 144-445, SpCm 281, Thea 135, 145, 195 and 490) may be counted toward the major.

Minor: 20 semester credits (Theatre Option, 19 credits), including SpCm 101, approved by the head of the department. Not more than 8 credits chosen from activity courses (RTVF 144-445, SpCm 281, Thea 135, 145, 195 and 490) may be counted.

Upper Level Requirements
See College of Arts and Science requirements.

<table>
<thead>
<tr>
<th>Option A</th>
<th>General Speech</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum in Arts and Science, Speech Major</td>
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</tr>
<tr>
<td>Leading to the Bachelor of Arts Degree</td>
<td></td>
</tr>
<tr>
<td>Credits</td>
<td></td>
</tr>
<tr>
<td>Fr Comp, Engl 101; Advanced Comp, Engl 300</td>
<td>6</td>
</tr>
<tr>
<td>Fund of Speech, SpCm 103</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>2</td>
</tr>
<tr>
<td>Mathematics Core</td>
<td>3</td>
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<tr>
<td>Natural Science (2 prefixes)</td>
<td>8</td>
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<tr>
<td>Social Science</td>
<td>12</td>
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<tr>
<td>Humanities (From 2 disciplines other than CST and Foreign Languages)</td>
<td>6</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>14</td>
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<tr>
<td>Major (in addition to SpCm 101)</td>
<td>33</td>
</tr>
<tr>
<td>Electives (including 23 credits for prospective teachers)</td>
<td>41</td>
</tr>
<tr>
<td>Total 128</td>
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</tbody>
</table>

| Curriculum in Arts and Science, Speech Major |
| Leading to the Bachelor of Science Degree |
| Credits |
| Fr Comp, Engl 101; Advanced Comp, Engl 300 | 6 |
| Fund of Speech, SpCm 103 | 3 |
| Fitness & Lifetime Activities, PE 100 | 2 |
| Mathematics Core | 3 |
| Biological Science | 6 |
| Physical Science | 8 |
| Social Science | 12 |
| Humanities (From 2 disciplines other than CST) | 9 |
| Major (in addition to SpCm 101) | 33 |
| Electives (including 23 credits for prospective teachers) | 46 |
| Total 128 |

Option B — Theatre
Students seeking Option B, Theatre (37 hours), should complete their major as follows: Thea 100, 131, 141, 241, 351, 395 or 445; and Thea 490 (5 cr.); three credits selected from Thea 510 or 560; and 12 credits of electives. The humanities requirement is to be fulfilled by selecting courses from Art, Dance, Music, Dramatic Literature Classes in English.

Students seeking a minor with Theatre emphasis should complete Thea 100, 131, 141, 241, 351 or 490; and sufficient electives chosen to raise the combined total to 19 credits.

Option C — Speech Communication (Balanced Curriculum)
Students seeking Option C, Speech Communication, should complete their major as follows: DCom 112, GCom 211, 223; RTVF 130; SpCm 101, 201, 281, 315, 322, 330, 334, and one credit of SpCm 281; and sufficient electives to raise the combined total to 36 credits.

Option D — Radio, Television, and Film
Students seeking Option D, Radio, Television, and Film should complete their major as follows: RTVF 130, 160 or 360, 330, 331, 332 or 333, 335 or Thea 395, 431; SpCm 101, 301 or 334; GCom 345; four credits of RTVF 144-445; and sufficient credits to raise the combined total to 36 credits.

Option E — Communication Disorders
Students seeking Option E, Communication Disorders, should consult Professor Lampson to plan a program leading to certification.

Prospective public school speech therapists should consult the state department of education in the state or states where they wish to practice. Certification for SD Public School Therapists is granted by the Division of Education, Pierre.

Option F — Speech Education
Students seeking Option F, Speech Education, should complete their major as follows: DCom 112 or 131; RTVF 130; SpCm 101 or if advanced placed SpCm 315; SpCm 201, 210, 222, 330, 375; Thea 131, 141, 351 or 355; sufficient electives to raise the combined total to 36 credits. Option F is required for recommendation to classroom student teaching. A minor in English is strongly recommended.

Prospective classroom teachers must also complete the courses the Division of Education requires of all secondary school teachers. Students who plan to teach in the secondary schools should consult the dean of the College of Education and Counseling before their sophomore year.

Courses Offered
The courses in the Department of Communication Studies and Theatre are divided into five areas: Communication Disorders (DCom), General Communication (GCom), Radio, Television, and Film (RTVF), Speech Communication (SpCm), and Theatre (Thea).

Communication Disorders (DCom)

Undergraduate Courses

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>112</td>
<td>Voice &amp; Articulation 3(3,0) F</td>
</tr>
<tr>
<td>131</td>
<td>Introduction to Communication Disorders 3(3,0) FS</td>
</tr>
<tr>
<td>212</td>
<td>Language Development 3(3,0) F (A.Y.)</td>
</tr>
<tr>
<td>310</td>
<td>Phonological &amp; Articulation Disorders 3(3,0) S (A.Y.)</td>
</tr>
<tr>
<td>312</td>
<td>Language Disorders 3(3,0)</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>321</td>
<td>Audiology 4(4,0) S (A.Y.)</td>
</tr>
</tbody>
</table>

The study of hearing and hearing disorders. Administering and interpreting hearing tests. P, consent.
330 Clinical Procedures of Speech-Language Pathology 3(3,0) F (A.Y.)
Management procedures utilized by the speech-language pathologist for operating a speech/language/hearing program. P, 131.

336 Diagnostic Methods in Communication Disorders 3(3,0) S (A.Y.)

341 Clinical Practice in Speech Therapy 3 FSSu
May be repeated for a total of 6 credits. P, consent.

441 Clinical Practice in Audiology 1-2 FSSu
May be repeated for a total of 4 credits. P, consent.

492 Special Problems 1-2 FSSu
May be repeated to a total of 6 credits. P, consent.

493 Undergraduate Course Special 1-5

*Refer to Arts and Science alternatives and options statements.

General Communication (GCom)

Undergraduate Courses

211 Phonetics 3(3,0) S
The production and perception of sounds of English speech; the use of the International Phonetic Alphabet; the application of the principles of phonetic analysis to oral communication.

215 Communication Studies 3(3,0) FS
An overview of the communication discipline, theory, and practice. P, Advanced Placement in Speech or consent.

223 Speech Science 3(3,0) F (A.Y.)
The basic scientific concepts fundamental to the understanding of speech production and perception with primary emphasis on the anatomy and function of the speech and hearing mechanism.

345 Organizational Communication 3(3,0) F
An examination of organizational theory and research as it relates to communication within the organization.

491 Directed Study 1-9

492 Directed Studies*

493 Undergraduate Course Specials* 1-5

494-495-496 Cooperative Education/Internship/Field Experience (Topical)* 1-12

* Refer to College of Arts and Science alternatives and options statement.

Graduate Courses

505-605 Current Approaches to Communication 3(3,0)
Analysis of modern theoretical construction in communication.

793 Special Topics in Communication 1-3 FSSu

Radio, Television, and Film (RTVF)

Undergraduate Courses

130 Intro to Radio & TV 3(3,0) F
History, structure, regulation, and financial support; potentialities and limitations; public responsibilities; impact on society. Cross referenced with MCom 130.

144-445 Radio, Television, and Film Activities 1(0,3) FSSu
Credit earned by active participation in broadcasting and film activities. May be repeated until eight activity credits are earned. P, consent.

Section I: Radio: P, RTVF 130 and consent of instructor.

Section II: Television: P, RTVF 331 and consent of instructor.

Section III: Film: P, RTVF 361 and consent of instructor.

160 Introduction to Film 3(3,0) F
Film as art; themes and inventions; films and society; introduction to the camera.

330 Writing for Radio & TV 2(1,2) S
Preparation of continuities such as commercials, public service announcements, talks, interviews, drama, documentaries, and educational programs. Cross referenced with MCom 330.

331 Television Production 3(2,3) F
Experience in the production and direction of television programs. Includes preparation and presentation of talks, interviews, discussion, extension and community services for TV broadcast. Cross referenced with MCom 331.

332 Television News Reporting (2,3) FS**
Cross referenced with MCom 332.

333 Radio News Reporting 3(2,3) FS**
Cross referenced with MCom 333.

335 Broadcast Programming 3(3,0) S
Program types and essentials of effective structure. Audience characteristics and preferences. Managerial problems. Special consideration of agricultural, commercial, and educational broadcast requirements.

336 Radio News Lab 1-3 S**
Cross referenced with MCom 336.

537-637 Educational & Corporate TV 3(3,0) (Offered on Demand)
Educational broadcasting with practical work in preparation and presentation of educational and instructional materials for radio, TV, and film and their use in the classroom. Cross referenced with MCom 537-637.

564-664 Film Studies 3(3,0) (A.Y.)
Film art forms, artists and critics. Viewing and making films. Emphasis on major film theories.

762 Special Problems in Radio, TV, or Film 1-2 FSSu

792 Research Methods in Communications 3(3,0)**

*Refer to College of Arts and Science alternatives and options statement.

**(See Journalism section.) May count toward CST major.

Speech Communication (SpCm)

Undergraduate Courses

101 Fundamentals of Speech 3(3,0) FSSu
Required of all students unless granted advanced placement. Emphasis on skill development in research, organization, style, delivery, and listening necessary for effective oral communication.

201 Interpersonal Communication 2(2,0) FS
Current theories and practice in interpersonal communication; stress verbal and non-verbal activity.

210 Individual Contest Events 2(2,0) F (A.Y.)
Introduction to and performance of Extemporaneous Speaking, Original Oratory, and Lincoln-Douglas Debate. Judging and tournament experience are included.

281 Forensic Activities 1(0,3) FS
Active participation in the intercollegiate Forensics program. Activities include competitive debate, oral interpretation, and public speaking. Workshops and non-competitive public performances may also be included. A minimum of 4 performances is required. May be repeated for a total of 8 credits. P, consent of the Director of Forensics.

96 Communication Studies and Theatre
301 Oral Technical Communication 3(3,0)
Emphasis on oral presentation of technical materials to various audiences, the technical or industrial as well as the general. P, SpCm 101.

315 Public Speaking 3(3,0) FS
Theory and practice of public speaking, including speaking for special occasions. P, SpCm 101 or consent of instructor.

322 Argumentation and Debate 3(3,0) S(A.Y.)
Focuses on theories of argumentation and debate practice.

330 Oral Interpretation 3(3,0) FS
The oral interpretation of literature in a non-competitive setting. Includes the study of prose, poetry, and drama for oral performance. Includes methods of analysis, interpretation, delivery techniques, and preparation leading to the public oral performance of literature.

334 Discussion 3(3,0) FS

375 Teaching of Speech 3(3,0) F (A.Y.)
Problems of the speech teacher. Curriculum, instructional materials, and methods.

422 Group Performance of Literature 3(3,0) S(A.Y.)
Various styles of Reader's Theatre are studied. Includes solo and group performance of multiple literary selections. P, SpCm 330 or consent.

492 Special Problems 1-2 FSSu
Directed research. May be repeated for a total of 6 undergraduate credits. P, consent.

493 Undergraduate Course Specials* 1-5
*Refer to College of Arts and Science alternatives and options statement.

Graduate Courses

516-616 Rhetorical Criticism 3(3,0) FSu (A.Y.)
Critical evaluation of American speakers from Colonial to contemporary. P, consent.

524-624 Persuasion 2(2,0) F (A.Y.)

552-652 General Semantics 3(3,0) F (A.Y.)
Relations between symbols; human behavior in reaction to symbols including unconscious attitudes, linguistic assumptions; and the objective systematization of language.

576-676 Directing Speech Activities 3(3,0) S(A.Y.)
Organizing and directing declamation, dramatic, and forensic programs.

707 Speech/English/Drama for Teachers 1-3

766 Rhetorical Theory 3(3,0) F (A.Y.)

790 Thesis 1-7 FSSu (Pass/Fail)

791 Thesis Sustaining 1 (Pass/Fail)

792 Special Problems in Oral Interpretation 1-2 FSSu

794 Special Problems in Public Address 1-2 FSSu

Theatre (Thea)

Undergraduate Courses

100 Introduction to Theatre 3(3,0) FS
Background of theatrical arts: production, plays, history, and theory.

131 Acting 3(3,0) FS
Basics of acting.

135 Theatre Activities — Acting 1(0,3) FSSu
Credit earned by active participation in acting roles. May be repeated for a total of 8 credits. P, consent.

141 Stagecraft 3(2,3) FS
Theory and practical experience in theatre production. Lab work on two major theatre productions.

145 Theatre Activities — Technical Theatre 1(0,3) FSSu
Credit earned by backstage and crew work. May be repeated for a total of 8 credits. P, consent.

185 Theatre Activities — Special Projects 1(0,3) FSSu
Credit earned by completing selected theatre projects. May be repeated for a total of 8 credits. P, consent.

240 Costumes for the Stage 2(2,0) S (A.Y.)
Historic, aesthetic, and functional elements of costume design.

241 Make-up for the Stage 2(2,0) F
Principles and application of stage make-up.

341 Scene Design 3(3,0) S (A.Y.)
History of set design, planning and designing for stage.

351 Directing 3(3,0) F (A.Y.)
Play directing. Theory and practice.

355 Children's Theatre 3(3,0) S (A.Y.)
Children's theatre as an art form. Students become proficient in organization, design, and presentation of a children's theatre program. P, Thea 131 or Thea 100.

395 Theatre Arts Management 3(3,0) F (A.Y.)
Emphasis on theory and practice of Arts Management as an important feature of the Theatre Arts discipline. Students will become proficient in the organization, promotion, budgeting, and operation of a performing arts program. P, Thea 100, 131.

435 History of the American Musical 3(3,0) F (A.Y.)
History and development of American Musical Theatre from 1866 to the present. P, consent.

445 Lighting for Stage & TV 3(2,3) F (A.Y.)
Theatre and TV lighting. Lab and production participation.

455 Advanced Acting 3(3,0) S (A.Y.)
Textual analysis, movement and acting styles for the theatre. P, consent.

490 Summer Theatre 5(0,15) Su
Credit earned by participation with Prairie Repertory Theatre Company. May be repeated to a total of 10 credits, but only 5 may be applied to a minor. P, consent.

492 Special Problems 1-2 FSSu
Directed research. May be repeated for a total of 6 undergraduate credits. P, consent.

493 Undergraduate Course Specials* 1-5
*Refer to College of Arts and Science alternatives and options statement.

Graduate Courses

510-610 Dramatic Literature 3(3,0) S(A.Y.)
Analysis of important drama through present day.

550-660 History of Theatre 3(3,0) S (A.Y.)
Periods, theatres, and representative dramatic literature from the classical to the present day.

792 Special Problems 1-2 FSSu

Computer Science (CSc)

College of Engineering

Professor Bergum, Head; Associate Professor Emeritus Lundberg; Assistant Professors Cong, Greve, Hovland, Salehnia, Shin; Instructors Hamer and Krebsbach.

The Department of Computer Science at South Dakota State University is structured to serve the students in three ways:

1) to provide educational opportunities so that all students on campus can receive educational literacy in computers. Courses are offered which teach the fundamental system concepts of computers and introduce the students to the techniques of interacting with a computer system. There is also material offered which gives the students a better understanding of computers in our society.

2) the department also offers a major in Computer Science, the Bachelor of Science degree in Computer Science. A Curriculum for Secondary Computer Science teachers is also available. Finally, a Certificate Program in Microcomputer Applications sponsored by the department can be obtained through Capital University Center, Pierre.

Computer Science 97
Students interested in the Computer Science degree will be accepted into the Department of Computer Science in the College of Engineering as pre-computer science majors. Only those students who have a 2.75 GPA following 30 credits of acceptable coursework will be considered for acceptance into the degree program.

Formal application is required for acceptance into the major. Application forms for admission into the program can be picked up at the Computer Science Department. Deadline for acceptance is mid-term of the semester preceding entrance. Pre-computer science students should apply in April of their Freshman year. Failure to meet the application deadline may disqualify you from enrollment in Computer Science degree courses.

Computer Science majors must earn at least a "C" in all computer courses. Applied electives should be chosen so as to provide the student with a strong background for students planning on graduate study or careers in business, industry or teaching at the Secondary level. The choice of such courses should be discussed with the major adviser.

Fulfillment of the GPA requirement for admission into Computer Science does not assure admission. Applicants, when necessary, will be selected competitively. Total enrollment in the major may vary but will be no more than 35 per graduating class. Enrollment will depend on availability of faculty and funding with the selection made from among those students best qualified for a career in computer science. Students interested in the Certificate Program in Microcomputer Applications should visit with the Director of the Division of Lifelong Learning and Outreach on the SDSU campus or with the Director of the Certificate Program in Microcomputer Applications at Capital University Center in Pierre.

(3) for those students who need more support in their areas, a Computer Science minor is offered. The minor is structured so as to require a fundamental knowledge of programming and has elective courses which permit the student to match their Computer Science education with their major area. A minor in Computer Science consists of CSc 114, CSc 115, CSc 285 plus a minimum of 12 additional credits in Computer Science from courses numbered 285 or above. Three of these credits, with the consent of the major adviser and department head in Computer Science, may be an applications course in one’s discipline or an applications course which supports one’s degree. A grade of "C" or better is required in all minor coursework and a Computer Science minor form must be completed before graduation and filed with the Computer Science Department.

Curriculum Leading to a Bachelor of Science Degree
128 Semester Credits

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculus &amp; Analytic Geom., Math 123, 224</td>
<td>5</td>
</tr>
<tr>
<td>English &amp; Speech, Engl 101, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1</td>
</tr>
<tr>
<td>Programming I, CSc 114</td>
<td>3</td>
</tr>
<tr>
<td>Programming II, CSc 115</td>
<td>3</td>
</tr>
<tr>
<td>Social Science Electives</td>
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<td>Electives</td>
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<tr>
<td><strong>Total</strong></td>
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Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Matrix Algebra, Math 215</td>
<td>2</td>
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<tr>
<td>Discrete Structures, Math 243</td>
<td>3</td>
</tr>
<tr>
<td>Logic and Set Theory, Math 253</td>
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<tr>
<td>Data Structures, CSc 285</td>
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<tr>
<td>Assembly I, CSc 314</td>
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<tr>
<td>Computer Logic, CSc 241</td>
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<td>Humanities Electives</td>
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Junior Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Statistical Methods, Stat 341</td>
<td>3</td>
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<tr>
<td>Systems Prog, CSc 354</td>
<td>3</td>
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<tr>
<td>Advanced Composition, Engl 300</td>
<td>3</td>
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<tr>
<td>Ethics and Law in Computer Science, CSc 303</td>
<td>2</td>
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<tr>
<td>Compiler Construction, CSc 428</td>
<td>3</td>
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<tr>
<td>Intro to Automata Theory, CSc 328</td>
<td>3</td>
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<tr>
<td>Intro to Numerical Computation, Math 373</td>
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<td>Applied Electives</td>
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<td>Natural Science Electives</td>
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Senior Year

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Computer Architecture, CSc 426</td>
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<tr>
<td>Software Engineering, CSc 470</td>
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<td>Operating Systems, CSc 456</td>
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Curriculum for Secondary Computer Science Teachers
128 Semester Credits

Freshman Year

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Calculus &amp; Analytic Geom., Math 123, 224</td>
<td>5</td>
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<tr>
<td>English &amp; Speech, Engl 101, SpCm 101</td>
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<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1</td>
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<tr>
<td>Programming I, CSc 114</td>
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<tr>
<td>Programming II, CSc 115</td>
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<tr>
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<td>Electives</td>
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<td><strong>Total</strong></td>
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Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Matrix Algebra, Math 215</td>
<td>2</td>
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<tr>
<td>Discrete Structures, Math 243</td>
<td>3</td>
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<tr>
<td>Logic and Set Theory, Math 253</td>
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<tr>
<td>Data Structures, CSc 285</td>
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<tr>
<td>Assembly I, CSc 314</td>
<td>3</td>
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<td>Computer Logic, CSc 241</td>
<td>3</td>
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<tr>
<td>Programming Languages, CSc 290</td>
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<tr>
<td>General Psychology, Psyc 101</td>
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<td>Humanities Elective</td>
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<td>Practicum, SeEd 287</td>
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Junior Year

<table>
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<tbody>
<tr>
<td>Statistical Methods, Stat 341</td>
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<tr>
<td>Systems Prog, CSc 354</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Composition, Engl 300</td>
<td>3</td>
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<tr>
<td>Computers in Education, EdFn 385</td>
<td>2</td>
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<tr>
<td>Methods of Teaching Computer Science, CSc 480</td>
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<tr>
<td>Intro to Automata Theory, CSc 328</td>
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<tr>
<td>Intro to Numerical Computation, Math 373</td>
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<tr>
<td>Ed Psyc, EpSyl 302</td>
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<tr>
<td>Teaching Special Needs Students, EdFn 370</td>
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<tr>
<td>Teaching of Reading, SeEd 450</td>
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<td>Supervised Clinical/Field Experience, SeEd 314</td>
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<tr>
<td>History of American Indians, Anth 421</td>
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<td>Indians of North American, Hist 368 or</td>
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98 Computer Science
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<td>10</td>
<td>410 Classroom Management and Discipline</td>
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<td>285 Computer Logic</td>
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<td>114</td>
<td>300 Operating Systems</td>
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<tr>
<td>115</td>
<td>303 Introduction to Ethical Issues in Computer Science</td>
<td>3</td>
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<tr>
<td>116</td>
<td>310 Computer Architecture and Organization</td>
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<tr>
<td>117</td>
<td>320 COBOL Programming</td>
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<tr>
<td>118</td>
<td>330 Advanced COBOL Programming</td>
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<td>119</td>
<td>340 Database Management Systems</td>
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<td>120</td>
<td>350 Advanced Microcomputer Applications</td>
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<td>121</td>
<td>360 Methods for Teaching Computer Science</td>
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<tr>
<td>122</td>
<td>370 Software Engineering</td>
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<td>123</td>
<td>380 Operating Systems</td>
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<td>124</td>
<td>390 Methods of Teaching in Secondary Schools</td>
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<td>125</td>
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<td>420 Programming Languages</td>
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<td>430 Database Management Systems</td>
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<td>129</td>
<td>440 Operating Systems</td>
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<td>130</td>
<td>450 Methods for Teaching Computer Science</td>
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<td>131</td>
<td>460 Methods for Teaching Computer Science</td>
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<td>132</td>
<td>470 Software Engineering</td>
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<tr>
<td>133</td>
<td>480 Operating Systems</td>
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</tr>
<tr>
<td>134</td>
<td>490 Methods for Teaching Computer Science</td>
<td>3</td>
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</table>

**Undergraduate Courses**

110 Programming in BASIC 2(2,0) FSSu

The fundamental concepts of the Computer and the Computer language BASIC will be introduced. That is, decision statements, string manipulation, loops, flow of control, subroutines, user defined functions, random generators, sequential and random access files will be topics covered in the course. P, 1 year of high school math.

112 Microcomputer Literacy 3(3,0) FSSu

Computer literacy will be stressed and microcomputers will be used. Topics covered will include history, impact on social and cultural environment and daily life, professional opportunities, ethics, hardware, software, applications to other disciplines and elementary topics on DOS as well as the use of a wordprocessor, spreadsheet, graphics and data base manager. P, 1 year of high school math.

114 Programming I 3(3,0) FSSu

This is an introductory course on the topics of structured programming. Topics covered will be top-down design, step-wise refinement, procedures, functions, decision statements, loops, one dimensional arrays, strings, and the use of external files. All topics when covered will stress good problem solving, documentation, debugging and testing. P, 2 years high school algebra or consent.

115 Programming II 3(3,0) FSSu

The topics in this course will be introduced as needed in the context of one or more projects involving larger programs. Structured programming techniques will be utilized with a strong emphasis toward good programming style, expression and documentation. The course will extend the concepts of stepwise refinement, top-down programming, debugging, testing, string processing, arrays, searching, sorting and recursion. The concepts of stacks, queues, linked lists and linked allocation will be introduced. P, CSc 114.

213 Introduction to Programming with FORTRAN 3(3,0) FSSu

FORTRAN programming for engineering and computer science majors. P, 2 years of high school algebra or equivalent of Math 113.

230 COBOL Programming 3(3,0) FSSu

An introduction to COBOL Programming. The topics of structured programming style, data structures, file processing concepts and techniques both sequential and random organization, and documentation are presented. Programming problems are from typical business applications. P, CSc 213 or 214.

241 Computer Logic 3(3,0) FS

An introduction to computer operating principles, information storage and logic gates. Boolean algebra and other methods of simplifying boolean functions are covered to provide an elementary understanding of computer logic analysis and design, suitable for astudent at the sophomore level. P, Math 113 and CSc 115 or 213.

285 Data Structures 3(3,0)F P S

A more advanced study of such topics as strings, arrays, linked lists, stacks, queues, trees, graphs, search and sorting. Other topics covered will be introductory algorithm analysis, design and comparison of different structures and algorithms. P, CSc 115.

290 Programming Languages 3(3,0) FS


303 Introduction to Ethical Issues in Computer Science 2(2,0) FS

This course will cover the code of ethics adopted by the major computer science societies and the consequences of violating the code. Laws affecting computer and information processing as well as the varied interpretations of those laws will be covered. P, CSc 112 and junior status.

312 Advanced Microcomputer Applications 3(3,0) FSSu

Covers advanced topics in DOS as well as advanced topics of a word processor, spreadsheet, graphics and database manager from an individual package point of view as well as from an integrated package point of view. Macros, a fourth generation language, file transfer between packages and communications will also be covered. P, CSc 112 or consent.

314 Assembly I 3(3,0) FSSu

ASSEMBLY language programming, organization and operating principles of the IBM computer, and others. For students seriously interested in computers or computer programming. P, CSc 115 or 213.

316 PL/1 Programming 3(3,0) FSSu

Introduction to PL/1 programming. Includes scientific and business oriented programming applications, data structures, structured programming and file processing. P, CSc 114 or 213.

318 C Programming/UNIX 3(3,0) FS

An introduction to basic and advanced topics in the C programming language in a UNIX environment. Advantages of UNIX operating system will be discussed. P, 115 or consent of instructor.

326 Introduction to Automata Theory 3(3,0) FS


330 Advanced COBOL Programming 3(3,0)FS

Advanced programming features of the COBOL Language. Topics include string manipulation, multi-dimensional arrays, subprograms, file processing concepts utilizing sequential, random and dynamic access to indexed files with primary and alternate keys. Programming problems deal with transaction processing in typical business applications. P, CSc 230.

334 Introduction to Systems Programming 3(3,0) FS

The study of macros, subroutines, subroutine linkage, conditional assembly, input-output, interrupt processing, assemblers, loaders and linkers. P, CSc 285 and 314.

361 Computer Information Systems 3(3,0)

Introduction to application software development and design methods. Data base and management information systems are also presented. P, CSc 230.

426 Computer Architecture and Organization 3(3,0) S

Elementary computer architecture, gates and digital logic, register transfer, microprocessors and micro operations, computer arithmetic and processor studies of existing systems. P, CSc 241 and 314.

428 Compiler Construction 3(3,0) S

Structure of algorithmic, conversational, list processing and string manipulation languages. Concepts and facilities of programming languages; structure of compilers, introduction to formal languages and parsing. P, CSc 285 and 328.

430 Database Management Systems 3(3,0) FS

Introduction to the fundamental concepts of database systems. The relational, hierarchical, and network approaches. The underlying design of a database system and the characteristics of widely used database packages. Emphasis on project using a database package. P, CSc 285.

456 Operating Systems 3(3,0) F

Operating systems structure; memory, process and I/O management; concurrent processes and case studies of existing operating systems. P, CSc 285 and Stat 341 or Math 381.

472 Software Engineering 3(3,0) S

The principles, techniques and tools used to design and construct accurate, reliable, maintainable and dependable software will be studied. P, CSc 285.

480 Methods for Teaching Computer Science 3(3,0) FS

The principles, methods and theories in teaching computer science subjects to secondary school students will be studied. P, CSc 285.
## Senior Year
- Professional Perspectives, HE 401 ............................................. 2
- Philosophy & Methods, HEd 411 ..................................................... 3
- Orientation to Practicum, HE 492 ..................................................... 1
- Current Topics: Entrepreneurship, HE 593 .................................... 2
- Family Resource Management Lab, CA 442 .................................. 3
- Law of the Press, MCom 414 .......................................................... 3
- History of Journalism, MCom 417 .................................................... 3
- Current Topics: Preparation for Practicum, CA 493 ..................... 2
- Home Economics Practicum, HE 497 or Mass Communication Practicum, MCom 495 ...................................................... 17 12

Deviations from this established sequence schedule can extend the time required to complete the program.

*If you select TC 171 (2 credits), you must also enroll for 1 credit of TC study tour.

### Home Economics Education: Education Option

Graduates of this major meet certification requirements to teach Vocational Home Economics. In addition, they develop abilities in management, planning, communication, and organization. Graduates are employed in a variety of careers related to education, teaching, Cooperative Extension, business, government, and community services.

There are specific GPA and course requirements to enroll in Professional Semester II and III. Students are encouraged to use elective courses to develop a teaching minor/concentration.

### Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Freshman Composition, Engl 101............................................... 3</td>
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<tr>
<td>College Algebra, Math 112 or higher........................................... 3</td>
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<tr>
<td>General Psychology, Psyc 101 .................................................... 3</td>
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<tr>
<td>Physical Education, PE 100 .......................................................... 1</td>
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<tr>
<td>Fundamentals of Speech, SpCm 101 ................................................. 3</td>
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<tr>
<td>Food and Man, NFS 111 ..................................................................... 2</td>
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<td>Humanities Elective ....................................................................... 4</td>
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<td>General Chemistry, Chem 110 ......................................................... 4</td>
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<td>Natural Science Sequence .................................................................. 4</td>
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<tr>
<td>Human Development I, HDCF 211 ..................................................... 3</td>
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### Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>Human Relations .............................................................................. 3</td>
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<tr>
<td>Special Topics: Early Experience, HEd 293 .................................. 1</td>
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<tr>
<td>Professional Foundations, HE 201 ............................................... 2</td>
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<tr>
<td>Management in Family &amp; Personal Living, CA 241 ................................ 3</td>
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<td>Occupational Home Economics Experience, HEd 332 ........................... 1</td>
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<td>Principles of Vocational Education, VTTE 405 ................................ 2</td>
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<td>Experience in Human Relations, HDCF 271 ..................................... 3</td>
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<td>Food Principles, NFS 141 .............................................................. 4</td>
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<td>Nutrition, NFS 221 or NFS 321 .................................................... 3</td>
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<td>Textiles, TC 242 ........................................................................... 3</td>
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<td>Interior Design Elective .................................................................. 3</td>
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<td>Dynamics of Family Development, HDCF 342 or Problems of Family Development, HDCF 443 .................................................. 3</td>
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<td>Elective ......................................................................................... 1</td>
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<tr>
<td>Demonstrated Competence in Clothing Construction .......................... 16 16</td>
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### Junior Year

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<tr>
<th>Course</th>
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<tr>
<td>Advanced Composition, Engl 300 ................................................... 3</td>
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<tr>
<td>Human Development II, HDCF 312 or Adolescent Psychology, EdFn 590/690 3</td>
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<tr>
<td>Families and Their Ecological Systems, HE 301 ................................ 3</td>
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### Teaching Occupational Home Economics, HEd 331 ............................ 2
- Computers in Teaching, EdFn 385 .................................................... 2
- Household Technology, CA 361 ......................................................... 2
- Nutrition and Food Science Elective .............................................. 3 or 3
- Dress and Adornment in World Culture, TC 350 or Socio-Psychological Aspects of Clothing, TC 413 .................................................... 3
- Educational Psychology, EPsy 302 .................................................. 2 or 2
- Supervised Clinical Field Experience, SeEd 314 .............................. 1 or 1
- Teaching Special Needs Students, EdFn 370 .................................... 1 or 1
- Teaching of Reading, SeEd 450 ........................................................ 3 or 3
- Middle School Curriculum and Instruction, EdFn 528/628 .................. 3 or 3
- Middle School Affective Application, EdFn 527/627 .......................... 2 or 2

### Senior Year

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Consumer and the Market, CA 391 ................................................ 3</td>
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<td></td>
</tr>
<tr>
<td>Professional Perspectives, HE 401 .............................................. 2</td>
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<tr>
<td>Family Resource Management Lab, CA 442 ....................................... 3</td>
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<td>Philosophy and Methods, HEd 411 ................................................ 3</td>
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<td>Family Housing, ID 331 or Shelter and Families, ID 450 ................... 3</td>
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<tr>
<td>Preparation for Student Teaching/Extension Practicum, HEd 412 ......... 5</td>
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<tr>
<td>Supervised Student Teaching, HEd ................................................ 10</td>
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<tr>
<td>Indians of North America, Anth 421 or History of American Indians, Hist 368 .................................................. 3</td>
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</table>

Deviations from the established program schedule can extend the time required to complete the program.

### Home Economics Education: Cooperative Extension Option

Graduates of this major develop abilities in management, planning, communication, and organization. Although students in this major receive training specific to Cooperative Extension, graduates are also employed in other careers: business, government, and community services. A 2.5 overall GPA is required to enroll in HEd 411 and HE 497.

### Freshman Year

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<th>Course</th>
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<td>College Algebra, Math 112 or higher ............................................ 3</td>
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<td>General Psychology, Psyc 101 ....................................................... 3</td>
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<td>Physical Education, PE 100 ............................................................ 1</td>
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<td>Fundamentals of Speech, SpCm 101 ............................................... 3</td>
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<td>Food and Man, NFS 111 ..................................................................... 2</td>
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<td>Humanities Elective ....................................................................... 4</td>
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<td>General Chemistry, Chem 110 ......................................................... 4</td>
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<tr>
<td>Natural Science Sequence .................................................................. 4</td>
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<td>Human Development I, HDCF 211 ..................................................... 3</td>
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<tr>
<td>Consumer and the Market, CA 391 ................................................ 3</td>
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Deviations from the established program schedule can extend the time required to complete the program.

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<tr>
<td>Professional Foundations, HE 201 .............................................. 2</td>
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<tr>
<td>Management in Personal and Family Living, CA 241 ................................ 3</td>
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<td>Humanities Elective ....................................................................... 3</td>
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<td>Home Economics Elective .................................................................. 3</td>
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<td>General Chemistry, Chem 110 ......................................................... 4</td>
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<td>General Education Electives ......................................................... 3</td>
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### Senior Year

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<td>Natural Science Sequence .................................................................. 4</td>
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<td>Professional Foundations, HE 201 .............................................. 2</td>
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</table>


Consumer Affairs & Home Economics Education 103
Textiles and Clothing
Interior Design

493 Current Topics 1-3
For students needing additional study of a topic or experience not offered as part of a regular class.

494-495-496 Cooperative Education/Internship/Field Experience 1-12 FSSu
Working under supervision with business concern. Role of home economist in business, company organization and ethics, public relations, use of mass media, special aspects of particular business. Consent of department and instructor.

497 Professional Practicum 10 S
A minimum of ten weeks of the practicum. Roles and responsibilities of the consumer affairs or extension professional. Practicum in an approved business or agency. F, HEd 412, a 2.5 GPA and senior standing in home economics extension or CA 493, 2.5 GPA and senior standing in consumer affairs.

Graduate Courses

500-600 Practicum in Home Economics 2-6
Provides an opportunity for students to gain experience in a job or career related to their subject specialization. A learning plan is developed by the student and faculty member prior to the practicum. Consent of department and instructor is required.

501-601 Seminar 2(2,0)
Review and discussion of current issues in home economics.

592-692 Special Problems 1-3
Individual research and study in home economics. May be repeated for a total of 3 credits. Consent of instructor and department is required.

593-693 Current Topics 1-3
For students needing additional study of a topic or experience not offered as part of a regular class.

700 Research Methods in Home Economics 3(3,0)
701 Seminar in Home Economics 0.5-2
711 History and Philosophy of Home Economics 2(2,0)
761 Evaluation in Home Economics 2(2,0)
Cross listed with VTTE.

790 Thesis 1-7
791 Thesis Sustaining 1(0,1)
792 Special Problems 1-3
793 Current Topics 1-3
794 Graduate Internship 1-7
795 Individual Research and Study 1-7
796 Individual Research Paper Sustaining
797 Internship Paper Sustaining

Home Economics Education (HEd)

Undergraduate Courses

292 Special Problems 1-3
Problems selected according to students’ special needs and interests. Consent of instructor.

293 Current Topics 1-3 F
For students needing additional study of a topic or experience not offered as part of a regular class. 1 credit, Current Topics, is Early Experience, must be taken by HEd majors as a sophomore.

331 Teaching Occupational Home Economics Programs 2(2,0) F
Subject matter preparation to develop competencies desirable for teaching in occupational programs.

332 Occupational Home Economics Experience 1(0,1) F
A work experience to develop competencies desirable for teaching in occupational programs.

411 Philosophy & Methods 3(3,0) F
The philosophical foundations and history of the home economics profession related to general and vocational education, to home economics extension and to home economics programs in business, industry, government, and non-profit agencies. The learner and the learning process, curriculum development, and program planning, methods of instruction, selection and use of resource materials, and the educator’s role will be studied in depth as preparation for the practicum/internship experience. Must be taken in semester immediately preceding HEd 412 or CA 493. P, 2.5 GPA.

412 Preparation for Student Teaching & Extension Practicum 1-3(2,0) S
First Part Semester
Planning and developing instruction for various types of home economics programs to meet the needs of selected age groups in structured situations. P, HEd 411, Professional-Semester II and 2.6 GPA in major classes.

421 Experiences in Adult Education 2(2,0) S
Background and trends in teaching adults. Observing, organizing and implementing instructional techniques. Open to all majors.

473 Supervised Student Teaching in Home Economics 10(0,10) S
A minimum of ten weeks of the second part of Spring Semester. Roles and responsibilities of the vocational home economics teacher. Teaching under supervision at least two subject areas of home economics in an approved school. P, HEd 412, a 2.6 GPA, and senior standing in home economics.

492 Special Problems 1-3
Problems selected according to students’ special needs and interests. Consent of instructor.

493 Current Topics 1-3
For persons needing additional experience or study in a particular aspect of the educator’s role. Consent of instructor.

494-495-496 Cooperative Education/Internship/Field Experience 1-12 FSSu
Working under supervision in an approved experience. Number of credits dependent on experience and supervisory arrangements. Consent of department and instructor.

Graduate Courses

592-692 Special Problems 1-3
Individual research and study in home economics education. May be repeated for a total of 4 credits. Consent of instructor and department is required.

593-693 Current Topics 1-3
For students needing additional study of a topic or experience not offered as part of a regular class.

701 Trends in Home Economics Education 2(2,0)
702 Seminar in Home Economics Education 1-2
741 Supervision in Home Economics Education 2(2,0)
Cross listed with VTTE.

792 Special Problems 1-3
793 Current Topics 1-3

Criminal Justice (CJus)

Dr. James Satterlee (Head, Department of Sociology)
This inter-college program administered by the Department of Sociology is available to students majoring in any field at SDSU. The purposes of this program are 1) to provide new qualified personnel for all segments of the Criminal Justice system; 2) to help improve the competence and professional status of existing Criminal Justice personnel.

To minor in CJus a student must take a total of 18 credit hours from courses offered in CJus and others available in Sociology, Political Science or Wildlife/Fisheries. Nine of these 18 hours consist of 3 required courses (CJus 201, 335, and Soc 351). The remaining 9 hours may be selected from any of the above courses (below). An internship (Soc 495) is strongly recommended as an addition to these hours (See Sociology Internship Coordinator one-semester in advance of field placement).
Required Courses (9 hours)

Introduction to Criminal Justice, CJus 201 .............................................. 3
Criminal Prosecution and Defense, CJus 335 .............................................. 3
Criminology*, Soc 351* (*P, Soc 100) .................................................. 3

Elective Courses (9 hours)

Police and Community Relations, CJus 203 .............................................. 3
Domestic Violence*, Soc 325* .............................................................. 3
Civil Rights and Liberties, CJus 331 (P, PolS 100 or 101) ......................... 3
Fund of Criminal Procedure, CJus 333 ................................................ 3
Juvenile Justice, CJus 336 ........................................................................ 3
Wildlife Law & Enforcement, WL 420 (P, Jr. Standing) ......................... 3
Advanced Criminology*, Soc 460* (P, Soc 351) ...................................... 3
Juvenile Delinquency*, Soc 451* .......................................................... 3
Sociology of Corrections*, Soc 452* ...................................................... 3
Sociology of Law*, Soc 460* ................................................................. 3
Problems in Criminal Justice, CJus 416 (Consent) .................................. 3
Social Deviance*, Soc 501/601* (P, 100 or Consent) .............................. 3

May not be used for both a Sociology Major and a Criminal Justice Minor.

Undergraduate Courses

201 Introduction to Criminal Justice 3(3,0) FS
An overview of the criminal justice system focusing primarily on the institutions involved in the operations of the criminal law including the police, the attorney in the legal system, the bail system, the trial, the guilty plea, sentencing, and corrections. A limited portion of the course is devoted to an analysis of the purposes of the criminal law in terms of ascertaining why we make certain kinds of conduct criminal in our society.

208 Police and Community Relations 3(3,0) F
Examination of the historical development of policing; the role and function of policing; the process of policing; administration and evaluation of the police organization; police-community relations; the organization and control of policing; other related issues.

331 Civil Rights and Liberties 3(3,0) S
Individual First Amendment guarantees, constitutional right of the accused in the criminal process and equal protection of the law as interpreted through U.S. Supreme Court decisions. P, 100 (or 101) or consent.

333 Fundamentals of Criminal Procedure 3(3,0) S
Constitutional analysis of the criminal procedure that focuses primarily on the Fourth, Fifth, and Sixth Amendments; the right to be free from unreasonable search and seizure, the privilege against self-incrimination, and the right to counsel. The course examines the need to protect the public and enhance law enforcement efficiency and the need to protect individual defendants from abuse at the hands of the state.

334 Criminal Law 3(3,0) F
Examination of the substantive criminal law and a unique opportunity to explore the larger issues concerning the relationship of the individual to the state. Includes analysis of the following topics: the nature of criminal liability and the functions and justifications for criminal punishment, legal limitations upon criminalization, the general principles of criminal liability such as the "act" and "state of mind" requirements, specific offenses against persons and property, and law of attempt, the law of complicity, and conspiracy.

335 Criminal Prosecution and Defense 3(3,0) FS
Behavioral and legal analysis of the stages and procedures of a criminal case including initial appearance, bail, preliminary hearing, grand jury, arraignment, suppression hearings, trial and sentencing. Emphasis is on bail reform, plea bargaining, screening, diversion, speedy trial, insanity defense, discovery, and the role of the defense attorney, prosecutor, and judge. Included is an examination of the court system as a social institution of human actors who exercise discretion within and without the boundaries of the law.

336 Juvenile Justice 3(3,0) F
Historical, philosophical, and legal examination of the separate system created in our society to handle juvenile justice in this country. Traces the development of the juvenile justice system in the country and examines the various stages of the juvenile justice process and critical issues currently facing the system.

416 Problems in Criminal Justice 3(3,0) S
An examination of selected contemporary problems in the administration of criminal justice. Topic will change each semester. May be repeated for credit. Course descriptions available prior to term course is offered.

Dairy Science (DS)
College of Agriculture and Biological Sciences
Professor Parsons, Head; Professor Schingoethe; Professors Emeriti Baker, Spurgeon; Associate Professors Baer, Henning, Mistry; Assistant Professors Cassel, Foster, Harrison; Instructors Baldwin, Ludens.

Dairy Science students may choose a major in Dairy Manufacturing or Dairy Production. Under the curriculum in agriculture, each of the majors offers a general technical program, with several electives. In addition, an option in Science, Business or Ag Education is available with either of the majors. The Dairy Manufacturing major offers a program under the curriculum in Biological Sciences which involves more courses in chemistry and biological sciences and fewer courses in agriculture. Faculty welcome the opportunity to discuss these options and job opportunities with students.

A well-equipped dairy processing plant and sales room make it possible for you to obtain practical experience while learning the principles of dairy processing. Several students work part-time in the processing plant and earn part of their university expenses. The dairy research and production unit houses a herd of 200 Holstein cattle and is a research center in feeding, breeding, and managing a dairy herd. Equally important, it is the site for basic student training in dairy cattle evaluation and other aspects of dairy farming. The milk produced is processed as milk, ice cream, butter or cheese and used in campus eating facilities. Like the processing plant, the research and production unit offers opportunities for students to work part-time and gain practical experience while earning money for expenses.

Curriculum in Biological Science,
Dairy Manufacturing Major
Leading to the Bachelor of Science Degree

Freshman Year

Fr Comp, Engl 101 ................................................................. 3 or 3
Fitness & Lifetime Activities, PE 100 .............................................. 1 1
Gen Chem, Chem 112, 114 ....................................................... 4 4
Intro Biology, Bio 151, 153 ....................................................... 3 3
Intro Dairy Science, DS 130 ....................................................... 3 or 3
Intro to Sociology, Soc 100 ....................................................... 3 3
Fnd of Speech, SpCm 101 ....................................................... 3 or 3
Humanities Elective ................................................................. 2 2
Elective ....................................................................................... 2 2

Sophomore Year

Algebra, Math 112 ................................................................. 3 3
Trigonometry, Math 120 ............................................................... 3 3
Gen Microbiology, Micr 231 ....................................................... 4 4
Elementary Physics, Phys 111, 113 or General Physics, Phys 211, 213, 236, 239 ....................................................... 4 4
Organic Chem, Chem 120, 222 or 236 ........................................ 4-5
Elementary Biochemistry, Chem 361 ............................................. 4 1
Dairy Products Judging, DS 202 ..................................................... 4
Social Science Elective ................................................................. 3 3
Humanities Elective ................................................................. 2 2

Dairy Science 105
### Curriculum in Agriculture, 
**Dairy Manufacturing Major**  
Leading to the Bachelor of Science Degree

#### Freshman Year
- **Fr Comp, Engl 101**  
- Fitness & Lifetime Activities, PE 100  
- Gen Chem, Chem 110 or 112  
- Algebra, Math 112 or Algebra & Trigonometry, Math 113  
- Intro Dairy Science, DS 130  
- Intro to Sociology, Soc 100  
- Group I Electives  
- Fund of Speech, SpCm 101  
- Electives

#### Sophomore Year
- Macroeconomics Prin, Econ 201  
- Social Science Elective  
- Intro Biology, Bio 151, 153  
- Elementary Organic Chem, Chem 120  
- General Microbiology, Mic 231  
- Dairy Products Judging, DS 202  
- Humanities Electives  
- Electives

#### Junior and Senior Years
- Advanced Comp, Engl 300  
- Communications Elective†  
- Food Microbiology, Mic 311  
- Processing Equipment for Ag Products, MA 443  
- Intro Physics, Phys 101 or Elementary Physics I, Phys 111 or Gen Physics I, Phys 211  
- Prin of Accounting I, Actg 210  
- Technical Control of Dairy Products I-II, DS 221, 422  
- Dairy Microbiology, DS 301  
- Labor, Law & Econ, Econ 382  
- Dairy Plant Management, DS 421  
- Dairy Seminar, DS 490  
- Field Experience, DS 496  
- Computer Programming, CSc 112, 114  
- Humanities Electives  
- Electives

### Curriculum in Agriculture,  
**Dairy Production Major**  
Leading to the Bachelor of Science Degree

#### Freshman Year
- Fr Comp, Engl 101  
- Fitness & Lifetime Activities, PE 100  
- Gen Chem, Chem 110 or 112  
- Algebra, Math 112 or Algebra & Trigonometry, Math 113  
- Intro to Sociology, Soc 100  
- Introduction to Dairy Science, DS 130  
- Crop Production, PS 103  
- Dairy Cattle Evaluation, DS 212  
- Electives

### Business Option
- Microeconomics Principles, Econ 202 (3)  
- Prin of Accounting I, Actg 210 (3); Business Management, BAdm 360 (3); Plus 12 hours to be chosen from: Prin of Accounting II, Actg 211 (3); Personal Finance, BAdm 380 (3); Marketing, Econ 353 (3); Money & Banking, Econ 330 (3); Statistical Methods I, Stat 341 or equivalent (3); Business Finance, BAdm 310 (3); Marketing Management, Econ 452 (3); Agricultural Marketing, AgEc 354 (3).

### Science Option
- Chemistry, Mathematics and/or Physics (11); Biological Science to be selected from the following areas: Botany, Entomology-Zoology or Plant Pathology (2).

### Dairy Science Majors Interested in Teaching
- Dairy Science majors who desire to prepare to teach vocational agriculture need to plan on completing a double major in Dairy Science and Agricultural Education. The Production Option meets the Dairy Science part of requirement. Contact an adviser in Agricultural Education no later than the sophomore year for details about qualification for Teacher Certification.
The Dairy Science degree has a minimum requirement of 128 semester credits. The double major would necessitate completing 142 to 146 semester credits. This could be accomplished in an extra semester or by attending two summer sessions.

Undergraduate Courses

130 Introduction to Dairy Science 3(2,2) FS Essentials of successful dairy farm operation, production testing, feeding, and management of dairy herd. Composition of milk; testing of milk for milk fat, milk solids and quality; and an examination of nutritive value of dairy products.

202 Dairy Products Judging 1(0,3) S Quality of milk, butter, cheese, ice cream, and cottage cheese.

212 Dairy Cattle Evaluation 2(0,4) S Fundamental aspects of evaluation of dairy cattle for type; type classification of dairy cattle.

221 Technical Control of Dairy Products I 3(1,4) F Fundamental properties of milk and its products as they affect testing. Common physical and chemical intake and laboratory tests for procurement and grading milk. Compositional tests for control of dairy products during processing. P, 130, Chem 110.

231 Dairy Foods 3(3,0) F Survey of the dairy processing industry. Principles of processing and manufacturing dairy foods including quality standards and nutritive quality. For non-dairy manufacturing majors only.

301 Dairy Microbiology 3(2,3) S (odd years) Quality control problems during the production and processing of fluid milk for human use, including role of regulatory agencies and quality standards. P, Micr 231.

311 Dairy Cattle Judging 1(0,2) F Judging major breeds of dairy cattle. Type classification. May include participation in regional dairy cattle or national collegiate cattle judging contests. Maximum of two credits. P, 212.

321 Dairy Product Processing I 5(4,3) F (odd years) Principles and practices in assembling, receiving, processing, and packaging milk and cream for beverage use; cultured milk and cream, frozen milk and cream; concentrated milks; and ice cream. Sanitation procedures. P, 130, 221 and Micr 231 desirable.

322 Dairy Product Processing II 5(4,3) S (even years) Processing or manufacturing of relatively nonperishable dairy products such as butter, cheese, dried milk, casein, lactose, and anhydrous milkfat. P, 321 desirable.


411 Dairy Breeds & Breeding 2(2,0) S (even years) Origin, genetics, characteristics, and development of major breeds of dairy cattle. Breeding and selection based on pedigrees, production records, type classification, and sire analysis. P, 130.

412 Dairy Farm Management 3(3,0) S (odd years) Dairy herd management practices, production testing, labor requirements, buildings and equipment maintenance, crop systems, merchandising cattle and milk. Dairy farm capital, budgets, and credits; and factors affecting economic returns of dairy farming. P, 130 or consent.

421 Dairy Plant Management 3(3,0) F (even years) General costs, buildings, equipment, merchandising, personnel, other management factors of dairy processing plants. P, junior standing or consent.

425 Technical Control of Dairy Products II 4(3,3) S Physical and chemical properties of milk constituents and their effect on processing, testing, and nutritive value of milk and its products. Intentional or accidental additives, their effect and significance. Laboratory tests for process control or legal compliance. P, 221, Chem 120 or equivalent.

432 Dairy Cattle Feeding 3(3,0) F (even years) Practical considerations involved in feeding dairy cattle. P, AS 223.

490 Dairy Seminar 1(1,0) F Review of scientific literature and other items of special interest to dairy majors. P, senior standing.

492 Special Problems in Dairy Science 1-3 (As arranged) FSSu Investigation of problems in dairy production or dairy manufacturing. Results to be submitted as a technical paper. P, Junior or Senior standing plus consent. Maximum of 3 cr. for B.S. degree.

493 Special Topics 1-4 Selected topics to provide specific knowledge and technical experience in current areas of research and development. Topics may include new processing, breeding or nutrition techniques or product development. P, consent and junior or senior standing.

494, 495, 496 Cooperative Education/Internship/Field Experience 3-12 FSSu On the job experience to supplement knowledge gained in the classroom. A written job description and work plan will be required. Emphasis will be on total educational value of the experience for the student. Written reports will be submitted to a designated departmental faculty member who will serve as major adviser during the time of the practicum. P, permission of department program coordinator.

Graduate Courses

702 Seminar 1(1,0) S

711 Ruminology 3(3,0) F (odd years)

712 Physiology of Lactation 3(3,0) S (odd years)

722 Advanced Dairy Microbiology 3(2,3) S (even years)

731 Laboratory Techniques in Dairy Science 2(0,6) F (even years)

780 Dairy Science Problems 1-4 FSSu

790 M.S. Thesis in Dairy Science (as arranged)

890 Ph.D. Dissertation in Dairy Science (as arranged)

Economics (Econ)

College of Agriculture and Biological Sciences
Professor Lundeen, Head; Professors Dobbs, Gilbert, Greenbaum, Janssen, Kamps, Kim, Lambert, Lyons, Murra, Peterson, Shane, Taylor; Professors Emeriti Aanderud, Allen, Anderson, Benning, Hisa, Johnson, Kohlmeyer, Myers, Thompson; Associate Professors O'Brien, Pfueger; Associate Professors Emeriti Fellberg, Kelsey, Sogn; Assistant Professors Adamson, Beutler, Fausti, Feuz, Franklin, Qasmi, Sondey; Instructors Cumber, Ellingon, Fredrickson, Gustafson, Rasmussen.

The objectives of the curricula taught in the Economics Department are to:

1) present the general economic principles necessary to understand the complexities of the economic and business world;

2) train the student to apply economic concepts and techniques for decision-making in fields such as agricultural business, agricultural economics, economics, and business; and,

3) provide a foundation for graduate work in economics, agricultural economics, business administration, management, finance, law and other related areas of study.

The Economics Department offers majors leading to a Bachelor of Science Degree in either Agricultural Business or Agricultural Economics from the College of Agriculture and Biological Sciences. The Department also offers a major in Economics leading to either a Bachelor of Science or a Bachelor of Arts Degree from the College of Arts and Science. Within the Economics Major, a student can choose an option in Business Economics.

The baccalaureate programs in the Economics Department are designed to provide students with a background to pursue careers in farm and ranch management, agricultural finance, agribusiness, banking, business finance, business manage-
ment, sales and marketing, government service and related fields.

Entry Requirements

Students interested in earning a degree in one of the majors in the Economics Department will be accepted into the Economics Department as a pre-major and assigned a departmental adviser. Formal application is required for admission into one of the departmental programs. Application forms are available from the Economics Department. To be admitted into one of the programs, the student must have completed and received grades for at least 48 semester credits toward graduation, have a cumulative grade point average of at least 2.1 for all courses taken, and have earned at least a 2.1 grade point average for the following courses: Econ 201, Econ 202, Actg 210, Engl 101, and Math 222 (or Math 123).

Students will be expected to apply for admission during their junior year at the latest. The student must understand that if he or she does not meet the entry requirement above, he or she cannot enter a program in the Economics Department or take Economics Department courses numbered 300 or above until the entry requirement is met.

Requirements of the individual majors and suggested study plans are as follows:

Curriculum in Agriculture
Agricultural Business Major
Leading to the Bachelor of Science Degree

<table>
<thead>
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<th>Credit Hours</th>
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<tr>
<td>Freshman Composition, Engl 101</td>
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<td>Algebra, Math 112</td>
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<tr>
<th>Credit Hours</th>
<th>Sophomore Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macroeconomics Principles, Econ 201</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Accounting I, Actg 210</td>
<td>3</td>
</tr>
<tr>
<td>Farm and Ranch Management, AgEc 271</td>
<td>4</td>
</tr>
<tr>
<td>Microeconomics Principles, Econ 202</td>
<td>3</td>
</tr>
<tr>
<td>Money and Banking, Econ 330</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Accounting II, Actg 211</td>
<td>3</td>
</tr>
<tr>
<td>Group I Elective</td>
<td>2</td>
</tr>
<tr>
<td>Calculus for Non-Math Majors, Math 222, or Mathematical Analysis I, Math 123</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credit Hours</th>
<th>Junior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Composition, Engl 300</td>
<td>3</td>
</tr>
<tr>
<td>Intermediate Microeconomics, Econ 301</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Finance, AgEc 478</td>
<td>3</td>
</tr>
<tr>
<td>Programming I, CSc 114</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science Elective (sequence course)²</td>
<td>3-4</td>
</tr>
<tr>
<td>Technical Communications, Engl 303</td>
<td>3</td>
</tr>
<tr>
<td>Intermediate Macroeconomics, Econ 302</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Marketing, AgEc 354</td>
<td>3</td>
</tr>
<tr>
<td>Business Law I, BAdm 350</td>
<td>3</td>
</tr>
<tr>
<td>Statistical Methods I, Stat 341</td>
<td>3</td>
</tr>
<tr>
<td>General Elective</td>
<td>1-2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credit Hours</th>
<th>Senior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications Elective</td>
<td>2-3</td>
</tr>
<tr>
<td>Statistics II, Econ 423</td>
<td>3</td>
</tr>
<tr>
<td>Public Finance, Econ 433</td>
<td>3</td>
</tr>
<tr>
<td>Production Economics, AgEc 421</td>
<td>3</td>
</tr>
<tr>
<td>Comparative Economic Systems, Econ 405; History of Economic Thought, Econ 504; or Economic History of the U.S., Hist 377</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Policy, AgEc 479</td>
<td>3</td>
</tr>
</tbody>
</table>

1. From approved list on page 26.
2. A student must complete two science courses from the same sequence, as identified in the list on page 27.
3. Group I electives are listed on page 44.
4. Communications electives must be chosen from Interpersonal Communications, SpCm 201; Public Speaking, SpCm 315; Discussion, SpCm 334; or Forensics Activities, SpCm 281, plus three additional hours of written communications.

Curriculum in Agriculture
Agricultural Economics Major
Leading to the Bachelor of Science Degree

Credit Hours

<table>
<thead>
<tr>
<th>Freshman Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Sociology, Soc 100</td>
</tr>
<tr>
<td>Humanities Elective</td>
</tr>
<tr>
<td>Biological Science Elective</td>
</tr>
<tr>
<td>Algebra, Math 112</td>
</tr>
<tr>
<td>Freshman Composition, Engl 101</td>
</tr>
<tr>
<td>Fundamentals of Speech, SpCm 101</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
</tr>
<tr>
<td>General Chemistry, Chem 110 or 112</td>
</tr>
<tr>
<td>Group I Elective</td>
</tr>
<tr>
<td>General Electives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macroeconomics Principles, Econ 201</td>
</tr>
<tr>
<td>Principles of Accounting I, Actg 210</td>
</tr>
<tr>
<td>Farm and Ranch Management, AgEc 271</td>
</tr>
<tr>
<td>Group I Elective</td>
</tr>
<tr>
<td>Microeconomics Principles, Econ 202</td>
</tr>
<tr>
<td>Money and Banking, Econ 330</td>
</tr>
<tr>
<td>Humanities Elective</td>
</tr>
<tr>
<td>Calculus for Non-Math Majors, Math 222, or Mathematical Analysis I, Math 123</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior Year</th>
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<tbody>
<tr>
<td>Advanced Composition, Engl 300</td>
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<tr>
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</tr>
<tr>
<td>Agricultural Finance, AgEc 478</td>
</tr>
<tr>
<td>Programming I, CSc 114</td>
</tr>
<tr>
<td>Natural Science Elective (sequence course)²</td>
</tr>
<tr>
<td>Technical Communications, Engl 303</td>
</tr>
<tr>
<td>Intermediate Macroeconomics, Econ 302</td>
</tr>
<tr>
<td>Agricultural Marketing, AgEc 354</td>
</tr>
<tr>
<td>Business Law I, BAdm 350</td>
</tr>
<tr>
<td>Statistical Methods I, Stat 341</td>
</tr>
<tr>
<td>General Elective</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications Elective</td>
</tr>
<tr>
<td>Statistics II, Econ 423</td>
</tr>
<tr>
<td>Public Finance, Econ 433</td>
</tr>
<tr>
<td>Production Economics, AgEc 421</td>
</tr>
<tr>
<td>Comparative Economic Systems, Econ 405; History of Economic Thought, Econ 504; or Economic History of the U.S., Hist 377</td>
</tr>
<tr>
<td>Agricultural Policy, AgEc 479</td>
</tr>
</tbody>
</table>
### Curriculum in Arts and Science

#### Economics Major

Leading to the Bachelor of Arts Degree

<table>
<thead>
<tr>
<th>Year</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F</td>
</tr>
<tr>
<td>Algebra, Math 112</td>
<td>3</td>
</tr>
<tr>
<td>Freshman Composition, Engl 101</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Fundamentals of Speech, SpCm 101</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
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</tr>
<tr>
<td>Foreign Language</td>
<td>4</td>
</tr>
<tr>
<td>Natural Science Electives (sequence courses)</td>
<td>3-4</td>
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<tr>
<td>Social Science Electives</td>
<td>3</td>
</tr>
<tr>
<td>General Electives</td>
<td>1-2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macroeconomics Principles, Econ 201</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Accounting I, Actg 210</td>
<td>3</td>
</tr>
<tr>
<td>Calculus for Non-Math Majors, Math 222, or Mathematical Analysis I, Math 123</td>
<td>5</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>3</td>
</tr>
<tr>
<td>Microeconomics Principles, Econ 202</td>
<td>3</td>
</tr>
<tr>
<td>Money and Banking, Econ 330</td>
<td>3</td>
</tr>
<tr>
<td>Programming I, CSc 114</td>
<td>3</td>
</tr>
<tr>
<td>Social Science Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior Year</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Composition, Engl 300</td>
<td>3</td>
</tr>
<tr>
<td>Intermediate Microeconomics, Econ 301</td>
<td>3</td>
</tr>
<tr>
<td>Statistical Methods I, Stat 341</td>
<td>3</td>
</tr>
<tr>
<td>Technical Communications, Engl 303</td>
<td>3</td>
</tr>
<tr>
<td>Intermediate Macroeconomics, Econ 302</td>
<td>3</td>
</tr>
<tr>
<td>Mathematical Economics, Econ 428</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior Year</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications Elective</td>
<td>2-3</td>
</tr>
<tr>
<td>Comparative Economic Systems, Econ 405; History of Economic Thought, Econ 504; or Economic History of the U.S., Hist 377</td>
<td>3</td>
</tr>
<tr>
<td>Statistics II, Econ 423</td>
<td>3</td>
</tr>
<tr>
<td>Electives in Actg, AgEc, BAdm, or Econ</td>
<td>3</td>
</tr>
<tr>
<td>Public Finance, Econ 433</td>
<td>3</td>
</tr>
</tbody>
</table>

| *Option courses and general electives | 7 |

| *Students can take a Business Economics option within the Economics major. The courses listed below would become the "Option courses."

#### Sophomore Year

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actg 211 Principles of Accounting II</td>
</tr>
</tbody>
</table>

#### Junior Year

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAdm 310 Business Finance</td>
</tr>
<tr>
<td>BAdm 350 Business Law I</td>
</tr>
<tr>
<td>BAdm 360 Business Management</td>
</tr>
<tr>
<td>Econ 353 Marketing</td>
</tr>
</tbody>
</table>

### Senior Year

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAdm 326 Operations Research</td>
</tr>
<tr>
<td>BAdm 427 Business Policy</td>
</tr>
</tbody>
</table>

#### Three of the option courses can be substituted for:

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 423 Statistics II</td>
</tr>
<tr>
<td>Econ 428 Mathematical Economics</td>
</tr>
<tr>
<td>One of the electives in Actg, AgEc, BAdm, or Econ</td>
</tr>
</tbody>
</table>

---

*From approved list on page 26.
*All students must complete two science courses from the same sequence, as identified in the list on page 27.
*Group I electives are listed on page 44.
*Communications elective must be chosen from Interpersonal Communications, SpCm 201; Public Speaking, SpCm 313; Discussion, SpCm 334; or Forensics Activities, SpCm 281, plus three additional hours of written communications.

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### Curriculum in Arts and Science

#### Economics Major

Leading to the Bachelor of Science Degree

<table>
<thead>
<tr>
<th>Year</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>Algebra, Math 112</td>
<td>3</td>
</tr>
<tr>
<td>Freshman Composition, Engl 101</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Fundamentals of Speech, SpCm 101</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>4</td>
</tr>
<tr>
<td>Mathematical Analysis I, Math 123</td>
<td>5</td>
</tr>
<tr>
<td>Intermediate Microeconomics, Econ 301</td>
<td>3</td>
</tr>
<tr>
<td>Statistical Methods I, Stat 341</td>
<td>3</td>
</tr>
<tr>
<td>Programming I, CSc 114</td>
<td>3</td>
</tr>
<tr>
<td>Social Science Electives</td>
<td>3</td>
</tr>
<tr>
<td>General Electives</td>
<td>6</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macroeconomics Principles, Econ 201</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Accounting I, Actg 210</td>
<td>3</td>
</tr>
<tr>
<td>Calculus for Non-Math Majors, Math 222, or Mathematical Analysis I, Math 123</td>
<td>5</td>
</tr>
<tr>
<td>humanities</td>
<td>1</td>
</tr>
<tr>
<td>Biological Science Electives (sequence courses)</td>
<td>3</td>
</tr>
<tr>
<td>Social Science Electives</td>
<td>3</td>
</tr>
<tr>
<td>General Electives</td>
<td>6</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Junior Year</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Advanced Composition, Engl 300</td>
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</tr>
<tr>
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<td>3</td>
</tr>
<tr>
<td>Statistical Methods I, Stat 341</td>
<td>3</td>
</tr>
<tr>
<td>Technical Communications, Engl 303</td>
<td>3</td>
</tr>
<tr>
<td>Intermediate Macroeconomics, Econ 302</td>
<td>3</td>
</tr>
<tr>
<td>Mathematical Economics, Econ 428</td>
<td>3</td>
</tr>
</tbody>
</table>

| *Option courses and general electives | 2 |

| *Students can take a Business Economics option within the Economics major. The courses listed below would become the "Option courses."

#### Sophomore Year

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actg 211 Principles of Accounting II</td>
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</tbody>
</table>

#### Junior Year

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAdm 310 Business Finance</td>
</tr>
<tr>
<td>BAdm 350 Business Law I</td>
</tr>
<tr>
<td>BAdm 360 Business Management</td>
</tr>
<tr>
<td>Econ 353 Marketing</td>
</tr>
</tbody>
</table>

### Senior Year

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAdm 326 Operations Research</td>
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<tr>
<td>BAdm 427 Business Policy</td>
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#### Three of the option courses can be substituted for:

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<tbody>
<tr>
<td>Econ 423 Statistics II</td>
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<tr>
<td>Econ 428 Mathematical Economics</td>
</tr>
<tr>
<td>One of the electives in Actg, AgEc, BAdm, or Econ</td>
</tr>
</tbody>
</table>

---

*Two years of one foreign language (French, German, Spanish).
*From approved list. Six hours of International Studies must be included in Humanities and Social Science electives. At least 6 hours of Social Science electives must be from outside Economics Department.
*All students must complete two science courses from the same sequence, as identified in the list on page 27.
*Communications electives must be chosen from Interpersonal Communications, SpCm 201; Public Speaking, SpCm 313; Discussion, SpCm 334; or Forensics Activities, SpCm 281, plus three additional hours of written communications.
*Students can take a Business Economics option within the Economics major. The courses listed below would become the "Option courses."

**Sophomore year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actg 211 Principles of Accounting II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Junior year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAdm 310 Business Finance</td>
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<td>BAdm 360 Business Management</td>
<td>3</td>
</tr>
<tr>
<td>Econ 353 Marketing</td>
<td>3</td>
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</table>

**Senior year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>BAdm 427 Business Policy</td>
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<tr>
<td>Econ 428 Mathematical Economics</td>
<td>3</td>
</tr>
<tr>
<td>One of the electives in Actg, AgEc, BAdm, or Econ</td>
<td>3</td>
</tr>
</tbody>
</table>

1. From approved list on page 26. Six credit hours of International Studies must be included in Humanities and/or Social Science electives. At least 6 hours of Social Science electives must be from outside Economics Department.
2. All students must complete two science courses from the same sequence, as identified in the list on page 27.
3. Communications electives must be from Interpersonal Communications, SpCm 201, Public Speaking, SpCm 315, Discussion, SpCm 334, or Forensic Activities, SpCm 281, plus three additional hours of written communications.

**Preparation for Graduate Study**

Those students planning to pursue a graduate degree in Economics, Agricultural Economics, or Business should consult with their advisers as early as possible to establish a plan of study. Successful completion of graduate study in economics, quantitative methods, operations research, marketing, and finance usually requires an undergraduate plan of study containing additional mathematics courses.

The following minors are available through the Economics Department:

**Minor in Accounting**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 201 Macroeconomics Principles or Econ 202 Microeconomics Principles</td>
<td>3</td>
</tr>
<tr>
<td>Actg 210 Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>Actg 211 Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>Actg 310 Intermediate Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>Actg 311 Intermediate Accounting II</td>
<td>3</td>
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<tr>
<td>Actg 320 Cost Accounting</td>
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<tr>
<td>Actg 430 Tax Accounting</td>
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</tbody>
</table>

21

**Minor in Agricultural Business**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 201 Macroeconomics Principles</td>
<td>3</td>
</tr>
<tr>
<td>Econ 202 Microeconomics Principles</td>
<td>3</td>
</tr>
<tr>
<td>Two of the following:</td>
<td>6-7</td>
</tr>
<tr>
<td>Actg 210 Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>actg 271 Farm and Ranch Management</td>
<td>4</td>
</tr>
<tr>
<td>AgEc 354 Agricultural Marketing and Prices</td>
<td>3</td>
</tr>
<tr>
<td>BAdm 310 Business Finance</td>
<td>3</td>
</tr>
<tr>
<td>BAdm 350 Business Law I</td>
<td>3</td>
</tr>
<tr>
<td>BAdm 360 Business Management</td>
<td>3</td>
</tr>
<tr>
<td>Econ 353 Marketing</td>
<td>3</td>
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</tbody>
</table>

Nine additional credit hours of courses prefixed AgEc, numbered 300 or above | 9 |

21-22

**Minor in Agricultural Marketing**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 202 Microeconomics Principles</td>
<td>3</td>
</tr>
<tr>
<td>Econ 353 Marketing</td>
<td>3</td>
</tr>
</tbody>
</table>

21-24

**International Studies:** For the international option in agriculture, refer to page 47. An international specialization is available for all students majoring in Agricultural Business, Agricultural Economics or Economics or minoring in Economics. The specialization requires a minimum of twenty credit hours from the following courses in addition to the specified courses in the major or minor.

**Core Courses**

- Two courses in any one language | 8 |
- Span 283 Applied Spanish or French or German Counterpart | 2 |
- FL 134 Foreign Cultures (topical) | 3 |

An additional seven credit hours chosen from approved list. See any Economics Department adviser for approved courses | 7 |

**Accounting (Actg)**

**Undergraduate Courses**

**210 Prin of Accounting I 3(3,0) FS**

Basic accounting cycle; financial statements; asset valuation; accounting controls and concepts, payroll, payroll taxes, and an introduction to the corporate capital accounts. Fundamental procedure and accounting theory.

211 Prin of Accounting II 3(3,0) FS


310 Intermediate Accounting I 3(3,0) F (alternate years)

Financial accounting relating to preparation and analysis of financial statements, corporate accounting, current and fixed assets, and working capital items. P, 211.

311 Intermediate Accounting II 3(3,0) S (alternate years)

Financial accounting relating to tangible properties, investments, liabilities, stockholders' equity, statements from incomplete records, tax allocation, price level impacts. P, 310.

**320 Cost Accounting 3(3,0) S (alternate years)**

Graduate Courses

530-630 Advanced Agricultural Marketing & Prices 3(3,0) S
Economic theory and quantitative techniques used in analysis of agricultural market problems, construction of economic models, statistical estimates of supply and demand, and price forecasting. P, 354, Econ 301, 423, or consent.

570-670 Advanced Farm & Ranch Management 3(3,0) S
Leasing arrangements, capital investment, computerized accounting and budgeting. Linear programming as a tool for planning and organizing the farm business. P, 271, Econ 202, and 2 credit hours CSc or consent.

590-690 Special Problems 1-3(1-3,0) FS
Advanced work or special problems with focus on agriculture. Open to qualified senior and graduate students. P, consent.

Business Administration (BAdm)

Business Area Studies. Students preparing for various positions in management and business should consult the list of courses under BUSINESS AREA STUDIES on page 86. Many of the courses listed there are offered by departments other than the Economics Department and are of more specific interest to students in majors outside this department.

Undergraduate Courses

310 Business Finance 3(3,0) FS
Capital and credit needs of business firms; extending and using business credit; analysis of financial statements; financial management; planning and financing capital structure; market for and investing in debt and equity securities. P, Actg 210 or equivalent, junior standing or consent.

326 Operations Research 4(4,0) FS
Selected quantitative tools and methods used in the decision making process of business organizations. Linear programming, decision making under uncertainty, simulation, inventory models, and queuing models. P, Econ 301, Stat 941.

350 Business Law I 3(3,0) FS
Survey of judicial system and process, legal aspects of criminal law, contracts, landlord/tenant law and domestic relations. Emphasis is on South Dakota law.

351 Business Law II 3(3,0) F
Legal rights and duties of parties to business transactions—sales security devices and insurance, partnerships, corporations, real property, estates and bankruptcy. P, 350.

360 Business Management 3(3,0) FS
Management, including planning, organizing, directing, controlling, and coordinating. Other disciplines such as finance and marketing are discussed as they apply to the basic functions. P, junior standing or consent.

380 Personal Finance 3(3,0) FS
Survey of individual investment opportunities, including common and preferred stock and corporate bonds; auto, health and life insurance; home ownership; wills and estate planning.

427 Business Policy 3(3,0) FS
Applications of Accounting, Finance, managerial concepts, quantitative techniques, and Business Law to management problem situations. Case study approach. P, senior standing, BAdm 326.

450 Principles of Selling 3(3,0) FS
Philosophy and techniques of personal selling in a free enterprise economy. Preparation, prospecting, presentation, handling objections, and closing are examined in depth, with emphasis on "how to." Concepts from the behavioral sciences are explored to show their applications in sales interactions.

493 Special Topics 1-4
Organized by an instructor in consultation with his or her department head and a group of students. A medium through which a specific topic can be pursued. Normally experimental and may be a "one shot deal" for a particular semester and the unique group of students. Maximum: 4 credit hours per semester, 7 credit hours per degree.

493 Special Topics 1-4
Organized by an instructor in consultation with his or her department head and a group of students. A medium through which a specific topic can be pursued. Normally experimental and may be a "one shot deal" for a particular semester and the unique group of students. Maximum: 4 credit hours per semester, 7 credit hours per degree.
Economics (Econ)

Undergraduate Courses

201 Macroeconomics Principles 3(3,0) FS

202 Microeconomics Principles 3(3,0) FS
Price as it allocates resources and distributes income. Theory of firm, supply and demand, economic efficiency, types of competition in markets, marginal productivity and wage determination; public interest in industry, agriculture, labor and individual welfare. P, Math 112 or equivalent.

301 Intermediate Microeconomics 3(3,0) FS
Economic analysis. Pricing process under varying degrees of competitive conditions and role of price in allocation of resources. Income distribution. P, 202, Math 222 or equivalent.

302 Intermediate Macroeconomics 3(3,0) FS
Determinants of national income, employment and price level in free enterprise system. Aggregate consumption, investment and government spending. Methods of maintaining a high level of employment and income and related aspects of economic policy. P, 201, 202, Math 222 or equivalent.

330 Money & Banking 3(3,0) FS
Money, banking, and credit; financial institutions, their significant functions and policies. P, 201 or 202, sophomore standing.

333 Marketing 3(3,0) FS
Marketing; market organization and cooperative marketing functions; pricing; efficiency, and role and management of marketing activities. P, 202.

382 Labor, Law & Econ 3(3,0) S
History and development of the U.S. labor movement; the labor market in a market economy from firm's and union's viewpoint; collective bargaining; public policy toward collective bargaining. P, 201 or 202, junior standing.

391 and CA 391 Consumers & the Market 3(3,0) FS
Factors important to families as purchasing agents and consumers; standardization of goods; grading, branding, labeling, packaging; advertising; consumer practices affecting cost; analysis of programs for consumer protection; the market structure. Principles of maximization of consumer satisfaction. P, junior standing or consent.

405 Comparative Economic Systems 3(3,0) FS
Philosophy, organization, and operation of various economic systems. Capitalism, Socialism, Communism, Fascism, etc. Impact of various economic systems on the structure of selected economic systems. P, 201 plus 9 hours of Hist, Econ, PoliS, and/or Soc.

423 Statistics II 3(3,0) F
Probability, point and interval estimation, tests of hypotheses, multiple regression and correlation, chi-square analysis, and analysis of variance. P, Stat 341, Math 222 or equivalent.

428 Mathematical Economics 3(3,0) S

433 Public Finance 3(3,0) FS
Public revenues and expenditures. Attaining equitable distribution of burdens and benefits. P, 201, 301.

452 Marketing Management 3(3,0)

453 Risk Management — Personal & Business 3(3,0)
(Offered on demand) Protection against or adaptation to risk and uncertainty. Principles and practices of fire, casualty, surety and life insurance and other risk management techniques.

492 Economics Problems 1-3(3,0) FS

493 Special Topics 1-4
Organized by an instructor in consultation with his or her department head and a group of students. A medium through which a specific topic can be pursued. Normally experimental and may be a "one shot deal" for a particular semester and the unique group of students. Maximum: 4 credit hours per semester, 7 credit hours per degree.

Graduate Courses

504-604 History of Economic Thought 3(3,0) F
The historical development of economic ideas. Various schools of economic thought and the economic environment which produced them. P, 301, 302 or consent.

520-620 Economics of the Public Sector 3(3,0) FS 1992, S 1994
Governmental operations, policies, and revenues as related to employment, productivity and economic welfare. Alternatives that would affect social services, education, commerce and trade, fiscal policies, and quality of life. P, 201 or consent.

570-640 Economics of the International Sector 3(3,0) S 1993

570-650 Industrial Organization 3(3,0) S 1993
The elements involved in market power and how they function. How the structure of institutions and conduct of sellers and buyers affect economic performance. P, 301, and 302 or consent.

570-660 Economic Development 3(3,0) F 1993
Developing and developed national economics. Factors impacting economic development. Role of public policies in development. Agricultural and rural development issues emphasized. P, 201, 202, or consent.

570-672 Resource Economics 3(3,0) F 1992, S 1994

570-690 Special Problems 1-3(1-3,0) FS
Advanced work in special problems in economics. Open to qualified Seniors and graduate students by consent.

701 Research Methods 2(2,0) S

703 Advanced Macroeconomics 3(3,0) S

704 Advanced Microeconomics 3(3,0) F

705 Econometrics 3(3,0) S

710 Financial Management 3(3,0)

724 Advanced Mathematical Economics 3(3,0) F

753 Advanced Marketing Management 3(3,0)

760 Operations Management 3(3,0)

782 Personnel and Labor Relations 3(3,0)

790 M.S. Thesis (as arranged)

791 Thesis Sustaining

792 Research Paper 2

793 Graduate Special Topics 1-4
Education
College of Education and Counseling
Professor Jensen, Dean; Professors Edeburn, Hanson, Lingren, Moore, Smith, Steinley, Widvey; Professors Emeriti Everett, Scholten, Sundet; Associate Professors Bill, Daugherity, Erion, Marshall, Pedersen; Assistant Professors Amiotte, Bell, Clayborne, Erickson, Fulda, Johnson, Kroetch, Reisetter, Roberts, Romereim; Instructors Behnken, Binkley, Hoppinen, Price, Sheeley.

UNDERGRADUATE TEACHER EDUCATION
Teacher Education - Professor Steinley, Head
Certification Officer - Professor Edeburn, Supervisor
Clinical Experiences - Professor Widvey, Supervisor

GRADUATE PROGRAMS
M.Ed. - Agricultural Education - Professor Lingren, Head
M.Ed. - Educational Administration - Professor Lingren, Head
M.Ed. - Curriculum & Instruction, Professor Lingren, Head
M.Sc. - Counseling and Human Resource Development, Professor Smith, Head

The courses in education are divided into the following subheadings: Agricultural Education (AgEd), Adult Higher Education (AHied), Counseling and Human Resource Development (CHRd), Educational Administration (EdAd), Education, Evaluation and Research (EdER), Educational Foundations (EdFn), Elementary Education (ElEd), Educational Psychology (EPsy), Secondary Education (SeEd), and Vocational Teacher Training Education (VTTE).

Agricultural Education (AgEd)
Professor Hanson, Supervisor
The Federal Vocational Education Acts require and provide for Agricultural Education teacher training. This has been assigned to SDSU, and has been approved by the State Office of Vocational Education. Accordingly, the College of Agriculture and Biological Sciences and the College of Education and Counseling cooperate in offering such teacher preparation. Students preparing to teach complete all the required core courses in the College of Agriculture and Biological Sciences. They earn a major in Agricultural Education, with supporting preparation in technical agriculture, basic sciences, and communications skills to make up the total requirement. Teachers of Agricultural Education in South Dakota receive the appropriate certificate to teach in high school, issued by the South Dakota Division of Education. The professional education requirement is 28 semester credits in education including student teaching in Agricultural Education. The student teaching is completed in designated Agricultural Education departments of high schools in South Dakota, western Minnesota, and northwest Iowa.

Students enrolled in this curriculum must file an application with the Agricultural Education Office prior to enrolling in professional education courses. Admission to such courses is based on the following minimum qualifications: a Graduation Ratio of 2.5 and a 2.6 Graduation Ratio in major courses and in professional education courses for admission to education courses and student teaching. Membership and participation in the Agricultural Education Club are strongly encouraged. Since there are many courses in common with Agricultural Extension, some students may desire to complete the requirements of both curriculums in order to qualify for employment in Extension and teaching.

Curriculum in Agricultural Education
Leading to the Bachelor of Science Degree

Freshman Year
General Horticulture, Ho 111........................................ 3
Fitness & Lifetime Activities, PE 100............................... 1
Crop Production, PS 103............................................. 3
Intro to Animal Science, AS 101.................................... 3
General Psychology, Psy 101....................................... 3
Introductory Biology, Bio 151, 153................................. 3
General Chemistry, Chem 110.................................... 4
Fr. Comp., Engl 101.................................................. 3
College Algebra, Math 112.......................................... 3
Fundamentals of Speech, SpCm 10............................... 16 17

Sophomore Year
Introductory Physics, Phys 101..................................... 3
Soils, PS 113................................................................ 3
Intro to Sociology, Soc 100........................................ 3
Ag. Mechanics, MA 202.............................................. 2
One of the following: Elem. Organic Chem., Chem 120; Gen. Microbiology, Mic 231; General Entomology, PS 305; Horticulture Insects, PS 295; Physical Geography I, Geog 131; Plant Pathology, PS 223; Genetics 371.................................. 3-4
Macroeconomics Principles, Econ 201 OR
Microeconomics Principles, Econ 202........................... 3
Farm Management, Econ 271...................................... 4
Professional Semester I
Practicum in Agriculture Education, AgEd 301.................. 1
Philosophy of Vocational Education, VTTE 405................. 4
Human Relations (check with department)... 3
Elements of Dairying, DS 130....................................... 15-16 16

Junior Year
Professional Semester II
Educational Psychology, EPsy 302................................. 2 or 2
Teaching of Reading, SeEd 450..................................... 3 or 3
Supervised Clinical/Field Experience, SeEd 314............. 1 or 1
Teaching Special Needs Students, EdFn 370................. 1 or 1
Program Planning, AgEd 404........................................ 4
Humanities Elective.................................................... 3 or 3
Mechanized Agriculture Elective**.............................. 3 or 3
Indians of N. Am., Anth 421 OR History of Am. Indians, Hist 368.................................................. 3 or 3
Welding, ES................................................................ 2 or 2
Advanced Composition, Engl 300................................. 3 or 3
Computers in Teaching, EdFn 385................................. 2 or 2
Communication Electives (See College of Ag. Req.)... 2 or 2
Meat: Production to Consumption, AS 241..................... 3 or 3
15 or 17

Senior Year
Professional Semester III
Spec. Mthds. in AgEd, AgEd 4.......................... 3
Student Tchg. in Ag Ed, AgEd 475............................... 10
Teaching Ag Mech, AgEd 454..................................... 2
Humanities Elective.................................................... 3
Mechanized Agriculture Elective**.............................. 6
Animal Science/Wildlife/Plant Science Elective**............ 5
Ag Economics/Accounting/Econ Elective**...................... 15 17

*See SDSU approved list.
**Consult approved list available from Agricultural Education.
Undergraduate Courses (AgEd)

301 Practicum in Agricultural Education 1(1,0) FS

404 Program Planning in AgEd 4(8,0) FS
Future Farmers of America Program, Adult Education, and supervised occupational experience programs; policy development.

434 Special Methods in AgEd 3(6,0) FS
Aims, course of study selection and organization of subject matter, method in field, laboratory, classroom, and supervised occupational experience programs. Taken first six weeks of semester in which the student completes student teaching, and resumes following student teaching. P, 301, EPay 302, SeEd 450, VTTE 405.

454 Teaching Ag Mech 2(1,3) FS
Shop management, safety, shop plans, selection, care and use of hand and power tools, and equipment, to be taken as part of student teaching block in Agricultural Education. P, senior in Agricultural Education. Offered first six weeks of semester.

475 Supervised Teaching Internship 10
Assigned in the individual student's major, or if appropriate, the teaching minor. An experiential application of teaching pedagogy and content for an extended period of time. Application must be made through the Supervisor of Clinical Experiences no later than the second semester of the junior year. P, Professional Semester I courses, Professional Semester II courses, acceptance and admittance into the Teaching Internship Program.

492 Problems in AgEd 1-3
Selected studies and activities to meet the needs of undergraduate students.

494-495-496 Cooperative Education/Internship/Field Experience 1-12 FSSu
Planned and supervised professional experience related to Agricultural Education which takes place outside the formal classroom with private business or industry, or public agencies. P, consent of department program coordinator.

Graduate Courses

505-605 Seminar 1(2-1,0) or (2,0) FSSu
Selected areas of Agricultural Education including special investigation, reports, and discussion.

506-606 Problems 1-3 FSSu
Directed reading and research in selected agricultural education topics.

706 Adult Ed in Ag 2(2,0) Su

707 Supervised Occupational Experiences & Student Groups in AgEd 2(2,0) Su

776 Curriculum in AgEd 2(2,0) Su
Cross listed with VTTE.

792 Research Problems in AgEd 2(2,0) FSSu

Adult Higher Education (AHEd)

Undergraduate Course

496 Field Practice Training in Extension 2-5 FSSu
Available to a limited number of majors in agriculture or home economics interested in Extension work who have completed the junior year. Students will be assigned to a county during the summer for a period of time at the student's convenience.

Graduate Courses

581-681 Workshop in Adult & Continuing Education 3 FSSu
Special areas in adult and continuing education are comprehensively explored in an intensive time framework. Designed to increase specific skills and understandings in a current area.

591-691 Problems 1-3 FSSu
Directed reading and research in selected individual adult and continuing education topics.

600 Special Problems in Extension 2-6
Individually assigned investigative problems in Extension. Individual conference with Laboratory and/or field work. Arrangements with Extension staff must be made prior to registration.

710 Adult Curriculum and Instruction 3 F

711 Organization & Administration of Adult Ed 3(3,0) S

751 Principles of College Teaching 3(3,0) S

782 Seminar 1-3 FSSu

792 Internship in Education 1-6 FSSu

Counseling and Human Resource Development (CHRd)

Professor Smith, Head

The Counseling and Human Resource Development major is designed to assist the student to develop personally and professionally so that they can function more effectively in a helping relationship with others. The program emphasizes the development of the professional competencies expected of qualified counselors and staff members in schools, higher education, agencies and other institutions.

Undergraduate Course

101 Academic and Career Exploration 1(1,0) FSSu
Skills in career decision making. Potential career choice and employment information will be explored in relation to individual goals.

Graduate Courses

501-601 Introduction to Counseling 3
This course provides an introduction to the counseling profession. Historic events, current concerns, responses to societal issues, legal and ethical issues are covered. This course serves as an orientation to the profession.

503-603 School Counseling 3(3,0) SSu
A study of the role and function of a K-12 school counselor including individual counseling, small group counseling, classroom guidance, and consultation with parents, teachers, administrators.

510-610 Pre-Practicum 3(3,0) FSSu
Developing basic human relations and helping skills; self-awareness and self-examination of the interpersonal communications process; emphasis on understanding self and others. Introduction to basic counseling and helping skills.

530-630 Gender Issues in Counseling 3 Fsu
Emphasis on increasing the counselor's knowledge and awareness of facts and factors in gender specific experiences which are relevant to the counseling situation.

551-651 Mental Health and Personality Development 3(3,0) Fsu
The nature of personality and developmental theory, mental health issues of children, adolescence and adults with emphasis on programs/strategies for positive mental health. Various personality assessment methods are used.

561-661 Theories of Counseling 3(3,0) FSSu
An overview of major theories, the methods employed and appropriate applications. Assist beginning counseling students in comprehending scope of various approaches in dealing with clients.

581-681 Workshop 1-3 FSSu
Special topics are comprehensively explored in an intensive time framework. Designed to increase specific skills and understandings in a current topic area.

582-682 Seminar 1-3 FSSu
Selected area of education including special investigation, reports, and discussion.

590-690 Special Topics 1-3 FSSu
Advanced courses taught upon demand covering such topics as crisis intervention, counseling special groups, cross cultural counseling, various counseling approaches, chemical dependency, etc.

706 Counseling the Victim 3 SSu (even)

713 Administration & Management of Human Services Programs 3(3,0) Fu

716 Human Resource Management in Business and Industry 3 SSu
Advanced Studies in Education
Professor Lingren, Head

Educational Administration (EdAd)
A Graduate degree in Education is offered for students preparing to become school administrators. In order to qualify for a principal's administrative certificate, the individual must have completed a certain number of specified professional education courses, must have teaching experience in the level taught, and must have completed a Master's degree.

Graduate Courses
700 Public School Administration 3(3,0) FSu
710 Elementary School Administration 3(3,0) Su
711 Secondary School Administration 3(3,0) SSu
715 Supervision 3(3,0) SSu
720 School Finance 2(2,0)
721 School Buildings & Grounds 2(2,0)
723 School Law 3(3,0) SSu
720 Workshop 1-3 FSSu
721 Seminar 1-3(1-3,0) FSSu
725 Internship in Ed 1-6(0,1-6) FSu
726 Research Problems in Ed Administration 2(2,0) FSSu
727 Problems 1-3 FSSu
728 Special Topics 1-3

Education Evaluation and Research (EdER)
Graduate Courses
590-690 Special Topics 1-3 FSSu
Advanced courses will be taught upon sufficient demand covering such topics as Least Restrictive Environment, computers in education, observation techniques for classroom evaluation.
591-691 Problems 1-3
Directed reading and research in selected education topics.
711 Group Testing 3(3,0)
716 Research and Writing 3(3,0) FSSu

Education Foundations (EdFn)
Undergraduate Courses
143 Mastering Lifetime Learning Skills 2
Learn, develop and apply lifetime learning skills relevant to the individual's collegiate/professional career and/or personal life.

339 Introduction to American Education 2(2,0) FSu

370 Teaching Special Needs Students 1 FS
This course will provide necessary information to the student about working with special needs students in the regular classroom setting. It will focus upon areas of Learning Disabled, Mentally Handicapped, Behavioral Disorders, and Gifted and Talented. Required for all education majors.

385 Computers in Teaching 2(2,0) FSSu
An overview of the application of computer technology in the classroom. Topics include computer literacy, educational software, microcomputer applications in special education, and an introduction to word processing and programming (BASIC).

Graduate Courses
505-605 Computers in the Classroom 2(2,0) Su
Examines the relationship between teaching methods, learning theory, and the use of the computer in the classroom; covers such topics as the data processing cycle, an overview of computer hardware and software, computer vocabulary, career opportunities, and some programming. P, EPsy 302 or instructor permission.

510-610 BASIC Programming Applications in Education 3(3,0)
Examines the utilization of microcomputers and microcomputer software in the classroom; covers BASIC programming language which allows educators to effectively evaluate and modify software programs to meet the needs of teachers and students in the classroom. P, EPsy 302 or instructor permission.

520-620 History & Philosophy of Education 2(2,0) FSu
Comparison of historic and current philosophies of education, their major emphasis and effects on educational goals and practices today.

525-625 Teaching Diverse Populations 3(3,0) FSu
Deals with issues surrounding the diversity of populations, both within the schools and in our global society. Part of this diversity within the schools can be attributed to the multi-cultural nature of the American population, including the integration of handicapped and gifted children.

527-627 Middle School: Affective Applications 2
Group processes and issues in affective education at the middle school/junior high level. Topics for study are group processes, interdisciplinary team planning, cooperative learning, student advisory programs, self-esteem building, and student/teacher relationships. P, admitted to teacher education program, junior standing, an adolescent psychology/development course of 3 credits.

528-628 Middle School Curriculum and Instruction 3
The essential methods and materials of judging high/middle school instruction. (Methods topics included are the middle school concept, team teaching, mastery learning, exploratories, classroom management, and grouping strategies.) Representative curriculum materials, appropriate to the transescent learner, are examined and utilized in multidisciplinary team planning projects. P, admitted to teacher education program, junior standing, an adolescent psychology/development course of 3 credits.

548-648 Learning Styles 3
Learning styles deals with research findings about learning styles and teaching styles. It examines learning style inventories, and explores how teachers can adapt instruction to promote student interest and success, based on the students' varying approaches to learning. The course is appropriate for all educational personnel.

551-651 Curriculum and Instruction in Gifted Education 3(3,0)Su
Examines curriculum methods and materials for gifted and talented children and youth. Students will be exposed to various programming models, IEP development, differentiated curricular concepts, as well as skills in self-directed learning.

590-690 Special Topics 1-3
Advanced study covering such topics as Introduction to Multicultural Education, Introduction to Law Related Education, and Implementation of Public Law 94-142.

700 Working with Exceptional Children 3(3,0) S

Education 115
Elementary Education (ElEd) Undergraduate Courses
See Human Development, Child and Family Studies
Mus 351 Music Ed I: Elementary Concepts (See Music Section)

Graduate Courses
581-681 Workshop 1-3 FSSu
Special areas in elementary education are comprehensively explored in an intensive time framework. Designed to increase specific skills and understanding in a current area.

773 Elementary School Curriculum 3(3,0) Su

Educational Psychology (EPsy) Undergraduate Courses
302 Ed Psychology 2(2,0) FS
Exploration into the world of the learner. Basic learning theories and use of these concepts in teaching. Focuses on disciplines, grouping, special needs students, and multicultural concepts in educating and motivating students. Required for certification. Pr: junior standing, Psy 101, education student.

303 The Exceptional Child 3(3,0) F
Designed for persons who plan to work with children. This course explores the world of children with special needs. Emphasis is placed on discovering the social, personal and learning characteristics of children with various handicapping conditions.

Graduate Courses
508-608 Humanistic Approaches to Teacher Effectiveness 2(2,0)
Skills in human relationships, developing potentials, resolving differences, active listening, avoiding roadblocks, developing congruency, using "no lose" method of resolving classroom conflicts. Developing learner responsibility, accepting others, communicating acceptance to others, "I Messages," changing the environment.

530-630 Learning Disabilities 3(3,0) SSu
Examines the identification and assessment of learning disabilities in students. Provides a variety of teaching and learning strategies. Includes both federal and state laws, rules, and guidelines.

550-650 Gifted and Talented 3(3,0) Su
Overview of the Gifted and Talented field; explores the development of gifted/talented children as well as identification and curriculum adaptations for meeting the needs of these children; also focuses on issues surrounding the parents and families of gifted and talented as well as program development and evaluation.

552-652 Enhancing Creativity 3(3,0) Su
Explores the various dimensions of creativity, including what it is, how it develops, how to teach creative students, and how to evaluate creative works. Emphasis will be on how to work with students who already exhibit significant creative abilities as well as how to foster creativity with all students.

723 Adolescent Psychology 3(3,0)
740 Advanced Ed Psychology 3(3,0) Su
761 Testing Practicum: Intellectual Assessment 2
762 Testing Practicum: Personality Assessment 2
763 Testing Practicum: Projective Techniques 2

Secondary Education (SeEd) Undergraduate Courses
Students interested in teaching must fulfill the major department's requirements for teaching. Particular attention must be given to the special methods courses and other courses required of prospective teachers.

287 Practicum & Professional Lab 2(1,1) FS
Introduction to effective instructional procedures. Observation and work experience in elementary, junior high, and senior high schools.

314 Supervised Clinical/Field Experience 1(0,2)
Supervised students will observe and practice various teaching strategies in lab setting, middle schools, and high schools. P: 257, EdPn 330 or VTTE 405, AgEd 301 or HE 293.

400 Methods of Teaching in Secondary Schools 3(3,1) FS
General methods used in teaching. Planning, designing, and using specific strategies. Micro teaching and peer teaching used in providing students with opportunities to practice the methods learned. P: senior in education. Offered first part of semester.

405 Audio-Visual Methods & Materials 1(1,2) FS
Media used in instruction and communication. Emphasis on developing materials for use in the classroom. Small group laboratory sessions correlate with large group demonstration/lectures. You will also become familiar with the operation of audio-visual equipment.

410 Classroom Management and Discipline 2(3,0) FS
This course will discuss various learning styles and communication styles that affect classroom learning. Classroom management will be discussed in detail as will several discipline approaches that improve time on task and general classroom atmosphere.

412 Methods of Teaching Social Studies 2(2,0) F
Designed for prospective teachers of Social Studies. Course will focus on theories, methods, processes, organization patterns, and materials used for teaching the social studies and the individual disciplines of Economics, Geography, History, Political Science, Psychology, and Sociology. Required for majors in all of the Social Sciences. Strongly recommended for Social Science minor.

416 Strategies in Science Teaching 3(3,0) F
Theories, methods, applications, and training common to all sciences and scientific behavior. Emphasis will be given to individual science majors who plan to teach in Biology, Chemistry, Physics, and General Science. Required of all science majors. Strongly recommended for Science minors.

450 Teaching of Reading 3(3,0) FS
Designed for secondary content teachers. Basic principles of reading and comprehension, and practical experience in relating principles to everyday demands of the content classroom. A special emphasis upon content instruction which meets the reading/comprehending abilities of individual students. P: EdPn 339, junior standing, education student. Required for certification.

488 Supervised Teaching Internship 10
Assigned in the individual student's major, or if appropriate, the teaching minor. An experiential application of teaching pedagogy and content for an extended period of time. Application must be made through the Supervisor of Clinical Experiences no later than the second semester of the junior year. P: Professional Semester I courses, Professional Semester II courses, acceptance and admittance into the Teaching Internship Program.

491 Directed Studies in Selective Topics 1-9 FSSu
A student who is interested in studying a certain topic or acquiring a particular skill in which a faculty member is competent but which is not covered by regular courses at SDSU, may undertake a program of directed study. The work will be planned and implemented by the student and the instructor, with department head approval.

492 Problems in Education 1-3
Selected studies and activities to meet the needs of undergraduate students.
Courses in Subject Matter Areas:

Art (See Visual Arts Section)
ArtE 416 Methods of Teaching Art in the Public Schools

English (See English Section)
Engl 308 The Teaching of English

Foreign Language (See Foreign Language Section)
FL 420 Foreign Language Teaching Methods

Health, Physical Ed & Recreation (See HPER Section)
PE 460 Methods of Teaching Physical Ed

Home Economics (See Home Ec Section)
HEd 331 Practicum in Occupational Teacher Education
HEd 411 Philosophy & Methods
HEd 412 Preparation for Student Teaching and Extension Practicum
HEd 473 Supervised Student Teaching in Home Ec

Health Science (See Health Sc Section)
HSc 463 Methods and Materials in Health Ed.

Music Education (See Music Section)
Mus 260 Conducting Fundamentals
Mus 270 Pedagogy I (7 sections)
Mus 271 Pedagogy II (7 sections)
Mus 351 Music Ed I: Elementary Music Concepts
Mus 361 Music Ed II: Conducting
Mus 362 Music Ed III: Methods and Materials
Mus 365 Music Ed IV: Sup. & Admin. of School Music
Mus 370 Pedagogy III
Mus 371 Pedagogy IV Mus 465 Music Ed V: Instrumental Techniques

Science (See Biology Section)
SeEd 416 Strategies in Science Teaching

Social Science
SeEd 412 Methods of Teaching Social Studies

Speech (See Speech Section)
SpCm 375 Teaching of Speech

Graduate Courses

572-672 Motivation and Discipline 3 FSu
Theories of motivation and discipline and application to the classroom. Stresses techniques for preventing discipline problems, and ways to provide positive reinforcement for students. Emphasizes effective procedures of group management as applied to the classroom situation. The course is appropriate for teachers, guidance, and administrative personnel.

581-681 Workshop 1-3 FSSu
Special areas in secondary education are comprehensively explored in an intensive time framework. Designed to increase specific skills and understanding in a current area.

582-682 Seminar 1-3(1,3) FSSu
Study in selected areas of education including special investigation, reports, and discussion.

590-690 Special Topics 1-3 FSSu
Advanced courses taught on demand covering such topics as questioning techniques, classroom management, systematic observations of teaching, school policy making, changing roles in education, computer applications, etc.

591-691 Problems 1-3 FSSu
Directed reading and research in selected individual education topics.

740 Secondary School Curriculum 3(3,0) FSu

789 Internship in Education 1-6(0,6) FSSu

792 Research Problems in Education 2(2,0) FSSu

Vocational Teacher Training Education (VTTE)
Undergraduate Course

405 Philosophy of Vocational Technical Education 2(2,0) FS
Overview of vocational-technical and practical arts education, its place in the community school; organization and characteristics of instructional programs at secondary, post-secondarv and adult levels in agriculture, home economics, business and office, industrial, health, and distributive education; career education; legislation; and current trends and issues. For prospective teachers and guidance personnel. P, sophomore in education.

Graduate Courses

525-625 Development of Voc Ed Thought & Practice 3(3,0) Su
Philosophy, origins, and development of vocational, technical and practical arts, education programs at adult, post-secondary, secondary and pre-vocational levels. Current and emerging principles, practices and issues are stressed. P, senior in education.

573-673 Problems: Home Economics or Agricultural Education 1-4
Directed reading and research in selected individual topics.

590-690 Special Topics 1-3
Advanced courses taught on demand covering such topics as computer applications, state and federal rules and regulations, new curriculum development, etc.

731 Administration & Supervision of Voc Ed 3(3,0) Su

743 Special Topics: Home Economics or Agricultural Education 1-3

751 Curriculum in Home Economics Education 2
Cross listed with HEd.

761 Evaluation in Home Economics 2
Cross listed with HEd.

776 Curriculum in Agricultural Education 2
Cross listed with AgEd.

782 Seminar 1-3

793 Problems 1-3

Electrical Engineering (EE)

College of Engineering
Professor Ellerbruch, Head; Professors Finch, Knabach, Sander; Professors Emeriti Dracy, Storrry; Associate Professors Gold, Miron, Moore; Associate Professors Emeriti Bruce, Petersen; Assistant Professors A. Andrawis, M. Andrawis, Brown, Helder, Kornaum.

Realizing that each person is an individual, the degree program is arranged to include 28 credits of elective courses. This elective flexibility allows you to pick a technical and non-technical course program that best suits your abilities, needs and interests.

The university offers you the opportunity to obtain a broad, practical education through interaction and cooperation with students and faculty from all other colleges on the campus. Cooperative projects by students and faculty among all colleges on campus are encouraged.

Academic and Graduation Requirements

Students will be admitted into junior level EE courses only after they have completed EE 215 and EE 216 with a minimum grade of “C.”

Students will not be permitted to enroll in subsequent courses for which either EE 215 or EE 216 is a prerequisite.

Electrical Engineering 117
Curriculum in Electrical Engineering

For the degree, Bachelor of Science (Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology)

The non-technical (17 credits), technical (11 credits), and required (108 credits) comprises the 136 credit degree. You have flexibility in choosing when elective courses are taken.

Humanistic and social science non-technical electives must be chosen to satisfy the University Core. The humanistic and social science credits from at least two areas must be taken for graduation. An additional two credits must be taken for a total of 17. The Electrical Engineering Department Head will provide you with an approved list of courses. This list shows how the depth requirement can be met with a two course sequence where one course is the prerequisite for the second higher level course.

Approved technical electives fall into three general categories:

1. All Electrical Engineering courses beyond those required.
2. Selected 300 level and above taught by the departments of Chemistry, Computer Science, Mathematics, Mechanical Engineering, and Physics.
3. Courses in support of a coherent technical program.

At least 6 credits of the technical electives must be selected from Electrical Engineering courses.

<table>
<thead>
<tr>
<th>Freshman Year</th>
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<tbody>
<tr>
<td>Calculus and Analytic Geometry I-II, Math 123-224</td>
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<td>Gen Chem, Chem 112 and 114</td>
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<tr>
<td>English or Speech, Engl 101 or SpCm 101</td>
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<tr>
<td>Engineering Design Graphics I, EG 121</td>
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<td>Gen Physics I, Phys 211</td>
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<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
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<tr>
<td>Introduction to Engineering I-II, GE 110-111</td>
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<tr>
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<tr>
<th>Sophomore Year</th>
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<tr>
<td>Electrical Circuits I-II, EE 215-216</td>
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<tr>
<td>Electric Materials I, EE 265</td>
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<tr>
<td>Electrical Instruments &amp; Measurements, EE 217</td>
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<tr>
<td>Engineering Mechanics, EM 223</td>
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<tr>
<td>Calculus and Analytic Geometry III, Math 225</td>
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<tr>
<td>Differential Equations, Math 232</td>
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<tr>
<td>General Physics II, Phys 213</td>
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<tr>
<td>Intro to Programming with FORTRAN, CSc 213</td>
<td>3</td>
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<tr>
<td>Introduction to Modern Physics, Phys 331</td>
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<tr>
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<tr>
<th>Junior Year</th>
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<tr>
<td>Electronics I-II, EE 320-321</td>
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<tr>
<td>Electronics Laboratory I-II, EE 322-323</td>
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<tr>
<td>Electromagnetic Field Theory, EE 386</td>
<td>4</td>
<td></td>
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<tr>
<td>Digital Systems, EE 345</td>
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<tr>
<td>Electrical Materials II, EE 365</td>
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<tr>
<td>Signal and System Analysis, EE 316</td>
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<td>Probability Methods in EE, EE 310</td>
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<tr>
<td>Advanced Engineering Math, Math 331</td>
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<tr>
<td>Technical Communications, Engl 303 or Advanced Composition, Engl 300</td>
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<tr>
<th>Senior Year</th>
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<tr>
<td>Senior Design Project I and II, EE 464 &amp; 465</td>
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<tr>
<td>Linear Control Systems, EE 415</td>
<td>3</td>
<td></td>
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<tr>
<td>Energy Conversion, EE 430</td>
<td>4</td>
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<tr>
<td>Energy Lab, EE 434</td>
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<tr>
<td>Engineering Economy, EE 422</td>
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<tr>
<td>Discrete Time Systems, EE 417</td>
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<tr>
<td>Seminar in EE, EE 490</td>
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<tr>
<td>Electives</td>
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You should select technical electives to complement employment goals. Following are some suggested areas and supporting courses.

**Elective Areas of Study**

**Communications & Advanced Electronics**

Communication Engineering, EE 470 (3); Communication Systems, EE 570 (3); Optical Fiber Communications, EE 571 (3); Electronics III, EE 420 (4); Mathematical Statistics, Math 381 (4); Microprocessor System Design, EE 447 (3).

**Computers-Data Processing Systems**

Microprocessor System Design, EE 447 (3); Electronics III, EE 420 (4); Numerical Analysis, Math 571 (3); Computer Operation, CSc 314 (3).

**Bioengineering**

Biomedical Electronics, EE 550 (2); Biomedical Systems Analysis, EE 550 (2); Anatomy, Zool 221 (3); Microprocessor System Design, EE 447 (3); Mammalian Physiology, Zool 325 (4).

**Image Processing**

Microprocessor System Design, EE 447 (3); Communication Engineering, EE 470 (3); Special Topics in Image Processing, EE 593 (3); Optics, Phys 361 (3); Mathematical Statistics, Math 381 (4); Numerical Analysis, Math 571/572 (3/3).

**Power Systems**

Power System Analysis, EE 431 (3); Advanced Power Systems, EE 432 (3); Seminar in Power Systems, EE 435 (1); Microprocessor System Design, EE 447 (3); Communication Engineering, EE 470 (3); Computer Analysis of Power Systems, EE 591 (3); Mathematical Statistics, Math 381 (4); Industrial Engineering, ME 362 (3); Environmental Chemistry, Chem 360 (4); Special Topics in Power Engineering, EE 493 (3); Introduction to Nuclear Engineering, EE 493 (3).

**Cooperative Education Program**

There is the opportunity to work in industry and take EE 494 which is a cooperative education course. Three credits can be applied as technical electives if your program includes at least one semester and one summer for a two-work experience program.

**Electrical Engineering (EE) Undergraduate Courses**

215 Electric Circuits I 3(3,0)

Ohm's law, Kirchhoff's laws, mesh and nodal equations, source transformations, superposition, RLC circuits. P, Math 224, Phys 211.

216 Electric Circuits II 3(3,0)

Sinusoidal analysis including the sinusoidal forcing function, phasor concepts, sinusoidal steady-state response, average power, root-mean-square value, and polyphase power; complex frequency and frequency response; two-port networks. P, 215 (with C or better).

217 Electrical Instruments & Measurements 1(1,2)

Measurement theory, electrical instruments, measurement errors, treatment of data. P, 215 (with C or better).

265 Electrical Materials I 2(2,0)

305-306 Basic Electrical Engineering I & II 3(2,2) & 3(2,3)
Laws of electric and magnetic fields and circuits, measurements of
electric and magnetic properties, electric circuit analysis. Resonance
and coupled circuits. Characteristics of equipment used in applying
electric power to mechanical devices. For non-electrical students. P:
Math 225; Phys 213.
310 Probabilistic Methods in Electrical Engineering 3(3,0)
Basic probability and random variables. Applications to system
reliability and effect of tolerances on circuit design. Classification of
random processes, correlation functions and spectral density of ran-
dom processes. Response of linear systems to random inputs. Detecc-
tion of signals in noise. P, 316 or concurrent with.
316 Signal and System Analysis 3(3,0)
Description of deterministic signals through the use of Fourier
Series, Fourier and Z-Transforms. Systems description treated by
differential and difference equations including transform methods.
Computation of system response to both continuous and discrete
inputs. P, 216.
320 Electronics I 3(3,0)
Analysis of electronic devices and circuits. Introduction to electronic
circuit design. Computer Aided Design (CAD) included. P, 216 (with
C or better).
321 Electronics II 3(3,0)
Design and analysis concepts for linear and digital electronic cir-
322 Electronics Lab I 1(0,3)
Experimental design of basic electronic circuits. P, 217, concurrent with 320.
323 Electronics Lab II 1(0,3)
Experimental design and analysis of electronic circuits. Analog and
Digital-discrete and integrated circuits are designed and tested. P,
concurrent with 321.
345 Digital Systems 3(2,3)
Combination and sequential logic theory. Introduction to micropro-
385 Electromaterials II 2(2,0)
Semiconductor and junction theory, semiconductor devices. P, Phys
311, ME 314 or Phys 341.
386 Electromagnetic Field Theory 4(4,0)
Beginning with the experimental results of Coulomb, Ampere, and
Faraday, classical field theory is developed. Forces, potentials, energy
storage and dissipation are all treated for static fields. Then Farad-
ay's induction law and Maxwell's displacement current are intro-
duced, culminating in the complete description of the time-varying
fields, given by Maxwell's equations. P, 320, concurrent with Math
311.
415 Linear Control Systems 3(3,0)
Feedback control systems by operational methods. Stability criteria
and compensation design. State variables, sampled data systems. P,
316, Math 361.
417 Discrete-Time Systems 3(3,0)
Analysis and design of systems implemented with, or controlled by,
digital hardware. Topics included are sampling methods, Z- trans-
forms, digital filters, ISO control systems, state-space models and
MIMO control systems. P, 316, 415.
420 Electronics III 4(3,3)
Integrate circuits for switching circuits, digital logic; bistable,
stable and monostable multivibrators; voltage comparators with
applications and solid state memories. P, 321, 323, 345.
422 Engineering Economy 2(2,0) FS
Economic aspects of engineering, cost estimating and financing. P,
senior standing.
430 Energy Conversion 4(4,0)
Basic engineering laws and concepts in analysis of energy conver-
sion and energy transfer systems and devices. Includes AC and DC
machines and analysis of response of machines to operating condi-
431 Power System 3(3,0)
Basic parameters of transmission lines. Representation of power
systems, network equations and solutions, load-flow studies and
load-flow control, and symmetrical faults on synchronous machines. P,
concurrent with 430, or consent.
432 Advanced Power System 3(3,0)
Symmetrical components, protective devices, economic generation,
and stability analysis of power systems. P, 431 or consent.

434 Energy Laboratory 1(0,3)
Experimental work with energy transfer and energy conversion
devices. P, 217 and concurrent with 430.
435 Seminar in Power Systems 1(1,0)
Guest speakers, field trips, panel discussions and selected films on
pertinent electric power and energy topics. Senior standing or con-
sent.
451 Microprocessor System Design 3(2,3) or 3(3,0)
Hardware concepts, organization and design of microcomputer sys-
tems. Principles of microcomputer programming and operation using
assembly language and PASCAL. Laboratory experience with a micro-
computer. P, 345 or consent of instructor.
464 Senior Design Project I 1(0,3)
Capstone senior design project. The students will write the specifi-
cations for a design project. They also complete their initial design.
P, senior standing.
465 Senior Design Project II 2(1,3)
Capstone senior design project. The students will build and test the
470 Communication Engineering 3(3,0)
Modulation and detection methods including circuit analysis and
design for digital and analog communication systems are presented.
P, 316, 320.
490 Seminar in Electrical Engineering 1-3
492 Special Electrical Problems 1-3
Problems in EE of mutual interest to students and faculty. P,
concent.
493 Special Topics in EE 1-3
Current topics in microwaves, fields, systems and other selected
areas.
494 Cooperative Education 1-6 FS
Planned and supervised professional experience related to electrical
engineering which takes place outside the formal classroom with
private business or industry, or public agencies. Inspection trip to
industrial sites in S.D. or to a city out of state such as Minneapolis.
P, consent of department program coordinator, Senior standing.

Graduate Courses
510-610 Passive and Active Filters 3(3,0) or 3(2,3)
The analysis and design of passive and active filters for electrical
signals. Topics include Butterworth, Chebyshev, Beessel-Thompson
response characteristics, biquad and Sallen- Key circuits, frequency
and impedance transformations, sensitivity, gyrators, negative im-
pedance elements, leap-frog filters and switched capacitor filters. P,
321 or consent.
515-615 Microprocessor Controls 3(3,0)
Analysis and design of control systems based on microprocessors.
Both linear and non-linear systems are considered. P, 447.
522-622 RF Electronics 3(3,0)
Performance analysis and design methods for the functional blocks of
radio frequency systems operating below the microwave bands. P,
321, 316.
531-631 Computer Analysis of Power Systems 3(3,0)
Concepts used in formulating load flow and fault study problems for
computer solution. P, 430, FORTRAN, or consent.
547-647 Advanced Microprocessor Systems Design 3(3,0)
Details of microcomputer hardware design, DMA, multiprocessing,
memory management and testing strategies. Advanced microproc-
essor architectures. P, 447.
550-650 Biomedical Electronics 2(2,0)
Design and operation of basic biomedical electronic instrumentation.
Measurement and continuous monitoring of physiological vari-
ables: ECG, body temperature, blood pressure, etc. Data Acquisition,
telemetry data and reduction techniques. P, 321 or consent.
552-652 Biomedical Systems Analysis 3(3,0)
Engineering concepts applied to the study of biological systems.
Modeling of representative biological systems and analysis using tech-
niques developed in the engineering disciplines. P, 316 or equivalent.
554-654 Biomedical Instrumentation & Safety for Health Fac-
cilities 3(3,0)
Methods for designing instrumentation for measurement and
safety, analysis of instrument dynamics, interpretation of electrical
codes and facility safety. Provides background material for engineers
working with architects, consultants, and contractors. P, 321.

Electrical Engineering 119
Electronics Engineering Technology (ET)
(See General Engineering)

Engineering Graphics (EG)
(See General Engineering)

Engineering Mechanics (EM)
(See General Engineering)

Engineering Shops (ES)
(See General Engineering)

English (Engl)
College of Arts and Science
Professor West, Head; Professors Brandt, Duggan, Evans, Kildahl, Taylor, Velnah, Williams, Withington, Woodward, Yarbrough; Professors Emeriti Alexander, Brown, Foreman, Marken; Associate Professor Emeritus Nagle; Assistant Professors, Danker, Flynn, Haug, Ryder; Instructor Brown.

The English Department offers instruction in clear thinking and expression, in the history and use of language, in literature of the western world, especially Britain and America, in literary criticism, and in technical writing. An English major prepares students for teaching careers, for writing and editorial work, for professional schools of law, business, theology, library science, and social work, and for any endeavor in which facility in the use of language is essential.

Undergraduate Major Requirements
English majors work toward the Bachelor of Arts degree. By taking the required courses in education, they can satisfy the requirements for certification as teachers in secondary schools.

The major requires 36 credit hours in English (not counting English 101 and 300), of which 15 hours must be in British literature and 9 hours in American literature. All majors must take English 321-322. All majors must take one of the following courses in British literature before 1800: 331, 333, 423, 424, 426, 433; one of the following courses in British literature after 1800: 332, 425, 459; and one of the following courses in American literature: 341, 351, 357, 453, 454. All English majors must take a linguistics course (Ling 425, 520, 543) and either Technical Communication 303 or Creative Writing 383.

All English majors must take History 121 and 122. All English majors who plan to teach should consult the Dean of the College of Education and Counseling before registering for the first semester of their junior year. They must take English 308 and maintain a grade-point average of at least 2.6 in all English courses.

Because high school English teachers frequently are assigned such duties as directing a play, coaching debate, or sponsoring the school paper or yearbook, prospective teachers are encouraged to take appropriate courses in theater, speech, or journalism.

Undergraduate Minor Requirements
The English minor requires 20 credit hours in English (not counting English 101 and 300), of which 9 hours must be in British literature and 6 hours in American literature. Minors must also take one of the following courses: English 303, English 383, Linguistics 425, 520, 543.

Graduate Study
The Department offers the Master of Arts in English. For details consult the Graduate Catalog.

Related Programs
The English Department coordinates minors in Indian Area Studies and in Technical Communications; the Department also coordinates interdisciplinary Humanities courses. Separate listings explain these courses and programs.

Curriculum in Arts and Science, English Major Leading to the Bachelor of Arts degree

The following schedule is typical for the English major getting teaching certification. Those who do not plan to teach in public schools should substitute electives for courses marked with an asterisk (*).

**Freshman Year**

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<thead>
<tr>
<th>Course</th>
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<td>Fr Comp, Engl 101</td>
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<tr>
<td>Foreign Language</td>
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<td>History 121, 122</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Natural Science</td>
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<td>4</td>
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<tr>
<td>Fund of Speech, SpCm 101</td>
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<td>3</td>
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**Sophomore Year**

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<td>English or Am Lit Courses</td>
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<tr>
<td>Foreign Language</td>
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<tr>
<td>Math Core</td>
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<tr>
<td>Indians of North America, Anth 421 or History of Am. Indians, Hist 368.</td>
<td></td>
<td>3</td>
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<tr>
<td>Gen Psychology, Psy 101*</td>
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<td>3</td>
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<tr>
<td>Practicum &amp; Professional Lab Experiences, SeEd 287*</td>
<td></td>
<td>3</td>
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<tr>
<td>Human Relations</td>
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<td>3</td>
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<tr>
<td>Elective</td>
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</table>
Courses in the English Department are divided into two areas, English (Eng) and Linguistics (Ling).

**English (Eng) Undergraduate Courses**

003 English as a Second Language: Grammar Review and Intermediate Composition 3(3,0) FS

Conversation, listening and reading comprehension, vocabulary and idioms, grammar review and intermediate composition.

013 English as a Second Language: More Complex Structural Patterns and Advanced Composition 3(3,0) FS

Conversation, listening and reading comprehension, vocabulary and idioms, more complex structural patterns, and advanced composition. P, 003 or placement.

023 English as a Second Language: Listening and Reading Comprehension 3(3,0) FS

Reading and listening comprehension, vocabulary building, pronunciation, and formal and informal oral English. A major focus will be written and oral responses to written and spoken sources. P, placement or permission of the instructor. May be required instead of or in addition to other English courses.

101 Freshman Composition 3(3,0) FSSu

Training in efficient, accurate reading and in clear, effective writing. Instruction in standard English grammar, usage, and punctuation in connection with writing.

203 English Grammar 3(3,0)

Instruction in the theory and practice of traditional grammar including the study of parts of speech, parsing, and practical problems in usage.

213 World Literature Through the Renaissance 3(3,0) F

Literary masterpieces of the western world in English translation.

215 Modern World Literature 3(3,0) S

Masterpieces of World Literature from the Renaissance to the present in English translation. Offered alternate semesters.

218 Introduction to Literature 3(3,0) FSSu

Principal literary types — fiction, drama, and poetry — to acquaint students with critical sense of aesthetic form.

248 Women's Literature 3

(Alternate semesters) A humanistic and critical examination of literature by women, about women, and of concern to women. Course material may range from early times to the present and may also include non-American literature and pertinent readings from many disciplines, such as history, political science, sociology, psychology, religion, philosophy, the arts, and the sciences. Accepted as credit toward Women's Studies minor and/or English major/minor. Accepted as humanities credit.

250 Literature of Diverse Cultures 1-3(1-3,0)

(Alternate years) Humanistic and critical examination of the literature of the world's peoples. Course material may range from early times to the present and may also include literature from Asia, Africa, South America, and Australia as well as works from Native American, African-American, Hispanic, Chicano, Jewish, Scandinavian, etc., sources. Readings, discussions, audio-visual presentations and lectures by other faculty members or guests will be used to develop students' awareness of ethnicity and cultural diversity. Accepted as credit toward English major/minor and as humanities credit.

252 Biography 3(3,0)

Studies in biography and autobiography as literature.

256 Literature of the American West 3(3,0) FS

Attention given to various attitudes toward the West expressed in literature.

263 Poetry 3(3,0) FS

Selected poems, British and American.

265 Fiction 3(3,0) FS

Narrative prose: short story, novella, and novel.

267 Drama 3(3,0)

Selected plays from classical times to the mid-nineteenth century.

303 Advanced Composition 3(3,0) FSSu

Advanced course in clear, effective prose reading and writing. P, 101 and junior standing.

303 Technical Communications 3(3,0) FSSu

Study of and practice in writing of a technical nature; expository writing will be stressed. P, 6 hours of composition (Except for Engineering Students).

305 Advanced Technical Communications 3(3,0) FS

Study of the technical communication styles and forms of the student's academic area. P, 303.

307 Writing in the Sciences 2(2,0) (Alt. years)

The writing and discussion of scientific descriptions. Primarily designed for those taking courses in the sciences. Assignments include: descriptions of processes, writing of instructions, of definitions, abstracts, adjusting of writing style according to audience.

308 Teaching of English 3(3,0) FS

Techniques, materials, and resources for teaching English language and literature to high school students. Required of majors planning to teach in the secondary schools.

311 Literature of the Bible 3(3,0) (Alt. years)

Structural analysis of Old and New Testament texts which are literary in form (i.e., lyric, dramatic, epic, and narrative) for their aesthetic and ethical meanings. Comparison and relation of Hebraic form to modern symbolic modes.

312 Juvenile Literature 3(3,0) F

A survey of the history of literature written for children and adolescents, and a consideration of the various types of juvenile literature.

321-322 English Literature 3(3,0) FS

English literature survey from Beowulf to modern times.

331 Eighteenth-Century English Literature 3(3,0) (Alt. years)

Literature of the English Augustan age (1660-1800), particularly Swift, Dryden, Pope, Johnson.

332 The Early 19th Century 3(3,0) (Alt. years)

Non-dramatic literature of the first half of the nineteenth century in England, particularly the poetry of Wordsworth, Blake, Coleridge, Byron, Shelley, Keats.

333 Early English Novel 3 (3,0) (Alt. years)

Studies in the English novel from its beginnings through the 18th and 19th centuries.

341-342 American Literature 3(3,0) FS

From its beginning to the present.

350 Science Fiction 3(3,0) (Alt. years)

A survey of short stories and novels from the 19th century, the Golden Age of Pulps, social satire of the 1950's, the New Wave of the 1960's, and the speculative fabulation of the 1970's-90's. Authors included are Shelley, Welles, Heinlein, Asimov, Pohl, and Dick.
351 American Indian Literature of the Past 3(3,0) F
Concentrating on myths and legends of major language groups, particularly the Siouan.

352 American Indian Literature of the Present 3(3,0) S
After defeat of the tribes, concentrating on autobiography, fiction, and poetry by Indian authors.

357 19th Century American Poetry 3(3,0) (Alt. years)
Development of American poetry from Bryant to Crane and to the early work of E.A. Robinson with emphasis upon form and idea.

358 20th Century American Poetry 3(3,0) (Alt. years)
Development of American poetry in the 20th Century from Frost and the later work of Robinson to present.

367 American Short Story 3(3,0) (Alt. years)
Development of American short story, emphasis on form from beginnings with Irving to present.

383 Creative Writing 3(3,0) FS
Writing of fiction, drama, biography, or poetry. P, 12 hours of English and English 300 or consent.

423 Old & Middle English Literature 3(3,0)
Emphasizing pre-Norman heroic and Christian literature, the work of Chaucer and his contemporaries, and folk literature such as the ballads.

424 Poetry and Prose of the English Renaissance 3(3,0) (Alt. years)
Major writers (excluding Shakespeare) of the 16th and early 17th centuries. Emphasis on the works of Milton.

425 The Late 19th Century 3(3,0) (Alt. years)
English literature of the last half of the 19th Century, particularly novels (Dickens, Eliot, Hardy, Conrad) and poetry (Tennyson, Browning, Arnold).

426 Drama of the English Renaissance 3(3,0) (Alt. years)
Major dramatists of the 16th and early 17th centuries, excluding Shakespeare.

433 Shakespeare 3(3,0) (Alt. years)
Representative comedies, tragedies, and histories of Shakespeare.

439 Twentieth-Century British Literature 3(3,0) (Alt. years)
British literature since 1900.

453 Hawthorne & Melville 3(3,0) (Alt. years)
Major works of the two great novelists of the American Renaissance.

454 Twain & James 3(3,0) (Alt. years)
The two contrasting lines of development in American Literature of the late nineteenth century as represented in the work of Mark Twain and Henry James.

459 Recent American Literature 3(3,0) (Alt. years)
Intensive study of a selected phase or type of American literature, specifically concentrated on recent trends in fiction and poetry.

463 Modern Drama 3(3,0) (Alt. years)
Beginning with Ibsen, but concerned chiefly with significant dramatists since his time.

The following alternatives and options may be taken only after consultation with the Head of the English Department. (See descriptions of these in the Introductory Section to the College of Arts and Science.)

483 College Honors Project 1-6
490 College Honors Seminar 1-6
491 Directed Studies Program 1-9
493 Undergraduate Course Specials 1-5
494-495-496 Cooperative Education/Internship/Field Experience (Topical) 1-12 FSSu

Graduate Courses

NOTE: Junior or senior standing and 16 hours of English are prerequisite to all courses, numbered 500-600 to 590-690 inclusive.

519-619 Comparative Novel 3(3,0)
Selected European novels from Fielding to the present.

525-625 Victorian Literature 3(3,0)
Chief writers of British poetry and prose from 1840 to 1900, with emphasis on aesthetic and intellectual developments.

530-630 The English Romantic Movement 3(3,0)
Chief writers of English Romantic poetry and prose from 1789 to 1832, with emphasis on intellectual trends.

534-634 Advanced Shakespeare 3(3,0)
Selected plays of Shakespeare and significant Shakespearean criticism.

535-635 Chaucer (3,0)
Major works of Chaucer, with some attention to his sources and his language.

547-647 Pre-Civil War American Writers 3(3,0)
A selection of writers from American transcendentalism and Romanticism.

548-648 The American Realists & Naturalists 3(3,0)
From Melville through the realistic and naturalistic writers at the end of the 19th century.

550-650 Modern American Novel 3(3,0)
Selected American novelists after 1920 and through the post WW II novel, particularly emphasizing twentieth century themes and forms in the novel.

555-665 Contemporary Drama 3(3,0)
Representative British and American plays from the time of Shaw to the present; some attention may be given to significant Continental plays of this era.

706 Research Tools in the Humanities 3(3,0)
707 Speech/English/Drma for Teachers 1-3
720 Studies in Early English Literature 3(3,0)
723 Studies in Restoration and Eighteenth-Century Literature 3(3,0)
726 Studies in the 17th Century Literature 3(3,0)
727 Studies in Elizabethan Literature 3(3,0)
758 Modern American Thought 3(3,0)
784 Literary Criticism 3(3,0)
792 Seminar in American Indian Literature 3(3,0)
793 Seminar in English Literature 3(3,0)
794 Seminar in American Literature 3(3,0)
790 Thesis 1-7 Pass/Fail
791 Thesis Sustaining 1 Pass/Fail
795 Independent Research & Study 1-3(1-3,0)
797 Special Studies in Composition & Literature 1-3(1-3,0)

Linguistics (Ling)

Undergraduate Course

425 The Structure of English 3(3,0) F
Use of traditional, structural, and transformational grammars for describing the English language. Practical application in teaching. Strongly recommended for majors planning to teach.

Graduate Courses

550-660 The New English 3(3,0)
Diverse new theories and applications in English linguistics: pragmatics, stylistics, socio-semantics, semiotics, discourse theory, and feminist paradigms.

543-643 Development of the English Language 3(3,0) S
Historical survey of phonology, grammar, syntax, and lexicon of English leading to an understanding of the present state of the language and future developments.

Entomology (Ent)
(See Plant Science)

Environmental Management (Env Mgmt)
(See Biology and Microbiology)
European Studies Program (EurS)
Gordon Tolle, Political Science, Coordinator. A faculty committee appointed from many related disciplines advises the Coordinator.

European Studies combines the insights of many disciplines as they are focused on Europe. These disciplines include language and literature, history, art history, philosophy, music, sociology, economics, political science, geography, health science, education, family studies, business and public administration. The topics for the two core courses, Topics in European Culture and Topics in European Society, will vary.

Why European Studies? Because of its interdisciplinary nature and its focus on other cultures, European Studies provides an unusual opportunity for students to realize the goal of an enriching and liberating education. Knowledge and understanding of Europe are important because we live in an interdependent world. All nations share economic, political, and cultural ties with Europe. Many Americans trace their heritage to Europe. Increasing our understanding of the heritage, therefore, gives all of us an understanding of our own culture and better prepares us to meet the challenges facing us as a society.

The benefits of the program are as follows.

Cultural Understanding: European Studies provides students with an opportunity to develop greater understanding of the European cultures which have had a great influence on American culture and on the entire world. Social Awareness: Appreciation of the character of various European countries as well as insight into alternative social arrangements comes through examination of the social institutions and policies of other "developed" or "first world" countries. Such awareness of institutions and policies may ultimately help us to choose or reject proposed solutions to problems within our own culture.

Careers/Personal Life: Students whose career interests focus on Europe through jobs such as trade and commerce, tourism, primary and secondary teaching, positions in multinational firms and various international agencies will find the European Studies Program provides an introduction to many cultural and social facets of countries where they may later work, tour, live, or study. Travel: Background information about European countries, their languages, history, and people, prepares students for travel on the continent.

The European Studies Program is interdisciplinary. Students are required to take courses in both humanities and social sciences. Many of the courses in the program can be used to satisfy the university core requirements (e.g., French 101 fulfills part of a language requirement. EurS 301 fulfills part of the science requirement). Therefore, many students can complete the program without adding many more credits beyond the university core. In addition, students may use up to a maximum of eight credits from their majors. The student must take the interdisciplinary topics courses: EurS 300, Topics in European Culture, and/or EurS 301, Topics in European Society (6 credits).

At least 18 of the 26 credit hours must be from outside one's major department.

While it is not a requirement, living and studying in Europe may also be used to earn some credits.

To enroll in this program, contact the coordinator, Dr. Gordon Tolle, Political Science, Tel. 688-4912. Upon graduation and completion of the program, a notation will be entered on your transcript.

Curriculum in European Studies Program
(Total of 26 hours. Because courses used to satisfy the university core and 8 hours from your major department may be counted, the total number of additional credits may vary.)

Requirements Credits
Language: one year of study in a European language 6-8
or demonstrated competency at the second year level
History: History 122 Western Civilization (or History 6-8
327 Early Modern Europe or History 330 Topics in
European History)................................. 3
Political Science: PolS 341 European Democratic 3
Governments (or PolS 165 Political Ideologies, or
Pols 462 Modern Political Theory).............. 3
EurS 300 Topics in European Culture, and/or EurS
301 Topics in European Society.................. 6
Electives: additional credits to total 26 credits, chosen 6
from an approved list.* At least one course must be
from "Area A" (social science) and at least one course
must be from "Area B" (humanities)................ 6-8

Undergraduate Courses

300 Topics in European Culture 3(3,0)
Topics in European culture as expressed in literature, art, music,
philosophy, and religion. The topic may be limited to a theme, for
example Death, War, or Justice, or to a period in history, for example,
Women in the Renaissance, Love in the Seventeenth Century, or
Solitude in the Romantic Period. (May be repeated for credit when
the topic is different.)

301 Topics in European Society 3(3,0)
An interdisciplinary examination of a topic in European social life.
Examples include, among others, Ethnicity and Nationality, Aging,
Revolution, European Unification, Political Parties and Economic
Development, or Migrant Workers. (May be repeated for credit when
the topic is different.)

*Approved list of electives

Area A. Social Science
EurS 301 Topics in European Society (when repeated)
Econ 405 Compar Econ Systems
Econ 540 Econ of Intl Sector
Hist 326 Renaissance & Reformation
Hist 327 Early Modern Europe
Hist 330 Topics in Eur Hist
Hist 342 English History
Hist 345 History of Russia
Hist 421-422 Contemporary European History
Hist 447 Modern Germany
Hist 538 Eur Intellectual Hist
Hist 541 Europe in 19th Cent
Geog 314 Geog of U.S.S.R.
Geog 315 Geog of Europe
Geog 520 Adv Regional Studies in Geog (when dealing
with Europe)
PolS 165 Political Ideologies
PolS 341 European Democratic Governments
PolS 343 The U.S.S.R.
PolS 462 Modern Political Theory
Soc 100 Intro to Sociology (cross cultural only)
Soc 515 Social Thought
Anth 320 Cultural Anthropology

Area B. Humanities
EurS 300 Topics in European Culture (when repeated)
Fren 101-102 Intro to Lang & Cult
Fren 201-202 Language & Culture
Fren 311-312 Comp & Conversation
Fren 353 Théâtre et Nouvelles
Fren 354 Poésie et Romans
Fren 383 Français Commercial
Fren 411-412 Adv Comp & Con
Fren 433-434 French Civilization
Fren 473 Le Grand Siècle
Fren 475 Raison et Sensibilité au 18 Siècle
Fren 477 Romantisme au Symbolisme
The objective of the department is to provide you with a command of a foreign language as part of a general education that will facilitate fulfillment of the goals of the College of Arts and Science. The study of a foreign language is an essential part of a true liberal education since it enables you to become familiar with another culture and to examine and compare the foreign culture with your own.

Those who specialize in the study of a foreign language may find employment as teachers, translators, interpreters, and in a variety of commercial and technical activities in international business or foreign relations.

Because a foreign language should be a useful tool rather than a dormant body of knowledge, skills in the four facets of language learning, namely reading, comprehension, speaking, and writing, are developed. Classes generally are taught in the foreign language and additional time may be assigned for training in the language laboratory.

Professional Programs
Foreign Language students may select a curriculum that leads to the Bachelor of Arts or the Bachelor of Science degree. They may combine their language degree program with related options such as the Business-Economics Specialization, the Latin American Area Studies Program, the European Studies Program, or the Geographic-Technical Option-Foreign Languages. A second major or minor may also be desired.

The Individual Major
A total of 36 semester credits is required in one language for a major in that language. In addition, majors who plan to teach must take FL 420, Foreign Language Teaching Methods.

The Minor in a Foreign Language
Twenty (20) credits in one language are required for a minor in that language. In addition, minors who plan to teach must take FL 420, Foreign Language Teaching Methods.

Teacher Education in a Foreign Language
Consult with the dean of the College of Education and Counseling before registering for the first term of the sophomore year. See “Education Curriculum of Teachers of Academic Subjects” in the Education section of this catalog for requirements, plus FL 420, Foreign Language Teaching Methods.

Placement Examinations
Entering freshmen who have successfully completed two or more years of a foreign language in high school are encouraged to take a placement examination. In exceptional cases, transfer students may be required to take such examinations, for placement purposes.

Students tested will be assigned to the college course in the appropriate language according to the examination score. Those exempted from any part of the course sequence will receive credit for the exempted portion upon successful completion of one additional semester of the exempted foreign language at this institution, and payment of the corresponding fee.

Alternatives to Traditional Study
The department actively participates in the College of Arts and Science programs (pages 49-50 current catalog), the Foreign Language/Business-Economics Specialization for Foreign Language majors or minors, the Technical Geography-Foreign Language Option, and the Latin American Area Studies program. Group and/or individually developed study abroad programs are also available and are strongly recommended.

Degree Requirements
Foreign Language courses are divided into the following areas: General courses in Foreign Languages (FL), Chinese (Chin), French (Fren), German (Germ), Japanese (Japn), Russian (Russ), and Spanish (Span).

Those who seek a degree in a foreign language must meet the requirements of the Department, the College of Arts and Science, and the College of Education.
Science, and the University. These requirements are set forth in the recommended curricula outlined below.

majors in the College of Arts and Science are reminded that they must
1. Complete 128 hours of credit.
2. Complete 40 hours of credit in courses numbered 300 or above.
3. Complete 6 hours of International Studies (automatically satisfied with FL course work).
4. Satisfy the Humanities & Social Sciences core areas via at least two disciplines.

Department Recommendations
The Department of Foreign Languages strongly recommends the following be considered when fulfilling elective areas: courses in English Literature; European Studies; Latin American Area Studies; Geography (World Regional Geography); History (courses appropriate to the language area); Political Science (Current World Problems); Business French or Business Spanish.

Curriculum in Arts and Science, Individual Foreign Language Major
Leading to the Bachelor of Arts Degree

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Foreign Language (First Year) 101-102</td>
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<tr>
<td>Fr Comp, Engl 101</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Hist. of West. Civ., Hist 121-122</td>
<td>3</td>
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<tr>
<td>Mathematics Core</td>
<td>3-5</td>
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<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
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Sophomore Year

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<thead>
<tr>
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<tbody>
<tr>
<td>Foreign Language (Second year) 201-202</td>
<td>3</td>
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</tr>
<tr>
<td>Foreign Language (Composition &amp; Conversation) 311-312</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Natural Science Elective</td>
<td>3-4</td>
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<tr>
<td>Social Science Electives</td>
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Junior Year

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<tr>
<td>Foreign Language (Advanced Courses)</td>
<td>3-6</td>
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<tr>
<td>Junior Comp, Engl 300</td>
<td>3</td>
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<tr>
<td>Social Science Elective</td>
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<td>3</td>
</tr>
<tr>
<td>Natural Science Elective (if not satisfied in sophomore year)</td>
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Senior Year

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Curriculum in Arts and Science, Individual Foreign Language Major
Leading to the Bachelor of Science Degree

Freshman Year

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Sophomore Year

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<tr>
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Undergraduate Courses

101-102 Introduction to Foreign Language and Culture (Topical) 1-4(1-4,1)
Fundamentals of language and introduction to related culture. Classwork supplemented with foreign language laboratory. May be repeated for credit.

134 Foreign Cultures (Topical) 3(3,0)
Provides a broad view of the language and civilization of the designated people, including history, literature, institutions, social life, customs, political structures, etc. If appropriate, it will include the study of the subject people's heritage in South Dakota. No prerequisites. Intended for students from all disciplines. May be repeated for credit twice if topic changes. Taught in English. Not valid for meeting foreign language requirements.

Business-Economics Specialization

The Foreign Language/Business-Economics Specialization is a carefully planned selection of courses designed to enhance the foreign language major or minor in the field of business and/or to more fully equip the student for admission to a Master's degree in international business and related programs. The specialization will require the completion of a minimum of twenty-four (24) credit hours from among the following courses in addition to the foreign language major or minor.

Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Math 112 - College Algebra</td>
<td>4</td>
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<tr>
<td>Econ 201 - Macroeconomics Principles</td>
<td>3</td>
</tr>
<tr>
<td>Econ 202 - Microeconomics Principles</td>
<td>3</td>
</tr>
<tr>
<td>Stat 341 - Statistical Methods</td>
<td>4</td>
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Choose 4 of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Econ 330 - Money and Banking Econ 353 - Marketing</td>
<td>3</td>
</tr>
<tr>
<td>Actg 210 - Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>AgEc 354 - Agricultural Marketing and Prices</td>
<td>3</td>
</tr>
<tr>
<td>AgEc 452 - Economics of Grain &amp; Livestock Marketing</td>
<td>3</td>
</tr>
<tr>
<td>PolS 351 - International Politics</td>
<td>3</td>
</tr>
<tr>
<td>PolS 356 - International Law/Organization</td>
<td>3</td>
</tr>
<tr>
<td>BAdm 310 - Business Finance</td>
<td>3</td>
</tr>
<tr>
<td>BAdm 360 - Business Management</td>
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<td>12</td>
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Choose 1 of the following courses:

<table>
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<tr>
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<tbody>
<tr>
<td>Econ 405 - Comparative Economic Systems</td>
<td>3</td>
</tr>
<tr>
<td>Econ 540 - Econ of International Sector</td>
<td>3</td>
</tr>
<tr>
<td>Econ 560 - Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>Econ 572 - Resource Economics</td>
<td>3</td>
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Total 24 credits

Within the above framework, individually tailored specializations will be possible. They will be planned in consultation with and will be subject to the approval of an adviser in the Department of Economics.

Foreign Languages (FL)

Choice of Courses

<table>
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<tr>
<th>Course</th>
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<tbody>
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<td>Foreign Language (Advanced Courses)</td>
<td>3-6</td>
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<tr>
<td>Electives</td>
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Junior Year

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Senior Year

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<tbody>
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</table>

Within the above framework, individually tailored specializations will be possible. They will be planned in consultation with and will be subject to the approval of an adviser in the Department of Economics.
Undergraduate Course Special 1-5(1-5,0)
The College of Arts and Science recognizes the need to make course work relevant and to encourage student participation in the formulation of a portion of the university work. Students who wish to study a topic in which a faculty member is competent may propose a Special. The duration, subject matter, amount of credit, and mode of grading will be planned by the instructor and students, under the general supervision of the head of the department in whose discipline and under whose supervision the special will be taught.

Living & Study Abroad Program 1-6(1-6,0)
Refer to the College of Arts and Sciences programs (pages 49-50 of current catalog). Prior approval by the department head and dean required.

Foreign Language Teaching Methods 1-3(1-3,0)
Seminar dealing with problems encountered in teaching modern foreign languages. Textbook selection, subject matter presentation, testing, realia and laboratory techniques. Consult with head of the department during year previous to taking this course. Required for all foreign language majors and minors who plan to teach. On demand.

Seminars in French, German or Spanish (Topical) 1-3(3,0)
Detailed reading and discussion of major works dealing with French, German or Spanish language, literature or culture. Focus on language, literary appreciation, writers, culture, or artistic movements. Students will be required to express themselves in the particular language, both orally and in writing. Reports in the foreign language will be required. Topics will vary, and course may be repeated for a maximum of 9 credit hours. P, two years of college French, German, or Spanish, or consent of instructor.

Undergraduate Course Specials 1-5(1-5,0)
Refer to the College of Arts and Sciences programs (pages 49-50 of current catalog).

Cooperative Education/Internship/Field Experience (Topical) 3-12(3-12,0)
A student who has the opportunity to become involved in an off-campus activity which promises to contribute significantly to his/her education, such as employment or study abroad or a foreign language related cooperative education experience, may enroll for and receive between 3 and 12 credits at a maximum rate of one credit per week. You must obtain permission to register for such credits from the department. The experience will be planned and method of evaluation and grading established by an instructor in consultation with you under the general supervision of the department head. The project will require approval of the departmental faculty. Grades may be based on either the A-F or E, F systems.

Graduate Courses

Topics in French, German or Spanish Literature 1-4 (1-4,0)
An intensive examination of a significant writer(s), period or theme in French, German, or Spanish literature. It may be repeated for credit if topic is different.

Special Topics in Language and Culture 1-3(1-3,0)
Readings and discussions of selected topics dealing with a variety of aspects of culture. Training and practice in the use of the spoken foreign language. May be repeated for credit.

Directed Study in Foreign Languages & Cultures (Topical) 1-3
Independent study on a selected author or work. Readings, discussions, and written papers will enable the student to improve language skills and deepen understanding of the corresponding culture.

Chinese (Chin)

101-102 Intro to Chinese Language & Culture 4(4,1)
Introduction to Chinese language and culture. Classwork may be supplemented with foreign language laboratory.

French (Fren)

101-102 Intro to French Language & Culture 4(4,1)
Fundamentals of language structure and introduction to French culture enabling student to converse, read, and write simple French. Classwork supplemented with foreign language laboratory.

201-202 Language & Culture of France 3(3,1)
Aims of the introductory course continued. Emphasis on cultural and intellectual aspects of French life and literature. Classwork supplemented with foreign language laboratory. If enrolling in this course you are urged to study 311-312 concurrently. P, 102 or equivalent.

311-312 French Composition & Conversation 2(2,1)

353 Théâtre et Nouvelles 3(3,0)
Intro to French literature through reading and discussion in French of selected plays and short stories. P, 202 or consent.

354 Poésie et Roman 3(3,0)
Intro to French literature through reading and discussion in French of selected poetry and novels. P, 202 or consent.

433-434 French Civilization 2(2,0)
First semester reviews historical development of French nation from its inception to modern times. Second semester presents a view of contemporary French life and culture. P, 312 or consent.

Le Grand Siècle 3(3,0)
Reading and analysis of baroque and classical literature of the 17th century, emphasis on Corneille, Racine, Molière, and Madame de Lafayette. P, 354 or consent.

Raison et Sensibilité au 18e Siècle 3(3,0)
Reading and analysis of major literary works from Manon Lescault to Les Liaisons dangereuses. P, 354 or consent.

Du Romanisme au Symbolisme 3(3,0)
Reading and analysis of selected prose fiction, poetry and drama of the 19th century. P, 354 or consent.

Le Vingtème Siècle 3(3,0)
Reading and analysis of representative works of novelists, poets and dramatists of the 20th century. P, 354 or consent.

Directed Study in French 1-3(1-3,0)
Reading and discussions in French as directed by the instructor. May be repeated for credit. P, two years of the language and/or concentration.
383 Business German 2-3
An introduction to the German language of everyday business dealings and an overview of practical and relevant information necessary for people doing business in German. P, 312 or consent.

411-412 Advanced Composition & Conversation 2(2,0)
More intensive development of ability in composition and conversation, placing special emphasis on idiomatic expressions and flexibility within the language. P, 311, 312. On demand. Topics vary. May be repeated once for credit.

433-434 German Civilization 2-3(2-3,0)
German civilization and culture including music, art, literature, government, geography, education, etc. 433: from beginning of German civilization to 1869. 434: from 1870 to present. Readings and discussions in German. P, 311, 312 or consent.

475 19th Century German Lit 3(3,0)
German literature between Romanticism and the turn of this century. Readings and discussions in German. P, 354 or consent.

476 Novelle 3(3,0)
The Novelle genre from its inception in German literature to the present. Reading and discussions in German. P, 354 or consent.

479 20th Century German Lit 3(3,0)
Selected works of authors in the German language. Readings and discussions in German. Topics vary. P, 354 or consent.

480 Contemporary German Literature 1-3
Reading and discussions of selected works of German literature, including prose fiction and poetry from 1945 to the present. P, 312 or consent.

491 Directed Study in German 1-3(1-3,0)
Readings and discussions in German as directed by instructor. May be repeated for credit. P, two years of the language and consent.

Japanese (Jpn)

101-102 Introduction to Japanese Language & Culture 4(4,1)
Introduction to Japanese language and culture. Classwork may be supplemented with foreign language laboratory.

Russian (Russ)

101-102 First Year Russian 4(4,1) FS
Fundamentals of language, enabling the student to understand, speak, read and write simple Russian. Classwork supplemented with foreign language laboratory.

201-202 Second Year Russian 3(3,0) FS

381 Workshop in Russian 1-4
Skills acquired in basic Russian will be drilled intensely. Designed for students preparing for study in the USSR. P, 202 or consent.

Spanish (Span)

Undergraduate Courses

101-102 First-Year Spanish 4(4,1) FS
Fundamentals of the language are introduced to aid you in learning to understand, speak, read and write Spanish. Hispanic culture is discussed and classwork may be supplemented by the language laboratory.

201-202 Second-Year Spanish 3(3,1) FS
Aims of first-year Spanish continued. Selected readings may be included. Classwork may be supplemented with language laboratory, audio-visual materials, and resource people. Spanish 311-312 may be studied concurrently with Spanish 201-202. P, 102 or equivalent.

283 Applied Spanish (Topical) 1-3(1-3,0)
Practical Spanish useful in diverse situations, such as conversation, foreign travel, commerce, the theatre, etc. Topics will vary. May be repeated for a maximum of nine (9) credits. P, 102 or consent. Classwork may be supplemented by language laboratory.

311-312 Spanish Composition & Conversation 2(2,1) FS
Practice in composition and conversation. Classwork may be supplemented with foreign language laboratory. P, 201, 202, or concurrent.

353-354 Spanish Literature 3(3,0)
Introduction to Spanish literature through reading and discussion in Spanish of recognized works. P, 202 or consent.

355-356 Spanish American Lit 3(3,0)
Introduction to Spanish American literature through reading and discussion in Spanish of recognized works. P, 202 or consent.

383 Business Spanish 2-3
An introduction to the Spanish language of everyday business dealings and an overview of practical and relevant information necessary for people doing business in Spanish-speaking countries. P, 312 or consent.

411-412 Spanish Advanced Composition & Conversation 2(2,0)
Polishing of all language skills to achieve maximum fluency. P, 311-312 or consent.

433-434 Spanish Civilization 2(2,0)
The variety of topics studied may include history, culture, art, architecture, literature, geography, government, and religion. P, 202 or consent.

435-436 Spanish American Civilization 2(2,0)
The variety of topics studied may include history, culture, art, architecture, literature, geography, government, and religion. P, 202 or consent.

443 Advanced Spanish Grammar 3(3,0)
In-depth study of traditional grammar as well as an introduction to linguistics as it applies to Spanish. Practical application. Strongly recommended for future teachers and bilingual secretaries. P, 202.

468 Hispanic Folk and Popular Literature 3(3,0)
Traditional folk and contemporary popular (written and oral) literature including legends, stories, songs, ballads, last will, testaments, and tombstone writings taught in Spanish. P, 202 or consent.

470 The Golden Age 3(3,0)

475-476 19th & 20th Century Spanish Literature 3(3,0)

481 Hispanics in the U.S. 1-3(1-3,0)
A variety of topics may be covered including history, art, culture, literature, politics, religion and geography. P, 202 or consent.

484 20th Century Spanish American Literature 3(3,0)

491 Directed Study in Spanish 1-3(1-3,0)
Readings and discussions in Spanish as directed by the instructor. May be repeated for credit. P, two years of the language and consent.

General Engineering (GE)

College of Engineering
Assistant Professor Kornbaum, Acting Head; Professors Heusinkveld, Sorensen; Professors Emeriti Anderson, Skubic, H. Svec, Wakeman; Assistant Professors Gunes, Kreyger; Instructors Froehlich, Garry, Sternhagen, R. Svec.

The General Engineering Department offers courses in introductory engineering topics, interdisciplinary engineering topics, and technical laboratory experiences required for accreditation of engineering programs in the College of Engineering by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). In addition, the degree of Bachelor of Science in Technology (BST) is offered for those individuals interested in applications oriented programs. Within this degree offering, there is currently the Electronics Engineering Technology (EET) program. The number of credits required to satisfy the BST degree is 128 credits.

A Pre-Architecture curriculum is offered which allows students to obtain prerequisite courses for application in a professional curriculum of architecture. Through academic advising, the department provides to the students who are undecided in their choice of a specific engineering or technology discipline, an opportunity to consider many options while taking the fundamental courses required in most technical
majors. Guidance is also provided for those students who are not pursuing professional engineering degree programs but wish to establish a fundamental understanding in a technical area. These studies can prepare students for entrance into various types of technical fields including sales, construction, industrial electronics, manufacturing, laboratory testing, etc. Since all courses are college credit courses, most or possibly all of the courses taken can be used to satisfy requirements for graduation in many 4-year programs.

Students wishing to transfer to the General Engineering Department for engineering, general technical studies, or the BST Electronics Engineering Technology program are required to have a grade point average (GPA) of 2.0 or greater.

Courses in General Engineering are listed as General Engineering (GE), Engineering Graphics (EG), Pre-Architecture (ARCH), Engineering Mechanics (EM), Engineering Shops (ES), and Electronics Engineering Technology (ET).

General Engineering (GE)

General Engineering courses present topics of inter-disciplinary nature which relate to, or are utilized by all engineers to perform their professional duties.

Undergraduate Courses

110 Introduction to Engineering I 1(1,0) F

111 Introduction to Engineering II 1(1,0) S

231 Technology & Society 3(3,0) FS
An examination of technological change by means of current problems and case studies. The creation and utilization of tools, machines, materials, techniques and technical systems will also be studied, as well as the life and works of various innovators in science and technology.

292 Special Problems 1-3 FSSu
P, consent.

293 Special Topics 1-3 FSSu
P, consent.

492 Special Engineering Problems 1-3 FSSu
This course will provide individual students the opportunity to pursue technical design problems, extensive literature searches, and individual study of new and timely subjects within the fields of Physical Science and Engineering. P, junior or senior standing in Engineering and consent of instructor.

493 Special Topics in General Engineering 1-3 FSSu
Timely topics relating to Physical Science and Engineering. P, junior or senior standing in Engineering and consent of instructor.

494-495-496 Cooperative Education/Internship/Field Experience 1-6 FSSu
Planned and supervised professional experience related to engineering which takes place outside the formal classroom with private business or industry, or public agencies. P, consent of department program coordinator.

Graduate Courses

The Master of Science in Industrial Management (MSIM) degree is offered by the Department of General Engineering and coordinated through the College of Engineering with the University of South Dakota School of Business as well as other colleges on the SDSU campus. This degree provides opportunities for technically oriented students to broaden their management knowledge or management oriented students to broaden their technical knowledge and thereby become better industrial managers. The program is provided for traditional as well as non-traditional students who recognize the need for additional training in order to improve their management and technical skills.

510-610 Human Factors in Engineering and Design 3(3,0)
Human factors engineering (HFE) - sometimes called ergonomics - deals with optimizing working and living conditions through design for human use. The central approach of HFE involves the systematic application of relevant information about user characteristics, behavior and expectations in the design of man-made products, equipment, facilities, and environments. The objectives of HFE are (1) to enhance the effectiveness and efficiency of work and other human activities; and (2) to enhance the product user's comfort, safety, health and satisfaction. P, Math 112, junior standing or consent of instructor.

520-620 Industrial Safety 3(3,0)
Safety requirements and standards common to all industries and processes are reviewed. Attention is focused on legal safety requirements, particularly the Occupational Safety and Health Administration (OSHA) Standards. Emphasis is placed on how to recognize, evaluate, and control safety hazards associated with common industrial methods and technologies.

525-625 Risk/Loss Control Management 2(2,0) F
Industrial accidents are caused by error-making human beings. Safety results achieved only through "safety engineering" and OSHA compliance are limited. Optimum levels of accident prevention can only be achieved through a coordinated program of both safety engineering and safety management. The focus on modern safety management includes: Management's direction of safety, measuring safety performance, behavior modification, motivating safety performance, profiling, program organization, products safety, and safety in the adjunct fleet.

543-643 Project Management 3(3,0) S
Topics to be covered will include: Organization, Management Functions, Time Management, Scheduling, Trade-Off Analysis, Planning, Information Systems, Cost Controls, and International PM.

592-692 Special Problems in Engineering 1-3 FS
P, consent.

593-693 Special Topics in Engineering 1-3 FS
P, consent.

700-701 Seminar 0-1(1,0) FS
703 Designing the Workplace for Productivity 3(3,0)
790 Thesis 5-7
791 Thesis Sustaining 1
792 Research Report/Design Paper
795 Research or Design Paper Sustaining 1
893 Special Topics 1-3

Engineering Graphics (EG)

The Engineering and Architectural Graphics courses are provided to satisfy the visualization and graphics communication requirements of the accredited engineering departments in the College of Engineering. The course offerings are administered and taught by staff from the General Engineering Department.

Undergraduate Courses

121 Engineering Design Graphics I 1(0,3) FS

122 Engineering Design Graphics II 1(0,3) FS
Continuation of EG 121. Functional scales. Graphical conventions and design applications as expressed through free hand technical sketching and microcomputer graphics. P, 121.

123 Computer Aided Design and Graphics 1(0,3) FS
Computer Aided Design and Drafting utilizing mainframe software. The major emphasis is on solid modeling and the assembly of component parts for design applications. All work will require a "hands-on" approach. P, 121.

223 Architectural Design Graphics I 3(1,6) S
Frame building construction. Practice in modern drafting procedures. Opportunity to design a building. P, 121 or consent.
Pre-Architecture (ARCH)

The General Engineering Department offers a pre-architecture program. Because of the nature of the profession and diversity of academic offerings, there are numerous paths that one may take toward becoming a licensed architect.

Except for a few modifications, the curriculum for architecture is similar to that of the other engineering programs. The course of study is designed on an individual basis according to the student's interests and performance. Students may choose to complete a degree in the College of Engineering and then continue their studies in a master of architecture program at another institution or they may be advised to coordinate their coursework to facilitate transferring directly to another undergraduate program leading to a professional degree. The pre-architecture program at SDSU provides an extensive advising system, and offers the student considerable exposure to computer-aided design, building technologies, community design and economic development, through both academic and internship programs. For the first two years, the core curriculum is consistent with other academic programs in the midwest and uses an interdisciplinary approach to take the most advantage of the university setting.

The coursework will fulfill the general degree requirements and includes classes in Humanities, Fine Arts, Natural Sciences, and Social Sciences that are necessary to develop the social and aesthetic awareness that is a prerequisite for an effective practitioner in today's marketplace.

A suggested First-Year Curriculum is:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 113 Alg &amp; Trig</td>
<td>Math 113 Alg &amp; Trig</td>
<td>5</td>
</tr>
<tr>
<td>Engl 101 Freshman Composition</td>
<td>Engl 101 Freshman Composition</td>
<td>3</td>
</tr>
<tr>
<td>PE 100 Fitness &amp; Lifetime Activities</td>
<td>PE 100 Fitness &amp; Lifetime Activities</td>
<td>1</td>
</tr>
<tr>
<td>EG 223 Architectural Design Drafting</td>
<td>EG 223 Architectural Design Drafting</td>
<td>3</td>
</tr>
<tr>
<td>GE 110 Intro to Engineering I</td>
<td>GE 110 Intro to Engineering I</td>
<td>1</td>
</tr>
<tr>
<td>ArtS 122 Design Fundamentals</td>
<td>ArtS 122 Design Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>SpCm 101 Fundamentals of Speech</td>
<td>SpCm 101 Fundamentals of Speech</td>
<td>3</td>
</tr>
<tr>
<td>PE 100 Fitness &amp; Lifetime Activities</td>
<td>PE 100 Fitness &amp; Lifetime Activities</td>
<td>1</td>
</tr>
<tr>
<td>ArtS 112 Drawing I</td>
<td>ArtS 112 Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>ArtS 123 Three Dimensional Design</td>
<td>ArtS 123 Three Dimensional Design</td>
<td>3</td>
</tr>
</tbody>
</table>

At the completion of one year, a student must decide his or her interest. If architecture is desired, a suggested second year curriculum is presented. Because of the nature of the architectural profession and the diversity of academic programs at the graduate level, there are numerous paths that one may take toward becoming a licensed architect. Students are encouraged to consider an educational program that leads to a Masters of Architecture degree from an institution fully accredited by the NCAARB. If a student's interest is engineering at the end of the first year of the pre-architecture curriculum, the student should transfer to the selected engineering discipline and take the required chemistry courses.

A suggested Second-Year Curriculum is:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phys 111 Elementary Physics I</td>
<td>Phys 111 Elementary Physics I</td>
<td>4</td>
</tr>
<tr>
<td>Topics in Architectural Graphics</td>
<td>Topics in Architectural Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CE 106 Elementary Surveying</td>
<td>CE 106 Elementary Surveying</td>
<td>3</td>
</tr>
<tr>
<td>Technical Elective</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>Social Science or Humanities Elective</td>
<td>Social Science or Humanities Elective</td>
<td>3</td>
</tr>
<tr>
<td>Phys 113 Elementary Physics II</td>
<td>Phys 113 Elementary Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

Engineering Courses

A least 12 of the credits must be upper division courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>221 Statics 3(3,0) FS</td>
<td>Vector algebra, forces, moments, couples; principles of statics, resultant and equilibrium of force systems, free body diagrams, centroids; analysis of statically determinate states of equilibrium. P, Math 123, Phys 211 or concurrently.</td>
<td>3</td>
</tr>
<tr>
<td>222 Dynamics 3(3,0) FS</td>
<td>Vectorial kinematics and kinematics; absolute and relative motion, force-moment relations, potential and kinetic energy, work, and power, impulse, momentum, conservation of energy and momentum. Application to particles, particle systems and rigid bodies. P, 221.</td>
<td>3</td>
</tr>
<tr>
<td>223 Engineering Mechanics 3(3,0) FS</td>
<td>Basics of statics and dynamics. P, Math 224 and Phys 211 or consent.</td>
<td>3</td>
</tr>
<tr>
<td>321 Mechanics of Materials 3(3,0) FS</td>
<td>Two dimensional analysis of stress and strain, principal stresses. Mohr's circle; stresses in members subjected to centric, torsional and flexural loadings; deflections of beams. P, 221.</td>
<td>3</td>
</tr>
</tbody>
</table>

Graduate Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>521-621 Introduction to Mechanics of a Continuous Medium 3(3,0)</td>
<td>On sufficient demand</td>
<td>3</td>
</tr>
<tr>
<td>522-622 Theory of Elasticity 3(3,0)</td>
<td>Analysis of stress and strain; equilibrium and compatibility equations; Hooke's law; fundamental problems in the theory of elasticity; plane-stress and plane-strain problems of the narrow beam, rotating discs and a plate with a circular hole. P, 321, Math 331 or equivalent.</td>
<td>3</td>
</tr>
<tr>
<td>523-623 Theory of Plasticity 3(3,0)</td>
<td>Analysis of stress and strain; plastic behavior of materials; basic laws of plastic flow; applications to bending of beams, torsion of bars and thick-walled cylinders; slip line theory and its application to extrusion problems; limit analysis theorems and their applications to structural problems. P, 522-622 or consent.</td>
<td>3</td>
</tr>
<tr>
<td>724 Theory of Plates &amp; Shells 3(3,0)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>731 Advanced Fluid Mechanics 3(3,0)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>741 Finite Element Analysis 3(3,0) Alternate years</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Engineering Shop (ES)

Courses in Engineering Shops concentrate on the various industrial processes closely associated with practical engineering principles. Working with machine tools and other equipment the student will acquire an understanding of properties of materials, and various treatments of materials for specific operations and purposes.

The Engineering Shops are well equipped with precision measuring instruments, machine tools and welding equip-
ment representing recent engineering developments in metal processing.

Facilities for computer aided manufacturing (CAM), computer integrated manufacturing (CIM), computer numerical control (CNC), and computer aided design and drafting (CADD) and for research are also provided for metal processing and for construction of experimental equipment for other university departments.

Courses in Engineering Shops are administered and taught by the General Engineering Department.

Undergraduate Courses

121 Machine Shop 2(1,2)
Machine tools in industry, principles of operation, production methods and related equipment. Introduction to jigs and fixtures and computer numerical control.

131 Welding 2(1,2)
Lectures, demonstrations and exercises. Gas and arc welding, cutting, heat treatment, spot welding and related information.

222 Advanced Machine Shop 2(1,2)
Complicated processes involving operation of machine tools. Introduction to tool and die work and methods of inspection. P, 121.

225 Industrial Machine Tool Applications 10(0,3)
Problems and solutions related to industrial machine tools and other production equipment, automation, computer numerical control. P, recommended for engineering students.

232 Advanced Welding 2(1,2)

235 Metal Processing 10(0,3)
Engineering approach to science of joining metals. Capabilities and limitations of present equipment. Brief introduction to metallurgy, heat treatment of steel and characteristics of other metals and alloys, introduction to metal castings, gas welding, arc welding and related equipment. P, recommended for engineering students.

Electronic Engineering Technology (ET)

The Bachelor of Science in Technology program with a major in Electronic Engineering Technology is a unique program available only at SDSU in South Dakota. This program is administered under the Department of General Engineering. It prepares graduates for employment in business and industry with an in-depth competence in Electronics Technology as well as providing the diversity of a baccalaureate degree. The Electronic Engineering Technology (EET) program at SDSU is committed to offering a comprehensive technical education to fill the Electronic Engineering Technology manpower needs of South Dakota and the upper Midwest.

An Electronics Engineering Technologist serves to support the engineer in a manner requiring application of both theoretical knowledge and related technical skills. Working with information supplied by the engineer, the engineering technologist builds prototype models, troubleshoots, modifies, and supervises production of electronic products. The EET program is designed to develop the skill and knowledge needed to perform the above functions as well as develop management skills applicable to the electronics industry.

Students admitted into the EET program are required to maintain at least a "C" average in the EET courses. Transfer credit will normally be allowed for vocational technology coursework where course content equivalency can be established. Students will be admitted to upper level courses only after they have successfully completed ET 112, 113, 120, and 121 or equivalents.

The Electronic Engineering Technology program is committed to offering performance-based work experiences. Since the best place to measure job performance is on the job, a flexible, student-centered Cooperative Education program is offered. The purpose of the co-op program is to provide realistic educational experiences in the world of work. The student will become acquainted with attitudes, skills, and knowledge relevant to success on the job. All electronics co-op credits are awarded based on a work station evaluation by the student's advisor and approved by the EET Program staff. With permission of the student's advisor a student may enroll in the Co-operative Education Program after successfully completing one semester at SDSU.

Undergraduate Courses

100 Introductory Electronics 3(3,0)
Nonmathematical survey of fundamental electronic components and circuits.

112 DC and AC Concepts 5(5,0) F
Direct and alternating current circuits. Topics covered are basic laws and theorems directed toward resistive and reactive circuits. P, Math 112 or concurrent enrollment.

113 DC and AC Concepts Laboratory 2(0,6) F
Laboratory experiences with basic components such as resistors, capacitors and inductors. Direct current and alternating current used in the analysis. P, concurrent enrollment in 112 or consent.

120 Circuits 5(5,0) S
Active and passive components and the interrelationships involved in circuit combinations. P, 112 or equivalent.

121 Circuits Laboratory 2(0,6) S
Basic circuits, circuit parameters, and various circuit applications. Both discrete and integrated circuits are studied. P, 112, 113 or equivalent.

200 EET—Off Campus Orientation 0(0,0) FSSu
EET enrollment sustaining.

210 Logic and Digital Circuits 4(4,0) F
Switching theory, Boolean Algebra and logic diagrams. Karnaugh mapping, counter circuits, pulse circuits, memories, basic computer operations, binary, octal, and hexadecimal number systems. P, 112, or equivalent.

211 Logic and Digital Circuits Lab 2(0,6) F
Experiments are performed on the circuits and material discussed in ET 210. P, 112.

220 Radio Systems 3(2,2) F
Radio from a black box-block diagram standpoint. Emphasizes the use of basic circuit concepts to superheterodyne receivers. P, 120, or equivalent.

232 FM and Stereo Circuits 3(3,0)
Concentrated study of frequency modulated receivers, stereo multiplex, and stereo amplifiers. Speakers and enclosures will also be studied. P, 120 or equivalent.

233 FM and Stereo Circuits Laboratory 1(0,3)
Laboratory analysis of FM receivers and stereo devices. Proper servicing procedures emphasized. P, 121 or equivalent.

254 Microprocessor I 2(2,0) S
The design and use of the microprocessor in microcomputers and process control applications. Includes concepts, properties and basic architecture of a microprocessor and peripheral circuits. Concurrent enrollment in 225. P, 210, 211.

255 Microprocessor I Lab 1(0,3) S
This is a hands on microcomputer lab. Students will work with the INTEL type microprocessor. Programming and testing on an assembly level. Concurrent enrollment in ET 254.

300 Discrete & Integrated Devices 4(3,3) F
Physical principles of transistors, tunnel diodes, LED's, light sensing diodes, photo diodes, differential amplifiers, operational amplifiers, and other linear IC technologies, capabilities, and applications. P, 120 or equivalent.

334 Microprocessor II 2(2,0) F
Additional experience in the programming and architectures of microprocessors in microcomputers and process control applications. Concurrent enrollment in ET 335. P, 254, 255.

335 Microprocessor II Lab 1(0,3) F
This hands on lab is a continuation of ET 255. Students work with additional programming as well as microprocessor control. Input/output control, and memory mapping with the INTEL type microprocessor. Concurrent enrollment in ET 335. P, 255.

130 General Engineering
450 Communications Circuits & Systems Lab 12(0,6) F
Laboratory work consisting of analyzing and troubleshooting communications equipment. Usage of test equipment such as deviation meters, frequency counters, signal generators, service monitors, power meters, etc. Basic two-way radio installation is also covered. P, 121 or equivalent.

460 Communications Circuits & Systems II 3(3,0) S
Complex radio systems including repeaters, remote control systems, mobile telephone, and paging systems. Systems design and troubleshooting techniques are studied as well as microwave and basic radar systems. P, 450 or equivalent.

461 Communications Circuits & Systems Lab II 2(0,6) S
Laboratory work in advanced troubleshooting of transmitters, receivers, and control systems. Familiarization with sophisticated test equipment is stressed as well as simplified, pragmatic servicing techniques in system testing and alignment. P, 451 or equivalent.

470 Electronic Computer Systems I 3
The study of electronic computer systems, concentrating on IBM type microcomputers, networking and data communications from a software and management point of view. P, 352.

471 Electronic Computer Systems I Laboratory 3
Further study of electronic computer systems, concentrating on IBM type microcomputers, networking and data communications from a hardware, software and management point of view. Concurrent with 470.

480 Electronic Computer Systems II 3
Further study of electronic computer systems, concentrating on IBM type microcomputers, networking and data communications from a hardware, software and management point of view. Concurrent with 480.

481 Electronic Computer Systems II Laboratory 3
Further study of electronic computer systems, concentrating on IBM type microcomputers, networking and data communications from a hardware, software and management point of view. Concurrent with 480.

497 Technology Certification 1(1,0)
A coordination of communication skills, mathematics, physical science, and basic technical concepts and skills in the student's area of study in preparation for certification exams.

292/492 Special Problems 1-3 FSSu
Provides the student with the opportunity to identify a problem and develop a hypothesis, gather information which might be used in solving the problem, work on solving the problem, and report actual findings and accomplishments. P, Permission of the instructor.

293/493 Special Topics in ET 1-3
Current selected topic areas in Electronic Engineering Technology. P, Permission of the instructor.

294/494-295/495-296/496 Cooperative Education/Internship/Field Experience 1-8 FSSu
Supervised work experience with a business, industrial firm, or public agency. The work experience must relate to the student's program of study and be performed under institutional and discipline guidelines governing this type of educational experience. P, departmental approval.

Curriculum in Engineering
Electronics Engineering Technology Major

Freshman Year

F S
DC & AC Concepts, ET 112 ............... 5
DC & AC Concepts Lab, ET 113 .......... 2
College Algebra & Trig, *Math 113 ....... 5
Engineering Orientation, GE 110 ........ 1
Freshman Composition, Engl 101 ....... 3
Engineering Design Graphics I, EG 121 .... 1
Circuits, ET 120.......................... 5
Circuits Lab, ET 121........................ 2
Fundamentals of Speech, SpCm 101 ....... 3
Calculus and Analytic Geometry I, Math 123 ... 5
Engineering Orientation, GE 111 ........ 1
Fitness and Lifetime Activities, PE 100 ... 1

Sophomore Year

F S
Logic and Digital Circuits, ET 210 .......... 4
Logic and Digital Circuits Lab, ET 211 .... 2
Calculus and Analytic Geometry II, Math 224.. 4

General Engineering 131
The character and distribution of elements in geography is the process of continual change, and how those things, both natural and cultural, that distinguish places on the earth's surface. As such, a fundamental theme in geography provides you with methodology and techniques for research and teaching functions by enabling you to understand our physical and cultural environment.

Curriculum in Arts and Science, Geography Major
Leading to the Bachelor of Arts degree

Credits

<table>
<thead>
<tr>
<th>BASIC UNIVERSITY REQUIREMENTS</th>
<th>56-58</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr. Comp, Engl 101 and Junior Comp., Engl 300</td>
<td>3</td>
</tr>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100 (two semesters)</td>
<td>6</td>
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<tr>
<td>Foreign Language.</td>
<td>14</td>
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<tr>
<td>Humanities (from two disciplines on approved list)</td>
<td>6</td>
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<tr>
<td>Mathematics Core.</td>
<td>3</td>
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<tr>
<td>Physical Geography, Geog 131 and 132</td>
<td>8</td>
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<tr>
<td>Natural Science Elective (from approved list)</td>
<td>2-4</td>
</tr>
<tr>
<td>Social Science (from two disciplines on approved list)</td>
<td>12</td>
</tr>
<tr>
<td>MAJOR (including Geog 131,132,200, one Regional Course, 382, and 18 hours of upper division courses)</td>
<td>35</td>
</tr>
<tr>
<td>ELECTIVES (including 24 hours for prospective teachers, option electives and/or free electives)</td>
<td>33-35</td>
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<tr>
<td>Total Hours</td>
<td>128</td>
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</table>

Curriculum in Arts and Science, Geography Major
Leading to the Bachelor of Science Degree

Credits

<table>
<thead>
<tr>
<th>BASIC UNIVERSITY REQUIREMENTS</th>
<th>48</th>
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<tbody>
<tr>
<td>Fr. Comp, Engl 101 and Junior Comp., Engl 300</td>
<td>6</td>
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<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3</td>
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</tbody>
</table>

Geography (Geog)
College of Arts and Science
Associate Professor Sandness, Head; Professors C. Gritzner, Hogan, Opheim; Associate Professor J. Gritzner; Assistant Professors Gab, Samuelson; Adjunct Faculty Draeger, Landis, Loveland.

As society grows more complex and science and technology open new frontiers of knowledge, an understanding of geography and what it entails becomes more important. As such, a fundamental theme in geography is the process of continual change, and how humans modify the earth as their cultural value system and level of technology dictate. The study of geography is thus of vital concern to all citizens and should be a significant part of the education of all students.

The undergraduate program is designed to provide you with a broad education with a concentration in the major field of study. It is recommended you take several courses in disciplines closely related to your specific area of interest in geography. Those interested in physical geography might take associated courses in physics, agricultural sciences, botany or related disciplines. If interested in cultural geography, work in sociology, history, political science or foreign language might be recommended. For economic geography, outside work in economics might be beneficial. For technical geography, work in mathematics and computer science are recommended.

Two bachelor's degrees, the Bachelor of Arts and the Bachelor of Science are available. In addition to the standard degree programs, there are presently three options available in the Geography major: Geographic Technical, Environmental Management, and Urban and Regional Planning. The Geographic Technical Option stressing research techniques and/or foreign language is oriented toward future employment in governmental, industrial, military, or planning positions. The Environmental Management Option is designed to prepare you for careers in governmental, industrial, managerial and recreational areas. The Urban and Regional Planning Option is designed to prepare you for positions with governmental agencies, industry and real estate and commercial corporations.

The Master of Science degree is offered for students interested in graduate work in geography.

Courses in Geography fall into two major categories: (1) systematic — the character and distribution of elements of the physical environment (physical geography) and our basic activities in response to the physical environment (cultural geography), and (2) regional — the occurrence of physical and cultural elements within a particular area or place. The study of geography provides you with methodology and techniques for research and teaching functions by enabling you to understand our physical and cultural environment.
Suggested Optional Electives in the Geography Majors

Environmental Planning and Management Option
Upper division hours within the department should be selected from the following: Geography 454, 461, 464, 483, 484, 486, 487, 493, Environment Courses, and Planning 591 & 592.

Computer Science, Environmental and Cartographic courses should be included in the elective hours. This option is designed to train geographers to use their skills and backgrounds to solve real-world problems with geographic dimension. This option, then, will help to prepare you for careers in governmental and private agencies.

†Technical Geography — Science
Physical Science Electives (6); Agricultural Science, Engineering Science, or Math Electives (6); Computer Mapping (2); Computer Programming Language (3); Geog 485 (3); Total 20 credits.

MAJOR: 35 hours
Including Geog 131, 132, 200, one Regional Course, Geog 382, and 18 hours of upper-division geography courses (300, 400, 500 level).

MINOR: 17 semester hours of geography including Geog 131, 132, 200 and 6 hours of upper-division credit or substitutions approved by the Department.

†Electives in the Physical Environment, Cultural Environment, Agricultural Sciences, and Engineering Sciences are available from a departmental list in geography adviser's office.
†Students taking the Technical Geography Option should include Geog 383, 384, 483, 484, 485 and 486 in their 18 hours of upper-division coursework in the major.

Undergraduate Courses

101 World Place Locations 1(1,0) FS
A basic introductory course designed to provide a solid background in the knowledge of geographical place names, including a discussion of the location of world land masses, water bodies, physical landform features, major cultural features, and political units.

131 Physical Geography I 4(3,2) FS
The earth in its basic physical state. Location, navigation, geodesy, astrogeography, weather and climate.

132 Physical Geography II 4(3,2) FS
The earth in its basic physical state. Vegetation, soils, landforms and cartography. P, 131.

200 Intro to Human Geography 3(3,0) FS
The differentiation of the world. Geographical limitations on human kind's behavior and systems of political and economic life with emphasis in understanding the contemporary culture map of the world.

210 World Regional Geography 3(3,0) FS
The differentiation of the world in terms of both natural and human environmental features and characteristics on a regional basis.

212 Geography of North America 3(3,0) S
The U.S. and Canada. Physical features and human phenomenon are examined in terms of their contribution to the area.

219 Geography of S.D. 3(3,0) FS
Physical and human geography of the state, the interrelationship and significance of various regions within the state and to the U.S.

310 Soil Geography and Land-use Interpretation 4(2,4) F
See Plant Science section. May count toward Geography major.

313 Geography of Latin America 3(3,0) F
Natural and cultural regions of Mexico, Central America, Caribbean Islands, and the South American Republics. The human factor and its reaction to the conditions of environment.

314 Geography of the U.S.S.R. 3(3,0) S
Appraisal of the physical resource base of Russia and estimates of industrial and agricultural strengths.

315 Geography of Europe 3(3,0) F
Regional and topical analysis of the geography of western Europe. Special concentrations on the British Isles, Northern Europe, Low Countries, France and Mediterranean Europe.

316 Geography of Asia 3(3,0) F
Asian nations, physical and cultural environments, their role in world relations.

317 Geography of Africa 3(3,0) S
Major natural regions of the African Continent of emerging nations. Activities and customs of the native tribes and how they have responded to European influences. Africa's position as a storehouse of raw materials.

336 Atmospheric Sciences 3(3,0) FS
Systematic methodological investigation of the meteorological elements (weather, climate, altitude, etc.) and their effects on geographic features.

338 Astroseography 2(2,0) FS
Planet Earth; its position, form and size; movements; latitude, longitude, and time; relation of the moon; the seasons; the calendar; the planets, stars, galaxies; universe.

339 The Earth's Landforms 2(2,0) FS
Surface features. Continental landforms with their flood-plains, deltas, lacustrine, glaciers, coastal plains, marshes and dunes. One's relation to these landforms will be emphasized.

343 Natural Disasters and Human Hazards 3(3,0) FS
This course provides an in-depth examination of how people respond to natural events such as drought, earthquakes, floods, hail, landslides, lighting, blizzards, tornadoes, hurricanes, and fog as well as a detailed analysis of the effects human actions have on inducing disasters through such means as building in floodplains or on alluvial fans or increasing coastal erosion. P, 131, 132.

351 Economic Geography 3(3,0) FS
World wide distribution of economic activities and their physical bases. Agriculture, mining and manufacturing industries and their important commercial products and role in world trade.

363 Rural Geography 3(3,0) F or S
Character of American countryside as shaped by private and public decision-making processes. Case studies of major U.S. and European rural planning efforts to understand the present landscape and the problems of rural populations.

365 Land Use Planning 3(3,0) F or S
Geographical patterns of human occupancy, land tenure, land division and land usage. Emphasis on North America and the Upper Midwest. Significance of these patterns in environmental resource utilization and land use planning. P, 200 or 212 or 219.

382 Geographic Research Methods 3(3,0) FS
General methods of geographic research. Includes library research, interviews, data collection, analysis, observation. Development of a research topic, methods of investigation and preparation of a research paper.

383 Cartography 3(2,2) FS
History and principles of cartography. Emphasis on field mapping; map projections; cartographic design; map interpretations; and exercises in map making.

384 Advanced Cartography 3(2,2) FS
This course provides advanced cartographic training techniques as applied to practical applications in field mapping, the production of map projections, cartographic design, and map making. P, 383.

388 Geodesy 3
A survey of geodesy, the science which determines the size and shape of the earth, the exact location of points on the earth's surface, and the measurement of terrestrial gravitation. P, Math 113, 120 or consent.
Undergraduate Course Specials: (Topical)

425 Population Geography 3(3,0) S
World population in relation to its distribution within various physical and cultural environments. Particular emphasis is placed on past, present, and future populations of the U.S.

433 World Crop & Soil Resources 3(3,0) F
(See plant science section. May count toward Geography major).

447 Geography of the Future 3(3,0) FS
The world, particularly the U.S. in the year 2000 A.D. Special emphasis on such areas as population, urban life, transportation, food, social and cultural developments and alternative futures.

451 Industrial & Commercial Site Selection 3(3,0) FS
Analysis of geographic factors involved in selection of locations and sites for manufacturing, commercial and agricultural enterprises.

461 Urban Geography 3(3,0) FS
Geography of cities: types, functions, and distribution of world cities. Special emphasis on planning of cities in the U.S.

464 Geographic Aspects of Regional Planning 3(3,0) S
Regional planning with particular reference to the upper Midwest.

476 Historical Geography 3(3,0) FS
Historical periods portrayed against geographical background. May be taken as Hist 476 for History credit.

481 Field Methods in Geography 3(3,0) F
Methods and techniques in studying geography in the field. Map and photo interpretation, reconnaissance mapping, surveying and land use evaluation.

483 Air Photo Interpretation 3(3,0) FS
Development of skills and techniques involved in the interpretation of aerial photographs showing physiography, land use, industrial, commercial and military functions. P, 383 or consent.

484 Remote Sensing 3(3,0) FS
Applications of remote sensing. Development of remote sensing; instrumentation; and techniques and methodology that will aid in the determination of need and proper utilization of our physical and cultural resources. P, 483 or consent.

486 Computer Mapping 3(3,0) FS
Computer mapping as a tool in the preparation of maps or diagrams and in geographical analysis of maps and diagrams. Will include consideration of various mapping programs. P, Algebra course, and Geog 383 or consent.

487 Geographic Information Systems 3(3,0) FS
GIS as a data base management system for spatial data. Includes application, planning and management. GIS facilitates modeling of natural and cultural resources in a spatial context.

491 Directed Studies in Selective Topics 1-9 FSSu
Students interested in studying a certain topic or acquiring a particular skill in which a faculty member is competent but which is not covered by regular courses at SDSU may undertake a program of directed study. The work will be planned and implemented by the student and the instructor, with department head approval.

492 Special Problems in Geography 1-2-3-4(1-2-3-4,0) FSSu
Opportunity for qualified students to investigate special problems or carry out independent study under supervision of department staff. Variable credit, may be repeated for up to 12 credits. P, Soph, Jr., or Sr standing and/or consent.

493 Undergraduate Course Specials: (Topical) 1-5 FSSu
Ten or more students who wish to study a topic in which a faculty member is competent but which is not covered by regular courses at SDSU may propose a special.

494-495-496 Cooperative Education/Internship/Field Experience (Topical) 1-12 FSSu
You have the opportunity to become involved in an off-campus Cooperative Education or Internship activity which promises to contribute significantly to your education, may enroll for and receive between 3 and 15 credits at the maximum rate of one credit per week. (See course description in Arts and Science College Section.) P, junior standing.

Students who participate in short tour, exchange, or field study programs off campus may enroll for and receive a total of 1-6 semester hours of credit. In no case will the credit granted exceed one per week nor a total of six. In the case of independent experience, the specific amount of credit to be granted, and the conditions established (projects, etc.) will be set prior to the student's departure, in consultation with the supervising instructor and with the approval of the appropriate department chairperson and dean.

Graduate Courses

506-606 Seminar in Systematic Geography: (Topical) 1-4 FS
Will deal with one or more aspects of human, economic, physical, population and historical geography or techniques. May be repeated for credit. The specific topic to be studied will change each semester.

520-620 Advanced Regional Studies in Geography: (Topical) 1-4 FS
Selected topics in the regional geography of continents, nations, or states. May be repeated for credit. Specific topic to be studied will change each semester.

700 Seminar in Geography: (Topical) 1-4 FS

710 Evolution of Geographic Thought 2(2,0) F

712 Introduction to Graduate Study 2

714 Research and Writing 2

760 Advanced Demography 3(3,0) F

765 Advanced Studies in Land Utilization: (Topical) 1-4 FS

770 Advanced Geographic Techniques: (Topical) 1-4(1-4,0) FS

785 Quantitative Methods in Geography 3

790 Thesis 1-7 FS

791 Thesis (Sustaining) 1(1,0) FS

792 Special Problems in Geography: (Topical) 1-4

793 Seminar in Anthropology 1-4
(see Anth 793)

794 Geography Research Paper 1-3

Gerontology

Minors in Gerontology are available at the undergraduate and graduate levels. Contact the Coordinator of Gerontology, College of Home Economics for further information on these minors.

Undergraduate Gerontology Minor
A total of 18 credit hours is required for the undergraduate minor. Eleven of the eighteen credits must be taken from courses specifically oriented to the elderly. This may include Special Problems, Current Topics, Seminars and Practicums. Other courses that can be taken are:

HDCF 313 Human Development: The Middle and Later Years 2
Pha 519 The Geriatric Patient 2
Bio 525 Biology of the Aging 2
CA 442 Family Resource Management Lab 3
Soc 492 Seminar: Sociology of the Aging 3

Additional credits may be taken from courses having some content related to elderly or content related to study of human beings. Contact the Coordinator of Gerontology, College of Home Economics for a listing of these courses.
Health, Physical Education and Recreation (HPER)

College of Arts and Science
Professor Oien, Head; Professors Booher, Ewing; Professors Emerit Crabb, Forsyth, Huether, Robinson, Williamson; Associate Professors Lidstone, Richardson; Assistant Professors Erickson, Hacker, Sandness; Instructors Amundson, Baalke, Bonner, Burkhart, Daly, Ekeland, Engels, Eter, Kirchner, Larson, Nagy, Neiber, Schoenebeck, Stieglmeier, Thorson, Underwood; Adjunct Professors Lushbough, Ram­say, Roberts, Warren.

The program may be divided into four areas. While the four areas are related, each has a unique purpose.

Fitness and Lifetime Activities
Two one-credit courses in fitness and lifetime activities are required of all students. The courses are designed to develop intellectual inquiry as to the need of physical activity and present the opportunity to learn skills in carry-over activities promoting physical, social and emotional well being. Two additional one-credit courses may be elected and such credits will count toward graduation. No activities may be repeated (see page 26). Majors and Minors in HPER substitute the major professional skills courses for the physical education requirement. The following fitness and lifetime activities are examples of courses offered:

Intramural and Recreational Sports and Sports Clubs
A broad program of Intramural and Recreational Sports are offered to encourage the development and appreciation of fitness and lifetime skills and activities. The program involves managing, participating and officiating. The Intramural and Recreation Council, elected students representing resident halls, campus organizations, sports clubs and independent non-traditional groups, coordinates a program involving more than 30 sports and activities. Sports Club programs are also coordinated through the Intramural Council.

Intercollegiate Athletics
SDSU offers intercollegiate athletic competition in nine sports for women and ten sports for men. SDSU is a charter member of the North Central Intercollegiate Athletic Conference and a long-time member of the National Collegiate Athletic Association. Competition for both women and men is governed by both organizations. Women may compete in cross country, indoor track and field, outdoor track and field, volleyball, basketball, swimming, golf, tennis, and softball. Men may compete in cross country, indoor track and field, outdoor track and field, football, basketball, swimming, golf, tennis, wrestling, and baseball.
The Athletic, Intramural and Recreation Committee, composed of students, faculty, administrators and alumni, serves in an advisory capacity to the Athletic Director and the President.

Professional Preparation in Health, Physical Education and Recreation
Four undergraduate majors are offered within the department. These include Athletic Training, HPER (Teaching and Fitness/Wellness emphases), and Public Recreation. Four undergraduate minors are offered including Dance Education, Health Education, Physical Education, and Public Recreation. A Master of Science degree is also offered. Additional programs include Pre-Physical Therapy, Pre-Occupational Therapy, Athletic Coaching Concentration, and Elementary Physical Education Concentration.

Course Cross Referencing
The department cross references courses with other consenting departments within the university. Students may use the prefix of the course which is most advantageous to the desired preparation. The course description contains a statement referring to the course with which it is cross referenced.

Athletic Training Major
The athletic training major is one of 74 athletic training curriculums approved by the National Athletic Trainers Association. It is designed to prepare students to become athletic trainers and take the national certifying examination. Courses required for completion of the athletic training major include: Zool 221, 325, NFS 221 or 321, PE 352, 354, 450, 460, AT 361, 362, 363, 364, 454, 464, HPER, 490, Psy 101, Hlth 102 or 212, 360 or 491. In addition to these courses, students must complete a minimum of 800 hours of clinical experience under the supervision of a certified athletic trainer.

Application for admittance into the athletic training major is made during the first intermediate athletic training course. The number of students accepted into the program each semester is based upon the availability of clinical opportunities and staff. Students are encouraged to supplement their education with an additional area of study to become more marketable. Common areas of additional study include prephysical therapy, teacher education, and fitness/wellness.

Health, Physical Education & Recreation Teaching Major
You may earn either a Bachelor of Arts or a Bachelor of Science degree by completing the curriculum outlined on the following pages. Since these curricula are designed primarily for persons who plan to enter the teaching field, you are urged to choose elective courses which will qualify you to teach courses in other academic fields as well as in physical education. (See suggested minors in teacher education fields under the College of Education and Counseling.) To teach in S.D. you must also meet certification standards established by the Division of Education, Pierre, South Dakota.

HPER — Fitness/Wellness Emphasis
This program is designed to prepare students for employment in private or public fitness/wellness programs. The curriculum to be completed for the B.S. degree is outlined on the following pages.

Public Recreation Major
The B.A. or B.S. Degree may be earned by completing the curriculum outlined on the following pages. Programs are based on an interdisciplinary approach providing a broad, comprehensive background for leadership and administrative roles in the recreation profession. All students transferring into the Public Recreation major from within the university or from another institution will be evaluated on an individual basis by a departmental screening committee. Transfer students must have a 2.0 GPA to be accepted into the Public Recreation major program. Transfer students with less than a 2.0 GPA may petition for approval. If accepted, the transfer student will enter on probation for one semester. A Public Recreation major must have a 2.4 cumulative GPA to be recommended for the required 8-week internship experience.

Dance Education Minor
Twenty-four (24) hours must be completed for the minor. Eighteen (18) hours in Dance Education are required plus six (6) hours of elected courses in the related fields of music, theater, and art. Speech, Art, and Music majors must take the
six elected courses in subjects other than their majors. Certain dance courses are offered on alternate years. (See course descriptions.) The coordinator of dance education will aid students in the use of variable credit courses and in the choice of electives necessary for completion of the dance minor.

**Health Education Minor (Hlth)**
Students interested in preparing to teach health education may secure a strong minor by completing a minimum 29 semester hours in Hlth, Health Education and related fields.

Required courses are Hlth 102, 212, 360, 443, 460; HDCF 141 or 211 or 312 or 313; NFS 321; Soc 250 or 382 plus a seminar in Drug and Alcohol Abuse. Nine hours must be completed from among the biological sciences, including Anatomy and Physiology, Bio 151, 153, Zool 123, 221, 325, and PE 450.

**Physical Education Minor**
A minor may be earned by completing 21 semester hours within departmental offerings. The following courses are required: PE 352, 359, 360, or 460, Hlth 159 or 360 plus five hours from the activity classes of PE 131, 132, 230, 231, 232, 330, 331, 332, Danc 130. In addition, a student minoring in Physical Education must complete a total of eight hours from the following courses: HPER 240, 440, 451, PE 320, 342, 351, 450, Danc 131, 230. All students interested in a minor in Physical Education must obtain approval from the Coordinator of Undergraduate HPER.

**Public Recreation Minor**
A minor may be earned by completing 23 semester hours within departmental offerings. The following courses are required: Recr 230, 241, 360, 370, 440, PR 201, and PE 121 or PE 100 Swimmer’s Swimming. Recreation minor students will be counseled in selecting eight semester hours of course work from the suggested elective list.

**Pre-Physical Therapy**
The physical therapy program is a pre-professional curriculum whereby all the necessary prerequisites can be completed in preparation for applying to a school of physical therapy. The department provides counseling service to assist each student in developing a plan best suited to his or her needs. Acceptance by physical therapy schools is on a competitive basis, therefore, a strong undergraduate academic record is essential. Most schools of physical therapy now offer a master’s degree program. The remaining schools continue to offer a bachelor’s degree while in the process of changing to a master’s degree. Students must have a basic science background and complete a certain number of required courses before applying to either type of professional physical therapy program.

**Pre-Occupational Therapy**
The occupational therapy program is a pre-professional curriculum whereby all the necessary prerequisites can be completed in preparation for applying to a school of occupational therapy. The department provides counseling service to assist each student. A strong undergraduate academic record is important. Most schools of occupational therapy offer a bachelor’s degree while some offer a master’s degree. Students must complete a certain number of required courses before applying to a professional occupational therapy program.

**Athletic Coaching Concentration**
Some states, among them South Dakota, Iowa, and Minnesota, have specific requirements for athletic coaching certification in public schools. Students interested in seeking certification for coaching should consult with the Coaching Certification Coordinator in the Department of HPER in order to determine the specific requirements for each state.

The Department of HPER recommends that additional course work be taken beyond the certification requirements to be better prepared as a coach. The following courses are recommended: PE 351, 354, 450, Hlth 360. In addition, four semester hours are recommended in PE 470.

This athletic coaching concentration is not recognized by the HPER Department as adequate preparation for the teaching of Physical Education.

**Elementary Physical Education Concentration**
Students desiring a concentration in Elementary Physical Education must complete the following courses: PE 359, 360, Danc 130, 131, 132, HDCF 211, HPER 493, SeEd 287, 591, Hlth 212, 360, HPER-Selected Skill Block Courses.

**Graduate Programs**
The Department of Health, Physical Education, and Recreation offers courses leading to a Master of Science in HPER. See Graduate Catalog for details.

**Curriculum in Arts and Science**

**Health, Physical Education and Recreation Teaching Major**
Leading to the Bachelor of Science Degree

<table>
<thead>
<tr>
<th>Credit</th>
<th>Freshman Year</th>
<th>Sophomore Year</th>
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<tbody>
<tr>
<td>Fr Comp, Engl 101</td>
<td>Gen Psychology, Psyc 101</td>
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<tr>
<td>Fund of Speech, SpCm 101</td>
<td>*Skills, PE 131 or 132 or 230 or 231 or 232 or 330 or 331 or 332</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Intro Biology, Bio 151-153</td>
<td>Anatomy, Zool 221</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Prin &amp; History of HPER, HPER 240</td>
<td>Prevent &amp; Care of Athletic Injuries, PE 354</td>
<td>3 or 3</td>
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<tr>
<td>Mathematics Core</td>
<td>Movement Experiences for Children, PE 359</td>
<td>3 or 3</td>
</tr>
<tr>
<td>*Skills, PE 131 or 132 or 230 or 231 or 232 or 330 or 331 or 332</td>
<td>Elementary School Phy Ed, PE 360</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Community Health, Hlth 102 or Contemp</td>
<td>Practicum &amp; Professional Lab Experience, SeEd 287</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Health Problems, Hlth 212</td>
<td>Chem and/or Physics</td>
<td>4</td>
</tr>
<tr>
<td>Recreation Leadership, Recr 360 or Recr 241, Intro to Pub. Rec.</td>
<td>Human Relations</td>
<td>3</td>
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<tr>
<td>Fund of Dance, Danc 130</td>
<td>Computers in Teaching, EdFn 385</td>
<td>2</td>
</tr>
<tr>
<td>Swimming, PE 320</td>
<td>International Studies</td>
<td>3</td>
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<tr>
<td>Humanities &amp; Social Science electives</td>
<td>Humanities &amp; Social Science electives</td>
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*All skills classes should be completed by the end of the junior year.

**Junior Year**

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<th>Credit</th>
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<tr>
<td>Advanced Comp, Engl 300</td>
<td>Health &amp; Safety Education, Hlth 460 or Methods &amp; Materials of Inst., Hlth 463</td>
</tr>
<tr>
<td>Ed Psychology, EPsy 302</td>
<td>Kinesiology, PE 351</td>
</tr>
<tr>
<td>Teaching Special Needs Students, EdFn 370</td>
<td>Methods of Teaching, PE 460</td>
</tr>
<tr>
<td>Supervised Clinical/Field Experiences, SeEd 314</td>
<td>Adaptive Phys Ed, PE 352</td>
</tr>
<tr>
<td>Exercise Physiology, PE 450</td>
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</tbody>
</table>

136 Health, Physical Education and Recreation
### Curriculum in Arts and Science

**Health, Physical Education and Recreation Teaching Major**

Leading to the Bachelor of Arts Degree

<table>
<thead>
<tr>
<th>Freshman Year</th>
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<tbody>
<tr>
<td>Fr Comp, Engl 101</td>
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<td>3 or 3</td>
</tr>
<tr>
<td>Mathematics Core</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Fund of Speech, SpCm 101</td>
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<td>3</td>
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<tr>
<td>Foreign Language</td>
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<tr>
<td>Prin &amp; History of HPER, HPER 240</td>
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<tr>
<td>*Skills, PE 131 or 132 or 230 or 231 or 232 or 330 or 331 or 332</td>
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</tr>
<tr>
<td>Recreational Leadership, Recr 360 or Recr 241</td>
<td>2 or 2</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Intro to Pub. Rec</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Community Health, Hlth 102 or Contemp Health Problems, Hlth 212</td>
<td>2 or 2</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Fund of Dance, Danc 130</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Swimming, PE 320</td>
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<tr>
<td>Humanities, Social Science, or Natural Science electives</td>
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### Junior Year

Advanced Comp, Engl 300 | 3 or 3 |
Kinesiology, PE 351 | 3 or 3 |
Major Electives (see information below) | 6 | 6 |
Principles of Accounting, Actg 210 | 3 or 3 |
Humanities & Social Science Electives | 4 | 4 |
Mammalian Physiology, Zool 325 | 4 or 4 |

### Senior Year

Exercise Physiology, PE 450 | 3 or 3 |
GXT & Preception, HPER 582 | 2 | 2 |
Seminar in Wellness, HPER 490 | 2 | 2 |
Internship in Wellness, HPER 495 | 2 | 2 |

Major Electives must come from the following list: CSc 112, Recr 241, PE 352, 460, HPER 451, SpCm 301, Psy 358, HSc 440, HDCF 313, Bio 525, and/or Hlth 581.

### Curriculum in Arts and Science

**Public Recreation Major**

Leading to the Bachelor of Science Degree

<table>
<thead>
<tr>
<th>Freshman Year</th>
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<tr>
<td>Fr Comp, Engl 101</td>
<td>3 or 3</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Intro Biology, Bio 151, 153</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Intro to Public Rec, Recr 241</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Algebra, Math 112</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Rec Activities &amp; Golf, Recr 230</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Fund of Dance, Danc 130</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Rec Leadership, Recr 360</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Individual &amp; the Family, HDCF 141</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Music Appreciation, Mus 100</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Microcomputer Course, CSc 110 or 112</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Survey of World Art, ArtH 211 or 212</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Humanities, Social Science electives</td>
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</tr>
</tbody>
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### Curriculum in Arts and Science

**Health, Physical Education and Recreation Major - Fitness/Wellness Option**

Leading to the Bachelor of Science Degree

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr Comp, Engl 101</td>
<td>3 or 3</td>
<td>3 or 3</td>
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</tbody>
</table>

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### Senior Year

Intramural & Rec Sports Adm, PE/Reacr 342 | 3 | 3 |
Intro to Sociology, Soc 100 | 3 | 3 |
Parks and Society, PR 201 | 3 | 3 |
Macroeconomics, Econ 201 | 3 | 3 |
Tennis & Individual Fitness, PE 332 | 1 | 1 |
Swimmer Swimming, PE 121, 100 or other PE elective 200 or above | 1 | 1 |
Gen Psychology, Psyc 101 | 3 | 3 |
Intro to Philosophy, Phil 205 | 4 | 4 |
Physical Geography, Geog 131 | 4 | 4 |
The courses in Health, Physical Education and Recreation are divided into the following areas: Athletic Training (AT); Dance (Danc); Health Education (Hlth); Health, Physical Education and Recreation (HPER); Physical Education (PE); Physical Therapy (PT); and Recreation (Recr).

### Athletic Training (AT) Undergraduate Courses

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credit</th>
<th>( F )</th>
<th>( S )</th>
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</thead>
<tbody>
<tr>
<td>164 Introduction to Athletic Training</td>
<td>( 2(2,0) )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>361 Athletic Training Techniques I</td>
<td>( 3(3,0) )</td>
<td></td>
<td></td>
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<tr>
<td>362 Athletic Training Techniques II</td>
<td>( 3(3,0) )</td>
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<tr>
<td>363 Athletic Training Techniques III</td>
<td>( 3(3,0) )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>364 Athletic Training Techniques IV</td>
<td>( 3(3,0) )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>454 Athletic Injury Assessment</td>
<td>( 3(3,0) )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>464 Therapeutic Modalities and Rehabilitation</td>
<td>( 3(3,0) )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>490 Senior Seminar in Athletic Training</td>
<td>( 2(2,0) )</td>
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</tr>
</tbody>
</table>

### Description

164 Introduction to Athletic Training:
A basic introductory course designed to acquaint beginning major students with all aspects of the profession of athletic training.

361 Athletic Training Techniques I:
This course is one of four intermediate athletic training courses designed to meet all of the guidelines and competencies required by the National Athletic Trainers Association to offer an approved curriculum. These courses do not have to be taken in sequence. AT 361 includes pre-season physical screening; fitting of athletic equipment; athletic injury assessment and management; postural examinations; nutrition; environmental injuries; drugs; and the evaluation and care of injuries to the back. P, PT 354 and Zool 221.

362 Athletic Training Techniques II:
This course is one of four intermediate athletic training courses designed to meet all of the guidelines and competencies required by the National Athletic Trainers Association to offer an approved curriculum. These courses do not have to be taken in sequence. AT 362 includes designing and applying protective equipment; principles of conditioning; drug testing; fitting of crutches; and the evaluation and care of injuries to the knee, leg, ankle, face, abdomen, and thorax. P, PT 354 and Zool 221.

363 Athletic Training Techniques III:
This course is one of four intermediate athletic training courses designed to meet all of the guidelines and competencies required by the National Athletic Trainers Association to offer an approved curriculum. These courses do not have to be taken in sequence. AT 363 includes the body's response to trauma and the evaluation and care of injuries to the head, neck, shoulder, elbow, wrist, hand, and fingers. P, PT 354 and Zool 221.

364 Athletic Training Techniques IV:
This course is one of four intermediate athletic training courses designed to meet all of the guidelines and competencies required by the National Athletic Trainers Association to offer an approved curriculum. These courses do not have to be taken in sequence. AT 364 includes skin disorders; illnesses; eating disorders; and the evaluation and care of injuries to the hip, pelvis, thigh, and foot. P, PT 354 and Zool 221.

454 Athletic Injury Assessment:
This course is designed to have the student athletic trainers develop a sound understanding of the assessment of athletic related injuries and conditions. The course will incorporate anatomy of the various body areas, the athletic related injuries or conditions which may occur, and evaluation techniques used to assess the body part involved.

464 Therapeutic Modalities and Rehabilitation:
This course is designed to have the student develop a sound understanding of the use of modalities and exercise in the rehabilitation of the injured athlete. The class will be taught through lectures and demonstrations and provide for practical experience.

490 Senior Seminar in Athletic Training:
This course is designed to be the culminating class for those students enrolled in the athletic training major. Students should have completed most of the required coursework and be in their final year on campus. In this course, students will discuss a variety of contemporary issues and problems confronting the athletic trainer; review the NATA guidelines and competencies; and examine the legal, medical, and ethical protocols governing the athletic training profession. In addition, students will have the opportunity to review previous coursework in preparation for the athletic training exit and NATA certification examinations.
Dance Education (Danc)
Undergraduate Courses
129-320Dance Production 1(0,2)
Experience in composition and performing techniques. A production (dance concert, studio performance) will be developed each semester. Technical aspects of costuming, lighting, make-up, and promotion of a dance event are included. May be repeated. P, 120 (for 320), or consent. No more than 6 credits in both 129-320.
130 Fundamental Dance & Rhythms 1(0,3) F
Basic skills course required of all physical education majors. Includes analysis and skill development of round, folk, square, and social dances, traditional and contemporary.
131 Creative Dance for Children 2(2,0) F
Theory and laboratory class considering how creative movement experiences meet special needs of children. Emphasis on problem solving approach. Consideration given to developmental stages of children, basic elements of dance, teaching methods, structuring a lesson plan, and presenting it.
132 Recreation and International Folk Dance 1(0,2) S
Folk and square dances from around the world, including cultural background, costumes, skill differences for elementary, middle and high school or adults.
195 Dance Activities 1(0,2) FS
Credit earned by active participation in dance programs. May be repeated for a total of 4 credits. P, consent of instructor.
230 Modern Dance I 1(0,2)
Techniques, composition and appreciation of modern dance.
231 Modern Dance II 1(0,2)
Continued technical development plus consideration of movement quality as affected by time, space and energy. P, 230. (even years)
240 Dance Composition 2(1,2) S
Theory and practice of elements of dance composition both as a choreographer and as a member of a group. Includes consideration of aesthetic principles of form, as well as old and new methods of composition. Emphasis is on problem solving and self-discovery. P, 230. (even years)
290 Ballet, Jazz and Tap 2(1,2) S
Laboratory experience in theatrical forms of dance not included in other courses. Will include units in ballet, jazz, ethnic and tap dance. (odd years)
340 History and Theory of Dance 2(2,0) S
Intensive study of dance history, theory and philosophy. (odd years)
420 Techniques of Teaching Dance 2(2,0) S
Theory and practice of teaching the various dance forms: social, square, folk, modern, rhythmic games, creative dance for children. Experience in lesson planning. Unit and general curriculum requirements K-12. P, 130, 132, 230. (even years)
491 Directed Studies 1-9
See HPER 491.
493 Undergraduate Course Specials 1-5
See HPER 491.
494-495-496 Cooperative Education/Internship/Field Experience (Topical) 1-12 FSSu
See HPER 494

Graduate Course
760 Advanced Administration of School Health Programs 2(2,0) SSu (AY)

Health, Physical Education & Recreation (HPER)
Major Theory Courses
Undergraduate Courses
240 Principles & History of HPER 3(3,0) FS
Aims and objectives of physical education. Biological, sociological, psychological, mechanical, and historical foundations.
342 Psychological Aspects of Coaching 2(2,0)F
Psychological aspects of sport specifically applied to coaching. Topics include philosophy of coaching, leadership, communication, motivation and various intervention strategies designed to elicit optimal performance.
440 Organization & Administration of HPER 3(3,0) S
Curricula, intramural and athletic programs. Administration of facilities, equipment and budgets. P, junior standing.
451 Tests & Measurements in HPER 2(1,2) FS
Place of measurement in physical education. Analytical survey of tests and measures available; statistical approach, techniques and procedures in planning and administering tests and measurements. P, junior standing.
490 Senior Seminar 2
Reports, group discussion. Required of recreation majors. P, senior standing or permission.
491 Directed Studies 1-9
See description under Directed Studies Program in the Alternatives and Options for the College of Arts and Science.
492 Problems in HPER 1-3 FS
Directed studies and/or research activities related to HPER. P, consent.

Health, Physical Education and Recreation 139
Graduate Courses

581-681 Workshops in HPER 1-3
Lectures, conferences, and outside assignments to increase understanding of a specific area. P, junior standing, consent.

582-682 Seminars in HPER 2(2,0) FSSu
P, graduate standing, permission of staff.

741 Philosophy of Physical Education and Recreation 3(3,0)

742 Psychological Aspects of Sport and Exercise 3(3,0) FSu

743 Basic Issues in HPER 2(2,0)

745 Sports Medicine 2(2,0) SSu AY

751 Advanced Evaluation in HPER 3(3,0) S

760 Motor Learning & Development 3(3,0) S

765 Athlete Profiling (2,0) S

780 Seminar in HPER 1(1,0) FSSu

783 Research Methods in HPER 3(3,0) SSu

790 Thesis in HPER 5-7

791 Thesis Sustaining 1

792 Individual Research & Study in HPER 1-4 FSSu

Physical Education (PE) Men and Women

Undergraduate Courses

100 Fitness & Lifetime Activities 1(0,2) FSSu
Activities stressing individual physical fitness and lifetime activities according to student needs and interests.

165 Introduction to Fitness/Wellness 2
An examination and observation of the professional opportunities in fitness/wellness and the personal and academic requirements of the profession.

200 Fitness & Lifetime Activities (Intermediate) 1(0,2)
Advanced instruction in courses such as golf, tennis, and archery. Theory and practice of such activities. May not substitute for PE 100.

320 Emergency Water Safety 1(0,2) FSSu
Basic skills, knowledge, attitudes and conditions of life saving. Participation may lead to American Red Cross Senior Life Saving certification. P, pass qualifying swimming test. May not substitute for PE 100.

321 Water Safety Instructor 2(1,2) FSSu
Method of instruction and evaluation of water safety techniques. Participation may lead to American Red Cross Water Safety Instructor’s certification. May not substitute for PE 100. P, 320, 323 or current Red Cross Lifeguarding or Emergency Water Safety Certificate.

323 Lifeguard Training 1(0,2)
The course focuses on skills and knowledge to properly assume responsibilities of lifeguards at swimming pools and non-surf beaches. P, 320, CPR and First Aid Certification.

324 Lifeguard Instructor 1(0,2)
Certification as a Lifeguard Instructor will qualify an individual to teach basic water safety, emergency water safety and the lifeguard training course. P, 323.

342 Intramural & Recreational Sports Administration 2(2,0) F
Organization and administration of intramural sports on elementary, secondary, college and university levels. Program planning, facilities, equipment and financing of intramural sports program. P, sophomore standing.

351 Kinesiology 3(3,0) FS
Mechanics and muscular actions related to movement of the human body. P, Zool 221 or 325, junior standing.

352 Adapted Physical Education 2(2,0) FS
Principles and techniques involved in use of exercise for prevention and improvement of functional defects.

354 Prevention & Care of Athletic Injuries 2(1,2) FS
General care and treatment of athletic injuries, conditioning and training, equipment of training room, taping for athletic injuries.

359 Movement Experiences for Children 2(1,2) S
Needs, characteristics, and capacities of primary school children (grades K-3), curriculum planning, methods and materials essential to program development in movement education rhythms, games and self-testing activities.

360 Elementary School Physical Education 2(1,2) F
Needs, characteristics, capacities of elementary school children (grades 4-6), curriculum planning, organizational problems; and methods and materials essential to program progression in movement exploration, dance games, self-testing. P, sophomore standing.

450 Exercise Physiology 3(2,2) FS
Body processes and exercise; efficiency of muscle 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, junior standing.

460 Methods of Teaching Physical Education 2(2,0) FS
Curriculum planning, principles of motor learning, methods used in teaching various activities in physical education. P, junior standing.

491 Directed Studies 1-9
See HPER 491

494-496 Cooperative Education/Internship/Field Experience 1-12 FSSu
See HPER 494-496

Coaching of Interschool Athletics

Courses in coaching of football, basketball, volleyball, cross country, track and field, gymnastics, swimming, wrestling, tennis, baseball, softball, and golf.

470 Coaching & Officiating of Athletics 2(1,2)

Professional Skills for Majors

131-332 Professional Skills 1(0,2)
Majors are given adequate preparation in performing activities essential to teaching Physical Education. Proficiency in performance and knowledge of each skill will be examined. All classes are co-ed.

131 Softball, Basketball

132 Track and Field, Racquet Sports

230 Recreational Activities, Golf

231 Field Sports, Volleyball

232 Wrestling, Archery

330 Soccer, Bowling

331 Tumbling, Weight Training

332 Tennis, Individualized Fitness

Dance 130 Fundamentals of Dance 1(0,3)

Graduate Courses

560-660 Methods & Materials for Elementary Physical Education 2(2,0)

730 Physical Education Teacher Education 2(2,0) F

750 Applied Exercise Physiology 3(3,0) F

770 Advanced Administration of Interscholastic Athletics 2(2,0) Su

771 Current Trends in Athletics 3(3,0) Su

772 Seminar: Financial Aspects of Sports Management 2(2,0) F

Physical Therapy (PT)

Undergraduate Courses

102 Community Health 2(2,0) FS
See HSce 102

140 Health, Physical Education and Recreation
Recreation (Recr)
Undergraduate Courses

230 Professional Skills 1(0,2) F
See Professional Skills for Majors

241 Intro to Public Recreation 2(2,0) F
Emphasis on the values of leisure experiences which the participant chooses voluntarily with the expectation of positive, enjoyable satisfactions from that participation. Incorporates the impact of values on the individual and society.

330 Therapeutic Recreation 3(1,2) F (every other year)
Theoretical and philosophical foundations of therapeutic recreation, behavioral, therapeutic use of activity; recreational interaction-intervention techniques; survey of major services and agencies. P, 241.

342 Intramural & Recreational Sports Administration 2(2,0) P
Organization and administration of intramural and recreational sports activities, emphasis on planning, schedule structuring and promotion. P, sophomore standing.

351 Recreation Facilities 2(2,0)S (every other year)
An introduction to the principles and practices of planning, financing, management and maintenance of recreation facilities. P, junior or senior standing.

360 Recreation Leadership 2(2,0) S
Philosophy and interpretation of leadership as it relates to recreation in a democratic society.

370 Camp Administration Counseling 3(2,2) F
Administration of recreationals camps and counseling of camp participants. Emphasis on planning, scheduling, and leadership. P, junior or senior standing, 241.

440 Administration of Leisure Services 3(3,0) S
Organization and administration of community recreation, program planning and recreational program areas. P, junior or senior standing, 241.

482 Senior Seminar 2(2,0) S
Individual reports and group discussions on recent research and management developments in recreation; employment opportunities and procedures for employment. Taken before the internship.

485 Undergraduate Course Specials 1-5
See HPER 485

491 Directed Studies 1-9 FSSu
Designed to help students learn about individual crafts and the organization and administration of craft centers. P, consent of the Coordinator of Public Recreation.

492 Problems in Recreation 1-3 FSSu
Practicum in a supervised recreational experience with a strong emphasis on leadership and supervisory responsibilities. Required of Public Recreation majors before the internship. P, consent of the Coordinator of Public Recreation.

494-495-496 Cooperative Education/Internship/Field Experience (Topical) 1-12 FSSu
Planned and supervised professional experience related to recreation administration which takes place outside the formal classroom with public agencies, governmental units or private business. P, consent of the Coordinator of Public Recreation and 2.4 GPA.

Graduate Course

740 Recreation and Leisure in American Society 2(2,0) S

Health Science (HSc)
College of Nursing

A Health Science minor is available for students who wish to gain knowledge in the areas of health, health care programs, health education, epidemiology, and occupational health. The student must complete 17 hours including 6 credits of HDCF courses, chosen from HDCF 211, 313, or 342; 12 credits of Hlth or HSc courses chosen from HSc 102, 212, 440, 443, 463, 533, Hlth 360 or 460; and 9 credit hours of biological science. All minors must consult the department head of Undergraduate Nursing for approval.

Undergraduate Courses

102 Community Health 2(2,0)
Discussion based course with the goal of understanding the philosophy and principles of community health. Emphasis on knowledge, attitudes and behaviors utilized in solving community health problems. Open to all students.

212 Contemporary Health Problems 2(2,0)
Personal health education course which focuses on the health problems facing today's society from birth to death. Emphasis on the knowledge essential in maintaining a healthy lifestyle. Open to all students.

252 Disaster Preparedness 2(2,0) (On sufficient demand)
Basic philosophy, fundamental principles of civil defense; citizen's role in emergency planning for non-military national defense. Open to all students.

261 Instructor's Course in Home Nursing 1 (On sufficient demand)
Workshop of 36 hours in effective methods of teaching home care of the sick. Limited to 14 students. P, consent.

302 Wellness and the Family 2(2,0) (On sufficient demand)
Planning for promotion of family health. Open to all students.

440 Epidemiology 3(3,0) (On sufficient demand)
Basic principles applicable to infectious and non-infectious disease. The epidemiologic methods for understanding the patterns of disease and health. P, junior or senior standing or consent of instructor.

442 Seminar (1-4)
Current research and studies emphasizing Public Health terminology, study of reports, and problems. Consent of instructor.

443 Public Health Science 3(3,0) FS
Study of organization and administration of public and voluntary health agencies. Principle functions and program development in vital statistics, maternal-child health, adult health, sanitation, health education, and special health programs. Junior or senior standing or consent of instructor.

452 Workshop 1-4

463 Methods & Materials in Health Instruction 3(2,3)

494-495-496 Cooperative Education/Internship/Field Experience 1-12
Planned and supervised professional experience related to health science which takes place outside the formal classroom with private business, industry, or public agencies. P, consent of department head.

Graduate Course

533-633 Industrial Hygiene 3(3,0)
Industrial hygiene deals with the scope, objectives, and functions of occupational health programs, examines work related diseases, harmful exposure to chemicals and physical agents which may cause discomfort, stress, inefficiency or disease; emphasis on preventive measures to assure a reasonably healthful work environment.
History (Hist)

College of Arts and Science
Professor Bell, Head; Professors Crain, Function, Miller, Sweeney; Professor Emerita Volstorff.

History courses, in addition to their inherent cultural-intellectual value, are designed to prepare majors for careers in teaching, government service, and other occupations, and to give a necessary background for graduate work or professional training. The Department's offerings also support the general education needs of the university community.

Majors may choose either the bachelor of arts or the bachelor of science program. In addition to departmental requirements, students must complete all University and College of Arts and Science core requirements appropriate to their degree. Those who intend to teach in the secondary schools must enroll in the teacher preparation program (for details contact the College of Education and Counseling).

MAJOR REQUIREMENTS: Hist 121, 122, 151, 152, and 21 upper division credits to include Hist 380. Total: 33 credit hours.

MINOR REQUIREMENTS: Three of the following four courses - Hist 121, 122, 151, 152; and nine additional credits of which six must be in upper division courses. Total: 18 credit hours.

Please note the following stipulations: (1) no more than six credits in special problems (Hist 492) and cooperative education (Hist 494, 495, 496) may be counted toward the fulfillment of the major and minor requirements; (2) no grade below a "C" in history courses will be accepted in the major or minor.

Undergraduate Courses

121 History of Western Civilization to 1650 3(3,0) FS
Introduction to the major developments, events, and personalities in western civilization from prehistoric times through the Thirty Years War (1648).

122 History of Western Civilization since 1650 3(3,0) FS
Survey of western civilization from the Thirty Years War to the present.

151 U.S. History to 1877 3(3,0) FS
Consideration of main themes, events and personalities in American history from beginning to 1877, using political, social and economic perspectives.

152 U.S. History since 1877 3(3,0) FS
Consideration of main themes, events and personalities in American history from 1877 to present, using political, social and economic perspectives.

310 Topics in Latin American History 3(3,0)
A semester-long examination of a special topic in Latin American history. Topics include but are not limited to: Mexico; 20th Century Latin American Social Revolutions; Latin American Indian Civilizations; and U.S.-Latin American Relations.

311 History of the Far East 3(3,0)
Emphasis on penetration of European powers in the area during the 18th-19th centuries, and roles of Far Eastern nations in world politics in 20th century.

313 The Near East 3(3,0)
Social, economic, cultural and political institutions of the Arab and Moslem world, with stress on relations of Near Eastern nations with the colonial powers of the West. The period covered is primarily the 18th, 19th and 20th centuries.

322 Ancient History 3(3,0)
Greece and Rome. Emphasis on Greek culture and Athenian democracy, the rise and failure of the Roman Republic, the development of the Roman Empire through the reign of Augustus.

325 Medieval Europe 3(3,0)
Western Europe from 300-1400 A.D. Primary consideration given to the church, feudalism, revival of cities, commercial revolution, rise of universities, early development of nation states.

326 Renaissance & Reformation 3(3,0)
Political, social, economic, cultural, and religious changes in Europe from 1300 to 1560.

327 Early Modern Europe 3(3,0)
Europe from the Treaty of Westphalia to the Congress of Vienna. The Age of Louis XIV, the Age of Reason, and the French Revolution. Social, economic, cultural and political forces of the 17th and 18th centuries that helped shape the modern world.

330 Topics in European History 3(3,0)
A semester-long examination of a special topic in Western and European history. Topics include, but are not limited to: Scandinavia; Soviet Russia; Nazi Germany; Spain and Portugal; Ireland; Christianity and the Roman Empire; Republics in Western Civilization.

341 English History 3(3,0)
British history from the Roman occupation to 1668.

342 English History 3(3,0)
A study of the political and cultural history of the British Isles and the Empire from 1668 to the present.

345 History of Russia 3(3,0)
From the earliest times to present, with emphasis on background and history of Communist regime. Treats cultural and social as well as political aspects.

350 Colonial History of the U.S. 3(3,0)
Establishment of the British colonial empire in North America, settlement of the 13 colonies and the growth of the British American colonies to the end of the French and Indian Wars.

352 Revolutionary & Early National Period in U.S. History, 1783-1800 3(3,0)
Causes of the American Revolution, War for Independence, Articles of Confederation, Constitutional Convention of 1787, establishment of the Federal Union and early years of the Republic.

354 The Age of Jefferson and Jackson, 1800-1840 3(3,0)
Jefferson's administration, War of 1812, Jackson's administration.

355 Civil War & Reconstruction, 1840-1877 3(3,0)
Development of antebellum South; social, political, and economic factors leading up to outbreak of the Civil War; Reconstruction period and problems of the post war South.

356 The New Nationalism, 1877-1920 3(3,0)
Examination of political, economic, social, and cultural developments in the U.S. from 1877-1920. Emphasis on urban and industrial growth, reform movements, imperialism, war.

357 America Between The Wars, 1918-1941 3(3,0)
Major political, social, economic, and cultural developments in the U.S. during the crucial decades of the 1920s, 1930s.

358 The U.S. Since 1941 3(3,0)
Social, economic, and political change. The consequences, domestic and foreign, of global power and rising affluence.

360 Topics in American History 3(3,0)
A semester-long examination of a special topic in American history. Topics include, but are not limited to: Immigration; The Family; Urban America; Future Foreign Policy; America in the 1920s; Depression and New Deal.

362 History of the American West 3(3,0)
From exploration and colonization of the North American continent through closing of the frontier. Includes routes of migration, cattle frontier, mining frontier, Indians, pioneer farmers, mechanized farming, urban frontier, and the effect of the frontier on the American character.

365 American Military History 3(3,0)
A study of the military art as practiced by the United States. The relationship between the armed forces and other government agencies will also be examined from the colonial period to the present.

368 History of the American Indians 3(3,0)
American Indian history. Emphasis on the origins and early distribution of North American Indian cultures, the history of Indian-white contacts, the impact of federal Indian policy, persistence and change in American Indian cultures. (Satisfies the Teacher Preparation Program requirement of 3 credits of American Indian Studies.)

373 History of Rural America 3(3,0)
Development of American agriculture and rural life. Emphasis on the midwest experience. Topics include: government and railroad land policies; agricultural frontier and early settlement patterns; frontier crops; challenge of the prairie; impact of technical innovation, rural cooperatives, government agricultural policies and foreign markets; changing patterns of rural culture, politics and landscapes.
History 143

Graduate Courses
376 History of S.D. 3(3,0)
The land, people, and institutions of the state.

377 Economic History of the U.S. 3(3,0) F
Emphasis on economic factors but also correlated political and social developments, colonial period to present.

380 Methods & Philosophy of History 3(3,0) S
How historians research and write history. Also an account of attempts to explain larger meaning and directions of history. P, junior standing, required of majors.

417 History of Latin America 3(3,0)
Native Indian populations of Latin America, colonization of the area by European powers, and general history of Latin America up to and including the wars of independence.

418 History of Latin America 3(3,0)
A study of the national development of Mexico, Argentina, Chile, Brazil and Cuba in the 19th and 20th centuries.

421-422 Contemporary European History 3(3,0)
421 deals with Europe from 1919 to 1945, and 422 with Europe from 1945 to the present. Topics will include: the failure of the League of Nations, the rise of Fascism and Nazism, Communism, WW II, the Cold War, the UN, NATO, the Common Market, and political, economic, and cultural developments on the continent.

447 Modern Germany 3(3,0)
Examination of German history in the 19th and 20th centuries. Emphasis on the formation of the German nation, Bismarck, development of the German empire, WW I, rise of Hitler, Nazi Germany and WW II.

467 American Diplomatic History 3(3,0)
Interpretive analysis of American diplomatic history from 1492-1898.

476 Historical Geography 3(3,0)
See Geog 476. May be used to satisfy history major with approval of department head.

491 Directed Studies in Selective Topics 1-9 FSSu
If you are interested in studying a certain topic or acquiring a particular skill in which a faculty member is competent but which is not covered by regular courses at SDSU, you may undertake a program of directed study. The work will be planned and implemented by you and the instructor, with department head approval.

492 Special Problems in History 1-2-3-(41-2-3-4) FSSu
Opportunity for qualified students to investigate special problems or carry out independent study under supervision of department staff. P, Soph, Jr or Sr standing and consent.

493 Undergraduate Course Specials: (Topics) 1-5 FSSu
See Arts and Science section.

494-495-496 Cooperative Education/Internship/Field Experience (Topical) 1-12 FSSu
Planned and supervised professional experience related to history which takes place outside the formal classroom with private business or industry, or public agencies.

Honors Program (HON)
Allen Branum and Nela Granholm, Co-Directors; Jeffrey Gellner, Agriculture and Biological Sciences; Margaret Duggan, Arts and Science; Mike Johnson, Education; Dan Kemp, Engineering; Delores Kluckman, Home Economics; Linda Kropenske, Nursing, Michael Smar, Pharmacy.

Purpose
1. To promote excellence in scholarship.
2. To promote intellectual self-reliance, self motivation, initiative, and creativity.
3. To develop the unique personal potential of highly capable individual students.
4. To enable students to develop in-depth understanding of the human experience through interdisciplinary study and independent investigation.

Participation in the Honors Program is to be included within a student's regular program of study in a chosen major. It is a set of courses and independent study which will provide students with the opportunity to develop unique personal potential for excellence. Students who complete the Honors Program will graduate with special Honors Program distinction, and the student's transcript will also indicate completion of the Honors Program.

Program Requirements
The following are the requirements for graduation with the Honors Program Distinction.

1. A minimum of 25 credits obtained as follows:
   - Lower Division Courses
   - Honors Core — 10 credits of Departmental Honors Courses as follows: History of Western Civilization to 1650 (Hist 121, 3 cr.); History of Western Civilization since 1650 (Hist 122, 3 cr.); Introduction to Philosophy (Phil 205, 4 cr.).
   - Honors Electives — 9 credits of Departmental Honors Courses beyond the core requirement given above. Departmental honors course electives are announced each semester.
   - Upper Division Courses
   - Honors Colloquium — 3 credits: May be elected from Hon 301, 302, 303, or 304.
   - Honors Independent Study — 3 credits: Hon 492 may be taken for as many as 6 credits.

2. Attainment of a cumulative GPA of 3.25 or higher as of the beginning of the semester of graduation.

Honors Courses
Courses in the Honors Program are divided into three categories as follows:

1. Departmental Honors Courses
   Departmental Honors Courses are departmental courses or special sections of departmental courses that have received approval for the Honors Course designation. Enrollment is limited to qualified students (see enrollment requirements).

2. Honors Colloquia
   The Honors Colloquia are semester-long interdisciplinary seminars with reading lists, lectures, discussions, examinations, and/or papers. The colloquia may be used to satisfy core requirement electives for the bachelor's degree and may be taken in any sequence. Each
ENROLLMENT REQUIREMENTS FOR HONORS COURSES
Qualified students may enroll in Honors Courses (Departmental Honors Courses or Honors Colloquia) without making formal application to the Honors Program Committee. In order to qualify for enrollment in an Honors Course a student must have a cumulative GPA of 3.0 or higher. Students entering as freshmen, must rank in the upper 10% of their graduating class or have a score on the composite ACT or combined SAT at the 90th percentile.

APPLICATION FOR GRADUATING WITH HONORS PROGRAM DISTINCTION
Students wishing to graduate with Honors Program distinction must submit an application to the Honors Program Committee before the student registers for the independent study. The application must outline the student's plan for fulfilling all Honors Program requirements and must include a description of the student's proposed Honors independent study. The application should be approved by the Honors Program Committee before the student registers for the independent study.

Honors Colloquia
301 Honors Colloquium 1-4(1-4,0) FS
History of ideas. May be repeated once.

302 Honors Colloquium 1-4(1-4,0) FS
The Arts. May be repeated once.

303 Honors Colloquium 1-4(1-4,0) FS
The Social Sciences. May be repeated once.

304 Honors Colloquium 1-4(1-4,0) FS
History and/or Philosophy of Science. May be repeated once.

Independent Study
492 Honors Independent Study 1-6 FSSu
Creative work in student's area of interest subject to approval by the Honors Program Committee.

Horticulture, Forestry, Landscape and Parks (Ho, La, PR)
College of Agriculture and Biological Sciences
Professor Johnson, Head; Professor Prashar; Professors Emeriti Collins, Johnson, Martin, Peterson; Associate Professor Schaefer; Assistant Professors Ball, Graper, Fennell, Maia, Spinks, Stubbles; Instructors Evers, Healy; Research Associate Enevoldsen

The department offers instruction leading to the Bachelor of Science degree with majors in Horticulture, Landscape Design, and Park Management. Courses are offered in Horticulture (Ho), Landscape Design (La), and Park Management (PR).

Horticulture (Ho)
The program for students majoring in horticulture is designed for those who plan to work in nurseries; flowers, vegetables or fruit production; processing; plant inspection; sales; plant breeding; garden center operations and various other related fields. Curriculum variations are in business and science options. Extensive research plots in woody ornamentals, vegetables, fruit and herbaceous ornamentals and greenhouse facilities provide valuable teaching aids.

Curriculum in Agriculture, Horticulture Major
Leading to the Bachelor of Science Degree

Freshman Year***
Fr Comp, Engl 101 ........................................ 3 or 3
Fitness & Lifetime Activities, PE 100.................. 1 or 1
Fund of Speech, SpCm 101 .............................. 3 or 3
Gen Chem, Chem 110 or 112-114 ...................... 4 or 4
Intro Biology, Bio 151 .................................... 3 or 3
Botany: Structure and Function, Bot 200 ........ 3 or 3
Gen Horticulture, Ho 111 .................................. 3 or 3
Gen Psychology, Psy 101 ................................. 3 or 3
Algebra, Math 112 ............................................ 3
Soils, PS 113 .................................................... 3 or 3
Work Experience, Ho 494*** (Summer) ........ 3 or 3

Sophomore Year***
Prin of Accounting I, Actg 210 .......................... 3 or 3
Plant Pathology, PS 223 ................................... 3 or 3
Macroeconomics Principles, Econ 201 ............. 3 or 3
Floral Design, Ho 213 ...................................... 3 or 3
Soils, PS 113 .................................................... 3 or 3
Horticultural Insects, PS 295 ............................ 3 or 3
Introductory Physics, Phys 101 ........................ 4 or 4
Intro to Sociology, Soc 100 .................... 3 or 3
Work Experience, Ho 494*** (Summer) ........ 3 or 3
Electives* ......................................................... 2
Programming in BASIC, CSc 110, .................... 2
Microcomputer Literacy, CSc 112, or ................ 3
PASCAL Programming, CSc 114 ....................... 2 or 3

Junior & Senior Years***
Vegetable Growing, Ho 316 ................................ 3 or 3
Woody Plants, Ho 313 .................................... 4 or 4
Turf Management, Ho 314 ................................ 3 or 3
Landscape Design I, La 321 ............................ 3 or 3
Seminar, Ho 470 ............................................. 1 or 1
Advanced Comp, Engl 300 ............................. 3 or 3
Genetics, Bio 371 ............................................ 3 or 3
Arboriculture, Ho 413 ...................................... 3 or 3
Technical Communications, Engl 303 ................ 3 or 3
Plant Propagation, Ho 312 ............................... 3 or 3
Herbaceous Plants, Ho 311 .............................. 3 or 3
Greenhouse Management, Ho 412 .................. 3 or 3
Nursery Management, Ho 415 ........................ 3 or 3
Fruit Production, Ho 411 .................................. 3 or 3
Plant Physiology, Bot 427 ............................... 4 or 4
Diseases of Horticultural Crops, PS 333 ......... 3 or 3
Humanities Electives ....................................... 3 or 3
Work Experience, Ho 494*** (Summer) ........ 3 or 3
Special Electives* ............................................ 2
Electives* ......................................................... 5 or 5

Elective courses are selected by the student in consultation with the Honors Program Committee and may include courses in Horticulture, Landscape Design, and Park Management. All courses must be approved by the Honors Program Committee.

Transfer students from other colleges must take at least 15 horticulture credits approved by the horticulture faculty at
**Horticulture Major Suggested Elective Courses:**

Hort 511, Plant Breeding; La 324, Planning Public Grounds; PR 101, Parks & Society; Bot 201, Plant Kingdom; Bot 261, Plant Taxonomy; Bot 415, Plant Ecology; Bot 421, Plant Anatomy; PS 233, Weed Science; PS 343, Soil Fertility & Fertilizers; MA 213, Farm Power & Machinery; MA 333, Soil & Water Mechanics; MA 433, Small Power Equipment; Stat 341, Statistical Methods I; Econ 202, Microeconomics Principles; BAdm 360, Organization Theory & Management Concepts.

Horticulture Science Option

- Students interested in graduate study will follow the Horticulture major curriculum with the following exceptions:
  - Delete: Chem 110; Actg 210.
  - Add: Chem 112, 114, 361; Stat 341; and either Math 112 and 120, or Math 113, or Math 222.

Horticulture Business Option

- Students will follow the Horticulture major curriculum with the following exceptions:
  - Delete: Bot 427, 10 cr. Special Electives or electives.
  - Add: BAdm 360, Econ 202, and elect 12 credits from the following: Actg 211; BAdm 310, 350, 351; Stat 341; Econ 330, 353, 452.

Undergraduate Courses

111 General Horticulture 3(2,2) FS

- Culture and growth processes involved in production of fruit, vegetables, flowers, lawn grasses, trees and shrubs; planning and care of home grounds.

213 Floral Design 3(1,4) F (even years)

- Arrangement, care, and handling of fresh and dried flowers. Consent of instructor.

311 Herbaceous Plants 3(2,2) P (odd years)

- Identification, description, landscape uses, environmental requirements and adaptability of selected non-woody ornamental plants with emphasis on annuals, perennials and tropical plants. P, 111 or consent.

312 Plant Propagation 3(2,2) S (even years)

- Fundamental anatomical and physiological principles and methods of reproducing herbaceous and woody plants by seeds, cuttings, grafts, layers and division. P, 111 or consent.

313 Woody Plants 4(2,4) F

- Nomenclature, identification and classification of hardy coniferous and deciduous trees and shrubs, vines and groundcovers. Landscape use as affected by inherent ornamental qualities, hardiness, environmental factors, and pests. P, 111, Bio 151, PS 113.

314 Turf Management 3(2,2) S

- Maintenance and culture of turfgrass for lawns, parks, golf courses, athletic fields and special purpose turf. P, PS 113.

316 Vegetable Growing 3(2,2) P (odd years)

- Methods used by home gardeners and commercial growers in vegetable production. P, 111 or PS 103.

411 Fruit Production 3(2,2) S (odd years)


412 Greenhouse Management 3(2,2) S (odd years)

- Greenhouse construction, environmental control, production and scheduling of major greenhouse crops. Trips to commercial greenhouse operations and laboratory work in greenhouse crop production. P, 311, 312, and PS 113.

413 Arboriculture 3(2,2) S

- Shade and ornamental tree planting and care combined with dendrological practices. P, 313, Bot 200.

415 Nursery Management 3(3,0) F

- Topics covered will include site selection, equipment, seeding production, soils, water, cultural practices, pest management, mycorrhizae, harvesting, quality control, sales, record keeping, and regulations.

470 Seminar 1(1,0) F

- Required of all major students; limited to two credits.

492 Problems 1-2 FS

- Special investigation in horticulture area. Maximum four hours credit. P, consent, research problem 2.7 G.P.A.

493 Special Topics 1-4 FS

- 494-495-496 Cooperative Education/Internship/Field Experience 1-12 FS Su

  a) Work experience in horticulture. Two credits per semester or equivalent time unit. Consent.

  b) Practical experience for selected Horticulture students. The project, program and grading criteria require approval by the department faculty. F, junior standing and must have completed 2 years of the Horticulture curriculum. Consent. Generally 3 cr. maximum.

511-611 & PS 543-643 Plant Breeding 3(3,0) S

See Plant Science 543-643 for course description.

### Landscape Design (La)

**Landscape Design is the art of design, planning, and management of the land. Cultural and scientific knowledge are applied to the arrangement of natural and manmade elements with concern for resource conservation, stewardship and the environment. Graduates become involved in the landscape industry, urban and regional planning, environmental issues, and design of public and private facilities.**

### Curriculum in Agriculture, Landscape Design Major

**Leading to the Bachelor of Science Degree**

**Freshman Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr Comp, Engl 101</td>
<td>Freshman Composition</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>Fitness &amp; Lifetime Activities</td>
<td>1</td>
</tr>
<tr>
<td>Algebra &amp; Trigonometry, Math 112 &amp; 120, or 113</td>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Intro Biology, Bio 151</td>
<td>Introduction to Biology</td>
<td>3</td>
</tr>
<tr>
<td>Gen Hort, Ho 111</td>
<td>General Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>Area III Social Science Elective</td>
<td>Social Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>Gen Chem, Chem 110</td>
<td>General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Intro to Sociology, Soc 100</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td>Fund of Speech</td>
<td>3</td>
</tr>
<tr>
<td>Soils, PS 113</td>
<td>Soils</td>
<td>3</td>
</tr>
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</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro Physics, Phys 101</td>
<td>Introductory Physics</td>
<td>4</td>
</tr>
<tr>
<td>Elementary Surveying, CE 106</td>
<td>Elementary Surveying</td>
<td>3</td>
</tr>
<tr>
<td>Woody Plants, Ho 313</td>
<td>Woody Plants</td>
<td>3</td>
</tr>
<tr>
<td>Engineering Surveys, CE 208</td>
<td>Engineering Surveys</td>
<td>3</td>
</tr>
<tr>
<td>Intro to Landscape Architecture, LA 290</td>
<td>Introduction to Landscape Architecture</td>
<td>3</td>
</tr>
<tr>
<td>Drawing I, ArtS 112</td>
<td>Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>Architectural Design Drafting, EG 223</td>
<td>Architectural Design Drafting</td>
<td>3</td>
</tr>
<tr>
<td>Art Elective**</td>
<td>Art Elective</td>
<td>3</td>
</tr>
<tr>
<td>Macroeconomics Principles, Econ 201</td>
<td>Macroeconomics Principles</td>
<td>3</td>
</tr>
<tr>
<td>Biology Science Sequence</td>
<td>Biology Sequence</td>
<td>3</td>
</tr>
<tr>
<td>Technical Electives</td>
<td>Technical Electives</td>
<td>2</td>
</tr>
</tbody>
</table>

**Upper Division**

- Students entering the Upper Division must possess and maintain a 2.0 or higher GPA. In the event that a deficiency occurred during the semester immediately preceding entrance into Upper Division the deficiency must be removed in one semester. No grade below a C in an La course will be accepted toward a major in Landscape Design.
**Undergraduate Courses**

### Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Comp, Engl 300</td>
<td>F, S</td>
</tr>
<tr>
<td>Communication Elective</td>
<td></td>
</tr>
<tr>
<td>Art Elective**</td>
<td></td>
</tr>
<tr>
<td>Landscape Design I, La 321</td>
<td></td>
</tr>
<tr>
<td>Site Planning, La 322</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td></td>
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<tr>
<td>Turf Management, Ho 314</td>
<td></td>
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<tr>
<td>Landscape Construction, La 323</td>
<td></td>
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<tr>
<td>Heraceous Plants, Ho 311</td>
<td></td>
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<tr>
<td>History of Landscape Arch., La 320</td>
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</tbody>
</table>

### Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar, Ho 470</td>
<td>F, S</td>
</tr>
<tr>
<td>Planning Public Grounds, La 324</td>
<td></td>
</tr>
<tr>
<td>Area I Humanities Electives***</td>
<td></td>
</tr>
<tr>
<td>Landscape Design II, La 422</td>
<td></td>
</tr>
<tr>
<td>City Planning, La 421</td>
<td></td>
</tr>
<tr>
<td>Problems, La 492**</td>
<td></td>
</tr>
<tr>
<td>Group I Electives in Ag.</td>
<td></td>
</tr>
<tr>
<td>Technical Electives*</td>
<td></td>
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</tbody>
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### Park Management (PR)

The curriculum in Park Management is designed to prepare students for professional positions in parks and outdoor recreation. Employment opportunities exist with federal, state, county and municipal parks and recreation agencies and with private recreation and tourism enterprises. A 2.0 GPA or better is required to transfer into the curriculum and to graduate in park management.

### Curriculum in Agriculture, Park Management Major

Leading to the Bachelor of Science Degree

#### Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr Comp, Engl 101</td>
<td>F, S</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
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</tr>
<tr>
<td>Gen Hort, Ho 111</td>
<td></td>
</tr>
<tr>
<td>Gen Chem, Chem 110</td>
<td></td>
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<tr>
<td>Intro Biology, Bio 151</td>
<td></td>
</tr>
<tr>
<td>Algebra, Math 112</td>
<td></td>
</tr>
<tr>
<td>Parks and Society, PR 101</td>
<td></td>
</tr>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td></td>
</tr>
<tr>
<td>Intro to Sociology, Soc 100</td>
<td></td>
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<tr>
<td>Gen Psychology, Psych 101</td>
<td></td>
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<tr>
<td>Soils, PS 113</td>
<td></td>
</tr>
<tr>
<td>Humanities Elective</td>
<td></td>
</tr>
<tr>
<td>Work Experience, PR 496† (Summer)</td>
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</tbody>
</table>

#### Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
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<tbody>
<tr>
<td>Macroeconomics Principles, Econ 201</td>
<td></td>
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<tr>
<td>Hort Insects, PS 295 or Plant Pathology, PS 223</td>
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<tr>
<td>Intro to Physics, Phys 101</td>
<td></td>
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<tr>
<td>Humanities Elective</td>
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<tr>
<td>Geology, PS 243</td>
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<tr>
<td>Outdoor Rec Resource Mgmt, 20 2</td>
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<tr>
<td>State &amp; Local Gov't, PolS 210 or Am. Gov't, PolS 100</td>
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<tr>
<td>Computer Science Elective, CSc 110, 112 or CSc 203</td>
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<tr>
<td>Envir Conser, WL 210 or Prin of Ecology, Bio 211</td>
<td></td>
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<tr>
<td>Work Experience, PR 496†</td>
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<tr>
<td>Animal Kingdom, Zool 203</td>
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#### Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
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<tbody>
<tr>
<td>Advanced Comp, Engl 300</td>
<td>F, S</td>
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<tr>
<td>Soil &amp; Water Mechanics, MA 333</td>
<td></td>
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<tr>
<td>Woody Plants, Ho 313</td>
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<tr>
<td>Hort Elective, Ho 311 or Ho 413</td>
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<tr>
<td>Landscape Design I, La 321</td>
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<tr>
<td>Park Interpretation, PR 301</td>
<td></td>
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<tr>
<td>Public Speaking, SpCm 315</td>
<td></td>
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<tr>
<td>Economics/Bus Adm Electives*</td>
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<tr>
<td>Commercial Recreation Areas, PR 302</td>
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<tr>
<td>Work Experience/Internship, PR 496†</td>
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<tr>
<td>Forest Ecology and Management, PR 303</td>
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<tr>
<td>Electives†</td>
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#### Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
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<tbody>
<tr>
<td>PolS Adm Elective, PolS 320, 408 or 428</td>
<td>F, S</td>
</tr>
<tr>
<td>Technical Communications, Engl 303</td>
<td></td>
</tr>
<tr>
<td>Park Operations and Facilities Mgmt, PR 300</td>
<td></td>
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<tr>
<td>Land-use Planning Electives**</td>
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<tr>
<td>Seminar, Ho 470</td>
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<tr>
<td>Advanced Park Management, PR 401</td>
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<tr>
<td>Turf Management, Ho 211</td>
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<tr>
<td>Community Recreation, Recr 440</td>
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<tr>
<td>Economics/Bus Adm. Electives*</td>
<td></td>
</tr>
<tr>
<td>Electives‡</td>
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</tbody>
</table>

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**Technical electives will be selected with the assistance of the student's advisor from the list of approved electives on file in the HLPD Department office. Any courses on this list must be approved by the Head of the HLPD Department.**

**Art electives will be selected with the assistance of the student's advisor from the following list: ArtD 121*, 251; ArtH 311*, 310*, 350; ArtH 111, 122*, 123*, 253*, * - Area I requirement.**

**Problems, La 492: A maximum of 5 credits may be taken to allow students to develop greater depth in a specialization or to reinforce required courses. Up to 3 credits may be taken as technical electives in addition to the 2 required credits.**

**If ArtH 211 or ArtH 310 are taken as an Art elective this course may be used as an open elective.**

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146 Horticulture, Forestry, Landscape and Parks
Suggested Electives for Park Management Curriculum:

- Geographic Aspects of Regional Planning, Geog 464; Recreation Leaders, Recr 360; Camp Administration & Camp Counseling, Recr 370; Plant Propagation, Ho 312; Introduction to Research Methods, Soc 310; Rural Sociology, Soc 240; Discussion, SpCm 334; Intro. to Wildlife and Fish. Mgmt., WL 220; Intro. to Ethics, Phil 225; Publicity Methods, MCom 313; Basic Photography, MCom 151; History American West, Hist 265; Standard First Aid, Hlth 260; Water Safety Instr, Pr 321; Theatre Act, Thea 135; Creative Writing, Engl 383; Principles of Range Sci, Rang 300.

Undergraduate Courses

101 Parks and Society 3(3,0)F
Introduction to park and recreation resource management including fundamentals governing public park and recreation agencies. Includes administrative organization, history, types and benefits of parks.

202 Outdoor Recreation Resource Management 3(2,2)S (alternate years)
Development and management of outdoor recreation areas and resources including planning, administration, and management practices as they relate to parks, forests, land and water resources, wildlands, and private areas. Analysis of participation trends, opportunities, and resource supply. P, 201 or consent.

300 Park Operations and Facility Management 3(2,3)F (alternate years)
Principles and practices of park operations and facility management including planning, fiscal and personnel management, regulations, liability, visitor safety and control, and the maintenance and protection of natural resources, equipment, and related facilities. P, 201 and 202 or consent.

301 Park Interpretation 3(2,3)F (alternate years)
Principles and methods employed to promote resource awareness and communicate information about natural, cultural, and managerial features of parks and recreation areas to park visitors and resource users. The planning, development and use of interpretive techniques and media such as personal services, public relations, publications, audio-visual programs, exhibits, and environmental education activities. P, 201 and 202 or consent.

302 Commercial Recreation Areas 3(3,0)S (alternate years)
Factors represented by commercial recreation areas to include history, trends, supply, demand, relationships to tourism, management, development and technical assistance. P, 201 and 202 or consent.

303 Forest Ecology and Management 3F (alternate years)
The basics of environmental factors which control the growth of trees and forests and how forests in North America are managed.

401 Advanced Park Management 3(2,2)S (alternate years)
Current philosophies, advanced techniques, and synthesis of park management principles. P, 201, 202, 300 and 301 or consent.

492 Special Problems 1-2 FS
Directed independent study into specific problems or topics related to park and recreation resource management. Maximum of 4 credits. P, consent.
primarily interested in a program designed to lead to the M.S. and/or Ph.D. degrees. Courses in addition to the core curriculum will be decided in conference with the academic advisers.

Core Curriculum in Human Development, Child, and Family Studies

The core curriculum in HDCF consists of HDCF 141, 211, 271, 312, 313, 342, 361, 362, 364, 414, 472, 473 and 497; Psyc 101; Soc 100; the Home Economics core courses, and the University core courses. In addition, students take specific requirements for their option and area of study.

Academic Standards

Academic standards for admission to the professional courses (271, 361, 362, 472, 473) are: no grade lower than a C in 211, and a GPA of 2.0 in Psyc 101, General Psychology; Soc 100, Introduction to Sociology; Engl 101, Freshman Composition.

To be eligible for graduation with a Major in HDCF, a student must have a grade of C in all HDCF courses.

Admission to the Cooperative Elementary Education programs at BHSU and DSU requires a grade point average of 2.5. All requirements for the certification require a minimum grade of C. DSU requires a C grade in Engl 101, SpCm 101, and Math 112 with a cumulative 2.3 GPA in these required courses. BHSU requires a C grade in SpCm 101.

Courses Taken Concurrently

HDCF 361, 362, and 364 are to be taken concurrently during the junior year. HDCF 414, 465, 472, and 473 are to be taken concurrently during the senior year.

Early Childhood Option

This Option includes areas of study in Early Childhood Education and Cooperative Programs in Elementary Education.

Early Childhood Education Concentration

The Early Childhood Education Concentration is for students interested in early childhood education teaching and/or administration in settings such as nursery schools, day care programs, Head Start, and related programs.

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Development, HDCF 101</td>
<td>2</td>
</tr>
<tr>
<td>Fitness and Lifetime Activities, PE 100</td>
<td>2</td>
</tr>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Individual and the Family, HDCF 141</td>
<td>1</td>
</tr>
<tr>
<td>Fr Comp, Engl 101</td>
<td>3</td>
</tr>
<tr>
<td>Gen Psychology, Psyc 101</td>
<td>3</td>
</tr>
<tr>
<td>Algebra, Math 112 or higher</td>
<td>3</td>
</tr>
<tr>
<td>Intro to Sociology, Soc 100</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science Sequence</td>
<td>6-8</td>
</tr>
<tr>
<td>Human Development and Personality I: Childhood, HDCF 211</td>
<td>3</td>
</tr>
</tbody>
</table>

Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience in Human Relations, HDCF 271</td>
<td>3</td>
</tr>
<tr>
<td>Intro to Communication Disorders, DCom 131</td>
<td>3</td>
</tr>
<tr>
<td>First Aid/Emergency Medical Course</td>
<td>2</td>
</tr>
<tr>
<td>Dev. of Human Sexuality, HDCF 250</td>
<td>3</td>
</tr>
<tr>
<td>Professional Foundations, HE 201</td>
<td>2</td>
</tr>
<tr>
<td>Survey of Nutrition, NFS 221</td>
<td>3</td>
</tr>
<tr>
<td>Humanities electives</td>
<td>6</td>
</tr>
<tr>
<td>Natural Science electives</td>
<td>0-2</td>
</tr>
<tr>
<td>Other Requirements and/or Electives</td>
<td></td>
</tr>
</tbody>
</table>

Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Comp, Engl 300</td>
<td>3</td>
</tr>
<tr>
<td>Families and Their Ecological Systems, HE 301</td>
<td>3</td>
</tr>
</tbody>
</table>

Materials and Techniques in Creative Expression, HDCF 361 ........................................ 4
Planning and Methodology for Preschool Programs, HDCF 362 ........................................ 4
Human Dev. and Personality II: Adol., HDCF 312 ......................................................... 3
Human Dev. and Personality III: Mid and Later Years, HDCF 313 ....................................... 2
Parent Education, HDCF 364 .............................. ................................................ 3
Special Needs, HDCF 493 or Exceptional Child, EPsy 303 ................................................ 3
Dynamics of Family Development, HDCF 342 ......................................................... 3
Pre-Practicum, HDCF 497 ......................................................... 1
Other Requirements and/or Electives

Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practicum, HDCF 497</td>
<td>4-11</td>
</tr>
<tr>
<td>Intro. to Dev. Assessment, HDCF 465</td>
<td>2</td>
</tr>
<tr>
<td>Current Research and Theory, HDCF 414</td>
<td>3</td>
</tr>
<tr>
<td>Student Teaching in Preschool Programs I &amp; II, HDCF 472/473</td>
<td>8</td>
</tr>
<tr>
<td>Seminar: Administration and Supervision, HDCF 493</td>
<td>3</td>
</tr>
<tr>
<td>Professional Perspectives, HE 401</td>
<td>2</td>
</tr>
<tr>
<td>Other Requirements and Electives</td>
<td></td>
</tr>
</tbody>
</table>

The Cooperative Programs with DSU and BHSU do not require the following courses: Seminar: Special Needs, HDCF 493; Seminar: Administration and Supervision, HDCF 493; Practicum, HDCF 497; Intro to Speech Correction, DCom 131; Dev of Human Sexuality, HDCF 250; and Survey of Nutrition, HDCF 221.

Cooperative Programs in Elementary Education

This area of study requires the coursework listed above for the Early Childhood Education Concentration and additional coursework. Elementary Education Certification may be obtained by taking additional required courses at SDSU and at a cooperating institution (either Dakota State University or Black Hills State University). Students entering the cooperative program with either BHSU or DSU can take courses at SDSU that will meet certification requirements. In addition, students spend approximately 3 additional semesters on campus at DSU or BHSU. Those certification requirements that can be met at SDSU are listed below.

Cooperative Program at Black Hills State University

Courses recommended by BHSU:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>US History I or II, Hist 151 or 152</td>
<td>3</td>
</tr>
<tr>
<td>Movement Exp. with Children, PE 359, or</td>
<td></td>
</tr>
<tr>
<td>Elem Sch. PE, PE 360</td>
<td>2</td>
</tr>
<tr>
<td>Indians of North America, Anth 421 or History of the American Indians, Hist 368</td>
<td>2</td>
</tr>
<tr>
<td>Survey of Math, Math 140</td>
<td>3</td>
</tr>
<tr>
<td>Pract. and Prof. Lab, SeEd 287</td>
<td>2</td>
</tr>
<tr>
<td>Ed. Psyc, EpSy 302</td>
<td>2</td>
</tr>
<tr>
<td>Am Govt, PolS 100</td>
<td>2</td>
</tr>
<tr>
<td>Drawing I, Arts 112</td>
<td>3</td>
</tr>
<tr>
<td>Intro Biology, Bio 151 or 153</td>
<td>3</td>
</tr>
<tr>
<td>Intro American Ed., EdFn 339</td>
<td>2</td>
</tr>
<tr>
<td>The Exceptional Child, EpSy 303</td>
<td>3</td>
</tr>
<tr>
<td>Juvenile Literature, Engl 312</td>
<td>3</td>
</tr>
<tr>
<td>Intro. to Human Geography, GeoG 200 or World Regional Geography, GeoG 210</td>
<td>3</td>
</tr>
<tr>
<td>Music Education I, Mus 351</td>
<td>2</td>
</tr>
<tr>
<td>Advanced First Aid, Hlth 360</td>
<td>2</td>
</tr>
</tbody>
</table>

Current course requirements for the semesters to be spent at BHSU may be obtained from the HDCF Department office.

Cooperative Program at Dakota State University

Courses recommended by DSU:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro Amer Ed, EdFn 339</td>
<td>2</td>
</tr>
<tr>
<td>Ed Psyc, EpSy 302</td>
<td>2</td>
</tr>
</tbody>
</table>

148 Human Development, Child and Family Studies
The following are strongly recommended courses in areas of study to assist HDCF majors in preparing for possible careers.

**Family and Youth Organization Concentration**

**HPER Recreation Minor**

**Social Services Concentration**

Intro to Social Work, Soc 270........................................... 3
Social Policy, Soc 370....................................................... 3
Elective credits with adviser approval from Sociology and Psychology or a Minor in Sociology or Psychology.

**Children’s Services in Hospital Concentration**

Chem 100, 110 or 112....................................................... 4
Intro to Dev. Assessment, HDCF 467................................. 4
Survey of Human Nutrition, NFS 221 or Human Nutrition, NFS 321......................................................... 3
Intro to Comm. Disorders, DCom 131............................... 3
Anatomy, Zool 221............................................................ 3
Health Science/Nursing/PE related courses

**Religious Service Concentration**

Philosophy and Religion Courses or a minor..................... 10-12
To be decided upon in conference with HDCF and Religion department advisers.

**HPER-Recreation Courses**

10-12
The specific courses are to be agreed upon in conference with major adviser.

**Movement Experiences for Children, PE 359**.............. 3
**Elementary School PE, PE 360**.................................... 3

**Undergraduate Courses**

**101 Family Development 3(2,0) FS**
The family life cycle developmental sequences and tasks of individuals and the family. Each stage studied in sequence. Interaction of family with community.

**141 Individual and the Family 2(2,0) FS**
Human development, behavior and relationships as influenced by family interaction. Emphasis on social and emotional needs of individual and family. Open to students of all majors. Personal consultation service available.

**211 Human Development and Personality I: Childhood 3(3,0) FSSu**
Knowledge and understanding of human being through study of development beginning at conception continuing to adolescence. Consideration given to biological growth, social, emotional and intellectual development as it changes behavior and shapes the individual. Observation in Nursery School Laboratory.

**250 The Development of Human Sexuality 3(3,0) FSSu**
A basic course which explores the biological, behavioral, and cultural aspects of human sexuality. The course focuses on individual sexual development, inter-personal aspects of sexual behavior and social/cultural values and beliefs about sexuality and sex roles throughout the lifespan.

**271 Experience in Human Relations 3(1,6) FS By Reservation Only**
Opportunity to more fully understand children as well as oneself and other adults while observing and working with children in Nursery School Laboratory. P, 211 with grade of "C", GPA of 2.0 in Psyc 101, Soc 100, Engl 101.

**292 Special Problems 1-3 FSSu**
Individual study for quality students. P, consent of instructor.

**293 Current Topics 1-3**
Study of current issues and concerns in human development and family studies. Focus on topics not included in other courses in the department. P, consent of instructor.
3.2 Human Development and Personality II: Adolescence (3,0) F
Knowledge and understanding of adolescence within the developmental framework. Dimensions of physical growth, biological changes, social, intellectual and emotional development will be considered, as well as the impact of interaction of these forces on the individual. Emphasis is upon normal developmental patterns.

3.23 Human Development and Personality III: The Middle and Later Years (2,0) FS
Developmental approach to middle age and aging. Emphasis on the physical, biological, intellectual and emotional changes. Impact of change upon the personality, self-concept of the individual and their effects upon social behavior, productivity and personal relationships.

3.42 Dynamics of Family Development (3,0) FS
Principles of interaction in married and family life. Family systems, processes of communication styles, interaction patterns as they influence problem solving, decision making, and other issues relating to the marriage process and family functioning.

3.61 Materials and Techniques in Creative Expression (4,4) FS
Creativity in language, graphic arts, music, dance, physical and natural science, mathematics, social studies and social-economic growth aimed at appreciation, understanding and evaluation of creative production of children in relation to their developmental stages. P, 211, 271, concurrent with 362, 364.

3.62 Planning and Methodology for Preschool Programs (4,0) FS
Planning curriculum to meet the needs of young children and their families. Setting up developmental goals and objectives and designing experiences to accomplish them. Consideration of problems in the education of young children and of the implications of various theoretical orientations. P, 211, 271, concurrent with 361, 364.

3.63 Human Development: Cultural and Economic Influences (3,0)
Human development as influenced by the dynamics of family interaction under varied cultural and economic influences. Families of both rural and urban groups are included.

3.64 Parent Education (3,0)
Principles of parent education for professional role that will include work with parents. Opportunity for formulation and presentation of program for parents. P, 211, 342, concurrent with 361, 362.

4.01 Seminar 1-3 (on sufficient demand)
Discussion of current literature in areas of human development, early childhood education, marriage, and family relationships.

4.14 Current Research and Theory in Child Development (3,0)
Study of topics in human development and family research and theories. Strong emphasis on learning to read research studies intelligently. Paper on current research topic is required. P, 211 and Sr. standing, or instructor's consent, concurrent with 472, 473, 465.

4.43 Problems in Family Relations and Child Development (3,0)
Study of problems resulting from the predictable and unpredictable stresses families encounter. Consideration of the current findings on such topics as divorce and remarriage, family abuse, family health issues, exceptional children. Field experiences included. Open to students from all colleges.

4.65 Introduction to Developmental Assessment of Young Children (3,0)
Experiences to increase awareness of and knowledge about a variety of assessment procedures appropriate for use with children from birth through eight years of age. Advantages and limitations of assessment techniques noted; considerations used in the interpretation of findings and in making referrals discussed. Includes opportunities to work with assessing preschool aged children and in developing prescriptive activity plans. P, 211 and 271 or equivalent, concurrent with 414, 472, 473.

4.72 Student Teaching in Preschool Programs I 4(1,10) FS By Reservation Only
Planning and conducting various phases of early childhood programs. Student takes increasing responsibility, finally taking complete charge of the program. Weekly conferences. P grade of "C" in 211, 271, 361, 362, concurrent with 414, 465, 473.

4.73 Student Teaching in Preschool Programs II 4(1,10) FS By Reservation Only
Taken concurrently with 414, 465, 472.

4.92 Special Problems 1-3 FSSu
Individual study for qualified students. P, instructor's consent.

4.93 Current Topics 1-3
Study of current issues and concerns in human development and family studies. Focus on topics not included in other courses in the department. P, consent of instructor.

4.97 Practicum in Child and Family Services 5-12 FSSu By Reservation Only
Field experience with agencies delivering social services to children and families. P, instructor's consent.

Graduate Courses

5.92-692 Special Problems 1-3 FSSu
Individual study for quality students. P, consent of instructor.

5.93-693 Current Topics 1-3(1-3,0)
Study of current issues and concerns in human development, family theory, and research studies. Focus on topics not included in other graduate courses in the department. P, consent. Can be repeated.

7.02 Seminar 1-3(1-3,0) (On sufficient demand)

7.11 Child Development Theory and Application 3(3,0)S

7.14 Adult Development 3(3,0) F

7.42 Family Relations 3(3,0) F

7.44 Human Development: Gender Issues, Roles and Relationships 3(3,0) (On sufficient demand)

7.65 Parent Education: Theory and Issues 3(3,0)

7.76 Early Childhood Education, Administration and Practice 1-4 (On sufficient demand)

7.77 Child and Family Counseling 3(3,0) S

7.92 Special Problems 1-3

7.93 Current Topics 1-3

Humanities (Hum)

College of Arts and Science
Professor Duggan, Department of English, Coordinator.

Humanities courses enable students to examine various dimensions of the human condition by cutting across specialized academic disciplines. They emphasize understanding the diverse cultures, deep concerns, and important ideas of mankind. Courses are approved for humanities credit.

Undergraduate Courses

Engl. 248 Women's Literature 3
(Alternate semesters) A humanistic and critical examination of literature by women, about women, and of concern to women. Course material may range from early times to the present and may also include non-American literature and pertinent readings from many disciplines, such as history, political science, sociology, psychology, religion, philosophy, the arts, and the sciences. Accepted as credit toward Women's Studies minor and/or English major/minor. Accepted as humanities credit.

Engl. 250 Literature of Diverse Cultures 1-3(1-3,0)
(Alternate years) Humanistic and critical examination of the literature of the world's peoples. Course material may range from early times to the present and may also include literature from Asia, Africa, South America, and Australia as well as works from Native American, African-American, Hispanic, Chicano, Jewish, Scandinavian, etc., sources. Readings, discussions, audio-visual presentations and lectures by other faculty members or guests will be used to develop students' consciousness of ethnicity and cultural diversity. Accepted as credit toward English major/minor and as humanities credit.

Indian Area Studies Program

Dr. Donna Hess, Coordinator
An inter-college program of Native American culture studies. Purposes are 1) to combine courses taught on this campus
into an Indian Studies Program; 2) to encourage the enrollment of Native American students by providing a coordinated program in their cultures at this university; 3) to provide an opportunity for all university students to learn about the achievements of Native Americans.

Courses now approved for the minor are:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 320</td>
<td>Cultural Anthropology</td>
<td></td>
</tr>
<tr>
<td>Anth 410</td>
<td>North American Ethnology</td>
<td></td>
</tr>
<tr>
<td>Anth 421</td>
<td>Indians of North America</td>
<td></td>
</tr>
<tr>
<td>Engl 256</td>
<td>Literature of the American West</td>
<td></td>
</tr>
<tr>
<td>Engl 351</td>
<td>American Indian Literature of the Past</td>
<td></td>
</tr>
<tr>
<td>Engl 352</td>
<td>American Indian Literature of the Present</td>
<td></td>
</tr>
<tr>
<td>Engl 592</td>
<td>Seminar in American Indian Literature</td>
<td></td>
</tr>
<tr>
<td>Geog 219</td>
<td>Geog of South Dakota</td>
<td></td>
</tr>
<tr>
<td>Hist 362</td>
<td>History of the American West</td>
<td></td>
</tr>
<tr>
<td>Hist 368</td>
<td>History of American Indians</td>
<td></td>
</tr>
<tr>
<td>Hum 215</td>
<td>Ethnic Literature</td>
<td></td>
</tr>
<tr>
<td>Soc 350</td>
<td>Ethnic and Racial Groups</td>
<td></td>
</tr>
<tr>
<td>Phil 205</td>
<td>Introduction to Philosophy</td>
<td></td>
</tr>
</tbody>
</table>

Other courses will be added as they are approved by the Indian Area Studies Committee.

If you desire a minor in this area, you must complete 20 hours of academic credit in a program of study approved by the Indian Area Studies Committee.

Students desiring more information or interested in minor in Indian Studies should consult with the coordinator of the program no later than the beginning of the junior year.

**Interior Design (ID)**

*(See Textiles, Clothing and Interior Design — TCID)*

**Journalism and Mass Communications (MCom)**

*College of Arts and Science*

Professor Lee, Head; Professor Emeritus Markland; Associate Professor Olson; Associate Professors Emeriti Cline, Laird, Wentzy; Assistant Professors Getz, Lundgren, Neuberger, Perpich; Instructors Klock, McLaughlin, Paulson.

The department offers courses in journalism and printing. A four-year program leading to the bachelor of arts or bachelor of science degree is available in journalism with sequences in news-editorial, advertising, broadcast journalism, and science and technical writing. Additional four-year programs leading to the bachelor of science degree are available in agricultural journalism, home economics journalism, printing-journalism, printing management, and printing education.

**Journalism.** The major in journalism (with sequences in news-editorial, broadcast, advertising, and science and technical writing) prepares you for positions requiring a broad liberal education plus sound knowledge of journalistic skills. You normally begin the major in the freshman or sophomore year, but may begin in the junior year since most of the journalism courses are junior and senior level courses. You must have a grade of C or better in freshman English. You may not graduate with less than a 2.5 average in journalism courses and no grade below C in any major course. (See Requirements of the College of Arts and Science.)

The department is accredited by the American Council on Education for Journalism and Mass Communication, the only organization granted authority to accredit journalism schools. The department is one of approximately 90 journalism programs in the United States that are accredited. It has been accredited continuously since journalism accrediting began in 1948 and was reaccredited in 1988.

**News-Editorial Sequence.** Students who want to be reporters or editors for weekly or daily newspapers, magazines, wire services or who want to work in public relations or government information agencies usually take this sequence. The emphasis is on writing and reporting, editing, design and layout, and ethics. Students can also select courses in advertising and broadcast journalism.

**Broadcast Journalism Sequence.** Students who want to work in news at radio and television stations take this sequence. In addition to general newswriting and reporting skills, it emphasizes radio and television news reporting, ethics, and broadcast production. Students can also select courses in news or advertising.

**Advertising Sequence.** Students who want to work in newspaper, broadcast, or magazine advertising sales or production or who want to work in advertising agencies or with advertising departments take this sequence. They study principles of advertising, advertising copywriting and layout, advertising campaigns, media research, ethics, advertising sales, and marketing. Students can also select courses in news or broadcast.

**Science and Technical Writing.** For students who wish to become technical or science writers, either for commercial companies, magazines, or newspapers. Students combine mass communication skills with a strong background in selected areas of science.

**Agricultural Journalism.** Students may major in both agriculture and journalism thus preparing themselves for careers in many areas that draw upon mass communication skills and a knowledge of agriculture. Those careers include reporting and editing for agriculture magazines and newspapers, for breed magazines, for agriculture sections of general newspapers. Careers also include broadcasting as farm directors, public relations, or advertising with agri-business firms, and agriculture extension services.

**Home Economics Journalism.** Intended to prepare home economics graduates for journalism positions with colleges, government agencies, newspapers, magazines, radio, television, and other organizations that require persons with mass communication skills and a knowledge of home economics.

**Printing and Journalism.** A program combining printing with journalism provides a separate major for graduates entering the publishing field, where a knowledge of printing coupled with journalistic skills is a principal qualification. Consists of 35 credits in printing and 18 credits in journalism. Not more than 40 credits in printing or 24 in journalism may be counted toward the BS degree.

**Minor in Journalism.** Available for students majoring in other fields. Courses required are newswriting and reporting, newspaper editing, editing laboratory and other journalism courses to total 16 credits.

**Graduate Work in Journalism.** An M.S. degree is offered. (See the Graduate School catalog for details.)
 Facilities. The Newswriting Lab has 15 Macintosh workstations for reporting classes. Writing labs have a limit of 15 students in order to give close attention to the student. The editing lab has ten Macintosh terminals in a network that receives the Associated Press wire news. In addition it has a LaserWriter for proofing stories on a high-speed laser desktop publishing facilities. The photography darkroom has ten individual darkrooms for film and a central printing room with ten new Besler enlargers. Broadcast facilities include an off-air studio, color TV mini-cameras, an SVHS video editing system and access to KESD-TV and KESD-FM equipment and studios. An advertising and graphic arts laboratory provides drafting tables, light tables, and typesetting equipment.

Course Requirements

Journalism Major. Specialized study in professional journalism combined with a broad background in the humanities, social sciences, and natural sciences. At least 30 but not more than 36 semester credits in journalism may be applied to a bachelor's degree.

All students following the straight journalism major must take the following journalism core courses: MCom 210, Newswriting and Reporting; MCom 160, Basic Photography; MCom 414, Mass Communication Law; MCom 495, Journalism Internship; MCom 417, History of Journalism; or MCom 572, Mass Media in Society. MCom 151, Intro to Mass Communication, while not required, is strongly recommended.

You must choose one of the three sequences in journalism: news-editorial, broadcast, or advertising. Additional course requirements for each of these sequences are specified below.

News-Editorial Sequence. You must take MCom 310, Newspaper Editing; MCom 311, Editing Laboratory; MCom 412, Advanced Editing Laboratory; MCom 213, Journalism Typography; and MCom 316, Public Affairs Reporting. MCom 410, Advanced Reporting, is strongly recommended.

Broadcast Sequence. You must take MCom 333, Radio News Reporting; MCom 332, TV News Reporting; and MCom 331, Radio and Television Production. Optional but strongly recommended is MCom 316, Public Affairs Reporting.

Advertising Sequence. You must take MCom 213, Journalism Typography; MCom 370, Principles of Advertising; MCom 371, Advertising Copy and Layout; MCom 372, Media and Markets; and MCom 473, Advertising Campaigns.

Specialized Majors. Offered in science and technical writing, agricultural journalism, and home economics. See requirements under these curricula.

Curriculum in Arts and Science, Journalism Major, News-Editorial Sequence

Leading to the Bachelor of Arts Degree

<table>
<thead>
<tr>
<th>Year</th>
<th>Course Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>Fund of Speech, SpCm 101</td>
<td>3 or 3</td>
</tr>
<tr>
<td></td>
<td>Foreign Language</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Mathematics Core</td>
<td>3 or 3</td>
</tr>
<tr>
<td></td>
<td>Intro to Mass Com, MCom 151 (recommended)</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Sophomore</td>
<td>Fund of Speech, SpCm 101</td>
<td>3 or 3</td>
</tr>
<tr>
<td></td>
<td>Second-year foreign language</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Physical science</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>State &amp; Local Gov't, PolS 210</td>
<td>3 or 3</td>
</tr>
<tr>
<td></td>
<td>Journalism Typography, MCom 213</td>
<td>2 or 2</td>
</tr>
<tr>
<td></td>
<td>Basic Photography, MCom 160</td>
<td>2 or 2</td>
</tr>
</tbody>
</table>

Junior Year

<table>
<thead>
<tr>
<th>Course Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Second-year foreign language</td>
<td>3</td>
</tr>
<tr>
<td>Physical science</td>
<td>3</td>
</tr>
<tr>
<td>State &amp; Local Gov't, PolS 210</td>
<td>3 or 3</td>
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<tr>
<td>Journalism Typography, MCom 213</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Basic Photography, MCom 160</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Advanced Comp, Eng 300</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Newspaper Editing, MCom 310</td>
<td>2 or 2</td>
</tr>
</tbody>
</table>

Additional Required Credits

Cr.

Social Science (From approved courses in at least three fields).... 24
Humanities                                                              12

Curriculum in Arts and Science, Journalism Major, News-Editorial Sequence

Leading to the Bachelor of Science Degree

<table>
<thead>
<tr>
<th>Year</th>
<th>Course Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>Fund of Speech, SpCm 101</td>
<td>3 or 3</td>
</tr>
<tr>
<td></td>
<td>Foreign Language</td>
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<td></td>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
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<td></td>
<td>Mathematics Core</td>
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<tr>
<td></td>
<td>Intro to Mass Com, MCom 151 (recommended)</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Sophomore</td>
<td>Fund of Speech, SpCm 101</td>
<td>3 or 3</td>
</tr>
<tr>
<td></td>
<td>Physical science</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>State &amp; Local Gov't, PolS 210</td>
<td>3 or 3</td>
</tr>
<tr>
<td></td>
<td>Journalism Typography, MCom 213</td>
<td>2 or 2</td>
</tr>
<tr>
<td></td>
<td>Basic Photography, MCom 160</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Junior Year</td>
<td>Fund of Speech, SpCm 101</td>
<td>3 or 3</td>
</tr>
<tr>
<td></td>
<td>Second-year foreign language</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Physical science</td>
<td>3</td>
</tr>
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<td></td>
<td>State &amp; Local Gov't, PolS 210</td>
<td>3 or 3</td>
</tr>
<tr>
<td></td>
<td>Journalism Typography, MCom 213</td>
<td>2 or 2</td>
</tr>
<tr>
<td></td>
<td>Basic Photography, MCom 160</td>
<td>2 or 2</td>
</tr>
</tbody>
</table>

Additional Required Credits

Cr.

Social Science (From approved courses in at least three fields).... 24
Humanities (From approved courses in two fields).................. 9

Journalism Major, Broadcast Sequence

Follow bachelor of arts degree or bachelor of science degree requirements for news-editorial sequence (above) but with the following changes:

(Selection required for Mass Media in Society, MCom 572, or Hist. of Journalism, MCom 417)

Senior Year

<table>
<thead>
<tr>
<th>Course Requirement</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Advanced Comp, Eng 300</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Newspaper Editing, MCom 310</td>
<td>2 or 2</td>
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<tr>
<td>Advanced Editing, MCom 412</td>
<td>1 or 1</td>
</tr>
<tr>
<td>Mass Communication Law, MCom 414</td>
<td>1</td>
</tr>
<tr>
<td>Either Mass Media in Society, MCom 572, or Hist. of Journalism</td>
<td>3 or 3</td>
</tr>
</tbody>
</table>
| Journalism Internship, MCom 495                                | 2-4 or 2-4 (Internship recommended during summer before senior year)

Addition Requirements

Social Science (From approved courses in at least three fields).... 24
Humanities                                                              12

Journalism Major, Broadcast Sequence

Follow bachelor of arts degree or bachelor of science degree requirements for news-editorial sequence (above) but with the following changes:

(Selection required for Mass Media in Society, MCom 572, or Hist. of Journalism, MCom 417)

Senior Year

<table>
<thead>
<tr>
<th>Course Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Second-year foreign language</td>
<td>3</td>
</tr>
<tr>
<td>Physical science</td>
<td>3</td>
</tr>
<tr>
<td>State &amp; Local Gov't, PolS 210</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Journalism Typography, MCom 213</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Basic Photography, MCom 160</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Advanced Comp, Eng 300</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Newspaper Editing, MCom 310</td>
<td>2 or 2</td>
</tr>
</tbody>
</table>
Senior Year
Mass Communication Law, MCom 414 .......... 3
Either Mass Media in Society, MCom 572, or
History of Journalism, MCom 417 .......... 3 or 3
Journalism Internship, MCom 495 .......... 2-4 or 2-4

Not less than 30 or more than 36 credits in journalism may be
counted. Courses listed as RTVF count as journalism
courses. You must complete at least 40 semester credits in
courses numbered 300 or above to qualify for the bachelor of
science or bachelor of arts degree. Students must also have 6
semester credits of courses designated International Studies.
Three credits are to be in humanities and three credits in
social sciences as listed in the College of Arts and Science
section.

Journalism Major, Advertising Sequence
Follow bachelor of arts degree or bachelor of science degree
requirements for news-editorial sequence (above) but with the
following changes:

Freshman Year
Same as news-editorial sequence

Sophomore Year
Same as News-Editorial but delete PolS 210. Add:

Macroeconomics Principles, Econ 201 .......... 3 or 3
Consumers and the Market, Econ 391 .......... 3 or 3

Junior Year
Advanced Comp, Engl 300 .......... 3 or 3
Principles of Advertising, MCom 370 .......... 3
Advertising Copy and Layout, MCom 371 .......... 3
Media and Markets, MCom 372 .......... 3

Senior Year
Advertising Campaigns, MCom 47 .......... 3
Mass Communication Law, MCom 414 .......... 3
Either Mass Media in Society, MCom 572 or
History of Journalism, MCom 417 .......... 3 or 3
Journalism Internship, MCom 495 .......... 2-4 or 2-4

Not less than 30 or more than 36 credits in journalism may be
counted. You must complete at least 40 semester credits in
courses numbered 300 or above to qualify for the bachelor of
science or bachelor of arts degree. Students must also have 6
semester credits of courses designated International Studies.
Three credits are to be in humanities and three credits in
social sciences as listed in the College of Arts and Science
section.

Journalism Major, Science and Technical Writing
Sequence
Leading to the Bachelor of Science Degree

Freshman Year
Fr Comp, Engl 101 .......... 3 or 3
Algebra & Trigonometry, Math 113 .......... 5

Sophomore Year
Macroeconomics Principles, Econ 201 .......... 3 or 3
Agri Group I Elective .......... 3 or 3
Fund of Speech, SpCm 101 .......... 3 or 3
Newswriting & Reporting, MCom 210 .......... 3 or 3
Journalism Typography, MCom 213 .......... 2 or 2
Basic Photography, MCom 160 .......... 2 or 2
Social Science Elective .......... 3 or 3
Second in sequence of physics, chemistry or
biology .......... 3-4 or 3-4

Journalism and Mass Communications 153
At least 30 but no more than 36 credits in journalism are allowed. 25 upper division credits are required in journalism.

All requirements of Agriculture and Biological Sciences core curriculum must be completed. A minimum of 12 credits from Group I courses in Agriculture must be completed. A minimum of 12 additional hours of courses in agriculture must be completed.

The Agri Group I electives and the Journalism electives must be planned and approved by advisers in each area.

Courses are listed under the following headings: Mass Communication (MCom); General Communication (GCom); Radio, Television and Film (RTVF) (in Communication Studies and Theatre section); and Printing (Prtg).

**Journalism & Mass Communication (MCom)**

**Undergraduate Courses**

151 Intro to Mass Communication 2(2,0) FS

Nature and scope of journalism and mass communication — newspapers, magazines, broadcasting, wire services, syndicates. Recommended for Journalism students.

160 Basic Photography 2(1,3) FS

Beginning camera and darkroom techniques, including processing and printing black and white photographs. The student will also survey the field of photography and its uses.

210 Newswriting & Reporting 3(2,3) FS

Gathering, evaluating and writing news. P, freshman English grade no lower than C. Not open to freshmen without consent.

213 Journalism Typography 2(1,3) FS

Printing; type faces and processes; page pasteup, proofreading, desktop publishing, graphics.

261 Photojournalism 2(1,3) FS

Photography as it relates to the media and the public. Emphasis on the content and design of photo essays, legal and ethical aspects of photography. P, 160.

310 Newspaper Editing 2(2,0) FS


311 Editing Laboratory 1(0,3) FS

Practice in editing. 311 must be taken concurrently with 310.

313 Publicity Methods 2(2,0) FS

Newswriting, organizing publicity campaigns, press relations. (Cannot be taken for credit by journalism majors.)

314 Sales, Promotion & Marketing 3(3,0)

Promotion, sales, advertising, circulation, practices and theories of marketing in advertising and graphic arts.

315 Magazine Writing & Editing 3(3,0) F

Writing and preparing articles for publication. P, freshman English with grade no lower than C, and consent.

316 Public Affairs Reporting 3(2,3) FS

Covering and writing news of government, politics, economics, education and sociological problems at the local, county and state level. P, 210, PoiS 210 or consent.

331 Television Production 3(2,3) FS

Includes preparation and presentation of talks, interviews, discussion and extension and community services for broadcast.

332 Television News Reporting 3(2,3) FS

TV news writing, gathering, and video editing. Lab practice with videotape. P, 333 or consent.

333 Radio News Reporting 3(1,3) FS


334 Radio News Laboratory 1-3 FS

Gathering, writing, editing and producing daily stories for KESD-FM. P, 333 for majors; RTVF 330 for others.

365 Advanced Photography 2(1,3) S

Exploration of the fine photographic print. Emphasis on the use of the zone system and principles of composition. Also included will be discussion of color and of the theory of photographic critique. P, 160 and consent.

370 Principles of Advertising 3(3,0) F

History, ethics, economics, psychology and impact of modern advertising.

371 Advertising Copy and Layout 3(3,0) S

Writing, designing and planning advertising. P, 370.

372 Media and Markets 3(2,3) S

Selection of media and markets in advertising strategy. P, 370 or consent.

410 Advanced Reporting 3(2,3) S


412 Advanced Editing Lab 1(0,3) FS

Advanced editing and production.

414 Mass Communication Law 3(3,0) F

Libel, privacy, news gathering rights and press freedom in America.

417 History of Journalism 3(3,0) F

Development, impact and importance of individual journalists and media in U.S.

471 Advertising Design 3

A studio course in Advertising Design with an emphasis on concept development, graphic design, research, organization, and presentation. For advertising majors — cross listed as ArtD 465. P, 371 or ArtD 381 for Visual Arts majors.

473 Advertising Campaigns 3(3,0) F

Develop advertising campaign from start to finish. P, 370, 371, 372.

490 Senior Research Problems 2(2,0) FS

Problems and methods in mass communication research. For advanced undergraduates. P, senior standing.

491 Directed Studies

492 Special Problems in Journalism 1-3 FSSu

P, Senior Standing.

493 Undergraduate Course Specials

494-495-496 Cooperative Education/Internship/Field Experience (Topical) 1-12 FSSu

Supervised media experience; print, broadcast, public relations. P, consent of department program coordinator.

**Graduate Courses**

505-605 Theories of Communication 3(3,0) S

Major theories of communication, including media and interpersonal communication.

506-606 Public Opinion and Propaganda 3(3,0) S

Formation and measurement of public opinion; role of the media; propaganda techniques, agencies, theories. P, Senior standing, consent.

515-615 Editorial Writing & Policy 2(2,0) F

Opinion function of periodicals; great editorials and editorial writers; writing editorials; shaping policy.
McLaughlin electives.

Personal printing plant. The composing area is equipped with computer science, and graphic design are strongly suggested by Professor Lee; Assistant Professor Lundgren; Instructor 791

vocational schools or high schools will find the curriculum program that stresses managerial and technical coursework for entry level management positions in the printing and publishing fields. This program prepares students for entry level management positions in the printing and graphic arts industry. Printing Management is a four-year program that stresses managerial and technical coursework leading to the bachelor of science degree. You will also receive a solid foundation in the liberal arts. Courses in engineering, computer science, and graphic design are strongly suggested electives. Technical course work is concentrated in the first two years and is prerequisite to some courses listed for the junior and senior years. At least 40 but not more than 50 credits in Printing Management may be counted toward the degree. (See minimum degree requirements for the College of Arts and Science.)

Printing and Journalism. A combined program provides a separate major for prospective students in the newspaper and publishing fields.

Printing-Education. Prospective printing instructors in vocational schools or high schools will find the curriculum designed for their needs. If you are going into education, you must decide before the junior year, and consult the head of the department and College of Education and Counseling. Since most states require printing teachers to have industrial experience before certification, you should know the state regulations and obtain practical experience. The department can assist you in obtaining experience.

Facilities. The printing laboratory is a modern, well-equipped printing plant. The composing area is equipped with technologically advanced typesetters and a Macintosh desktop publishing facility. There are production and student

darkrooms, three process-cameras, a Helle color scanner, a film processor, and digital exposure equipment. The printing equipment ranges in size from duplicators to single-color, large format offset presses. The bindery and finishing area is also fully equipped with folding equipment on through saddle and perfect binding machines.

Limited Enrollment. The number of students is limited by the space and equipment available. At present the limit for entering freshmen is 20. Advanced application to the Director of Admissions is required.

Waiving Courses for Experienced Students. Students with demonstrated proficiency may be excused from appropriate courses and substitute other courses with department approval.

Standards of Proficiency. Students who are not capable of meeting standards may be dropped from courses or required to attend additional classes.

Curriculum in Arts and Science, Printing Management Major

Leading to the Bachelor of Science Degree

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Cr</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr Comp, Engl 101</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1</td>
<td>Fall</td>
</tr>
<tr>
<td>Basic Presswork, Prtg 111</td>
<td>3</td>
<td>Summer</td>
</tr>
<tr>
<td>Intro to Graphic Arts, Prtg 112</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Composing Machines, Prtg 113</td>
<td>3</td>
<td>Summer</td>
</tr>
<tr>
<td>Algebra, Math 112 or 113</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Reproduction Photography, Prtg 213</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Basic Design, ArtS 112</td>
<td>3</td>
<td>Fall</td>
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Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Typography, Prtg 211</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Photography, MCom 160</td>
<td>2</td>
<td>Fall</td>
</tr>
<tr>
<td>Bindery, Finishing and Distribution, Prtg 212</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Newswriting &amp; Reporting, MCom 210</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>or Publicity Methods, MCom 313</td>
<td>2</td>
<td>Fall</td>
</tr>
<tr>
<td>Graphic Design I, ArtD 231</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Physical Science</td>
<td>4</td>
<td>Fall</td>
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Junior Year

<table>
<thead>
<tr>
<th>Course</th>
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<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Comp, Engl 300</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Macroeconomics Principles, Econ 201</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Prin of Accounting, Econ 210</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Biological Science</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>*Plant Administration, Prtg 311</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>*Media Personnel Management, Prtg 312</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>*Media Labor Management, Prtg 313</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>*Sales, Promotion and Marketing, Prtg 314</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Advanced Presswork, Prtg 315</td>
<td>3</td>
<td>Fall</td>
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Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Cr</th>
<th>Semester</th>
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</thead>
<tbody>
<tr>
<td>*Manufacturing Control, Prtg 413</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>*Estimating, Prtg 411</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Production Management in Graphic Arts, Prtg 414</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Tone and Color Reproduction, Prtg 415</td>
<td>4</td>
<td>Fall</td>
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Additional Required Credits for degree

<table>
<thead>
<tr>
<th>Course</th>
<th>Cr</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing Management</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>(Elected from courses numbered 300 or above)</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Social Science (Elected from approved list)</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Humanities (Elected from approved list)</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

*Offered Alternate Years.

Not more than 50 credits in printing management and 16 credits in journalism will be counted. All students must complete a minimum of 40 semester credits in courses numbered...
Three credits are to be in humanities and three credits in social sciences as listed in the College of Arts and Science.

**Undergraduate Courses**

111 Basic Presswork 3(2,4) F  
Concentrated study of the offset lithographic principles and their applications. Areas covered include impositions, stripping and operation of small offset presses.

112 Introduction to Graphic Arts 3(2,2) F  
Basic reproduction processes, their history, development and scope. The nature and position of the industry in society.

113 Composing Machines 3(2,2) S  
Exposure to the areas of hot and cold type composition and equipment. Majority of the course deals with phototypesetting equipment and systems and applications of computers to this subject matter. Also included is desktop publishing.

211 Typography 3(2,2) F  
Discussion and practical experiences in the concepts and layout and their relation to advertising and commercial products.

212 Bindery, Finishing and Distribution 3(2,2) S  
Finishing, bindery and distribution equipment, paper handling and control, automatic systems, packaging and mailroom delivery functions.

213 Reproduction Photography 4(2,2) F  
In-depth study of high contrast process camera photography. Subject matter studied includes line and halftones, posterizations and duotones.

214 Pricing 3(3,0) S  
Theory of pricing, utilization of cost finding methods, record keeping and standards of the industry.

311 Plant Administration 3(3,0) F  
Management principles with emphasis on the problems of operation and control. Legal and tax requirements; forms of business organization; office and records.

314 Sales, Promotion and Marketing 3(3,0) S  
Promotion, sales, advertising, circulation, practices and theory of marketing in advertising and graphic arts.

315 Advanced Presswork 3(2,3) S  
Comprehensive study of the reproduction of high quality four color process printing. Imposition, stripping techniques, operation of large offset presses and maintenance will be covered.

411 Estimating 3(3,0) S  
Cost finding, variables in production, man- and machine-hour rate determination. Individual plant pricing system development and use including computers.

412 Production Problems FSSu  
Individual problems in production or management. May be repeated to a total of four credits. F, consent.

413 Production Management in Graphic Arts 3(3,0) F  
Scientific approach to production problems in commercial printing, newspaper and magazine publications; technological advances and innovations in methods, processes and management.

415 Tone and Color Reproduction 3(2,3) S  
Study of the nature of light and color and their interrelationship. Reproduction of four color separations using the direct screen process. Other areas include indirect screening, color correction, masking and electronic screening.

494-495-496 Cooperative Education/Internship/Field Experience (Topical) 1-12 FSSu  
Supervised experience in printing. P, consent of department program coordinator.

**Latin American Area Studies Program (LAAS)**

Professor Crain, Department of History, Coordinator  
The student may cross college and department lines to pursue, with the study of Spanish, a coordinated study of the geographical, cultural, socio-economic and political life of Latin American countries. The program is primarily voca-

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**Curriculum in Arts and Science, Printing-Journalism Major**

Leading to the Bachelor of Science Degree

**Freshman & Sophomore Years**

Same as Printing Management.

**Junior Year**

- Advanced Comp, Engl 300................................. 3 or 3
- Practicum & Professional Lab Experiences, SeEd 339................. 2
- Gen Psychology, Psyc 101...................................... 3
- Biological Science.................................................. 3
- Intro to American Education, EdFn 339.......................... 2
- Ed Psychology, EPsy 302...........................................

**Additional Required Credits**

- Printing Management.............................................. 9
- (Elected from courses numbered 300 or above)
- Social Science.......................................................... 12
- (Elected from approved courses in at least two of the following fields: economics, history, political science and sociology)
- Humanities (Elected from approved list).......................... 9
- Education Block.................................................. 17

**Senior Year**

- Mass Com Law, MCom 414........................................... 3
- Sr. Research Problems, MCom 490............................. 2 or 2
- Printing Internship, Prtg 495................................. 2-4 or 2-4
- *Sales, Promotion, and Marketing Prtg 314.................. 3

**Additional Required Credits**

- Social Science...................................................... 15
- (Elected from approved courses in at least three of the following fields: economics, history, political science, psychology & sociology)
- Humanities (Elected from approved list).......................... 9

*Offered Alternate Years.*

Requires 35 credits in printing and 18 credits in journalism. Not more than 40 credits in printing and 24 credits in journalism will be counted. You must complete a minimum of 40 semester credits in courses numbered 300 or above to qualify for the bachelor of science degree. Students must also have 6 semester credits of courses designated International Studies.
The curriculum is tailored for those desiring a Latin American background in conjunction with a disciplinary specialization in fields such as history, economics, political science, geography, anthropology, Spanish American literature and sociology, or in one of the professional colleges. As a result you will normally carry a major in a particular discipline such as Food and Nutrition or Agronomy together with the LAAS program. This program prepares you for additional vocational opportunities in Agriculture, Home Economics, Nursing, Foreign Service, Peace Corps, international business and numerous positions with government, the United Nations and private corporations involved with or in Latin America. It should also facilitate improved communication and understanding between the peoples of these countries and the U.S. Courses should be integrated with the student's vocational major. See a faculty adviser and the coordinator of the program.

Curriculum in Latin American Area Studies  
(Minimum of 22 credit hours as indicated below)

<table>
<thead>
<tr>
<th>Section A</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Year Spanish, Span 101-102</td>
<td>4-4</td>
</tr>
<tr>
<td>2nd Year Spanish, Span 201-202</td>
<td>3-3</td>
</tr>
<tr>
<td>Spanish Comp/Conversation, Span 311-312</td>
<td>2-2</td>
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<tr>
<td><strong>Minimum Sub Total</strong></td>
<td><strong>8</strong></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Section B</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish Am Lit, Span 356</td>
<td>3</td>
</tr>
<tr>
<td>Spanish American Civilization, Span 436</td>
<td>2</td>
</tr>
<tr>
<td>20th Century Spanish Am Lit, Span 484</td>
<td>3</td>
</tr>
<tr>
<td>Directed Study in Spanish, Span 491</td>
<td>1-3</td>
</tr>
<tr>
<td>(oriented toward Latin America)</td>
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</tr>
<tr>
<td><strong>Coursas in English</strong></td>
<td></td>
</tr>
<tr>
<td>History of Latin Am, Hist 417-418</td>
<td>3-3</td>
</tr>
<tr>
<td>Topics in Latin American History, Hist 310</td>
<td>3</td>
</tr>
<tr>
<td>Geography of Latin Am, Geog 313</td>
<td>3</td>
</tr>
<tr>
<td>Latin American Politics, PolS 347</td>
<td>3</td>
</tr>
<tr>
<td><strong>(LAAS courses)</strong></td>
<td></td>
</tr>
<tr>
<td>Latin Am Cultures (Topical), LAAS 301</td>
<td>3</td>
</tr>
<tr>
<td>Latin American Societies (Topical), LAAS 302</td>
<td>3</td>
</tr>
<tr>
<td>Directed Studies in Latin American Cultures, LAAS 491</td>
<td>1-3</td>
</tr>
<tr>
<td><strong>Minimum Sub Total</strong></td>
<td><strong>14</strong></td>
</tr>
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<thead>
<tr>
<th>Recommended Electives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Development: Cultural and Economic Influences, HDCF 363</td>
<td>3</td>
</tr>
<tr>
<td>Human Nutrition, NFS 321</td>
<td>3</td>
</tr>
<tr>
<td>Comparative Econ Systems, Econ 405</td>
<td>3</td>
</tr>
<tr>
<td>Econ of the International Sector, Econ 540</td>
<td>3</td>
</tr>
<tr>
<td>Current World Prob, PolS 253</td>
<td>3</td>
</tr>
<tr>
<td>International Politics, PolS 351</td>
<td>3</td>
</tr>
<tr>
<td>International Law &amp; Organizations, PolS 356</td>
<td>3</td>
</tr>
<tr>
<td>Political Philosophy, PolS 461</td>
<td>3</td>
</tr>
<tr>
<td>Modern Political Theory, PolS 462</td>
<td>3</td>
</tr>
<tr>
<td>Cultural Anthropology, Anth 320</td>
<td>3</td>
</tr>
<tr>
<td>Gen Anthropology, Anth 200</td>
<td>3</td>
</tr>
<tr>
<td>Population Problems, Soc 362</td>
<td>3</td>
</tr>
<tr>
<td>Community Development, Soc 540</td>
<td>3</td>
</tr>
<tr>
<td>Am Diplomatic History, Hist 467</td>
<td>3</td>
</tr>
</tbody>
</table>

### Undergraduate Courses

#### 301 Latin American Cultures 3(3,0) (Topical)
A broad view of a country, region, epoch or theme concerning Latin America. A multidisciplinary and multimedia approach. General supervision by the coordinator of Latin American Area Studies program. P: sophomore standing or consent. May be repeated with consent of the coordinator of the LAAS program. Enrollment limited to 20.

#### 302 Latin American Societies 3(3,0) (Topical)
A broad view of the society of a country, region, epoch or theme concerning Latin America. A multidisciplinary and multimedia approach. P: sophomore standing or consent. May be repeated for credit with consent of the LAAS Coordinator.

#### 491 Directed Studies in Latin American Cultures 1-3(1-3,0)
Advanced students interested in in-depth study of particular aspects of a given country, region, epoch or theme concerning Latin America may enroll for 1-3 credit hours of independent multidisciplinary directed study. Studies will be planned and method of evaluation and grading established by one or more instructors in consultation with the student, under the general supervision of the coordinator of the LAAS program. May be repeated with consent of the coordinator of the LAAS program. P: junior standing or consent.

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### Mathematics (Math) and Statistics (Stat)

#### Mathematics (Math)
Professor Yocom, Head; Professors Bennett, Bryn, Kemp, Lacher, Monahan, Nielsen, Van dever; Professors Emeriti Kranzler, Nelson, Trapp, Wente; Associate Professors Ayers, Broschat, Clever, Kindermann, Schmidt; Assistant Professors Anderson, Roe, Struck; Lecturers Gnirk, Monsees.

#### Major Programs
The mathematics degree programs provide a strong liberal arts emphasis with opportunity for concentrated study in mathematics to meet the needs of the technically oriented student, the prospective secondary mathematics teacher, and the student preparing for graduate studies.

Beginning with Math 123, the B.A. major program requires 36 semester credits in mathematics while the B.S. major requires 39. Mathematics majors who must take Math 113 as a prerequisite for succeeding courses will be allowed 5 credits toward the 128 semester credits required for graduation. Mathematics majors must earn at least a "C" in Math 123 and all succeeding mathematics courses. In the curricula below, courses in the physical, biological and social sciences have been chosen to provide a strong background for students planning on graduate study or careers in business, industry or teaching. Students taking the Secondary Education option should consult with the Dean of the College of Education and Counseling before registering for their junior year. One semester of their senior year is devoted to education courses and student teaching. Consult the Arts and Science section for college graduation requirements.

After completing Math 253, all majors will be assigned a list of readings in the mathematical literature. Students should enroll in Math 491 Directed Studies for one credit the semester they plan to complete the readings. Each student will write a reaction paper on the readings and submit the paper to a faculty committee overseeing the course.

#### Cooperative Education
The opportunity for experience in business and industry is available to mathematics majors through the Mathematics Cooperative Education Program. Credit for this on-the-job experience may be arranged by enrolling in Math 494.

#### Minor Program
A minor in mathematics consists of Math 123 (or 222), Math 224, 253, plus a minimum of 11 credits from the 200 series or above. Math 355 and one of 313, 315, 361, 425 is required of minors in the Secondary Education Program. An average grade of "C" is required in the minor courses.
General Information
Credit for Math 110 or 112 will be given to students showing high proficiency on the algebra placement test. Credit for Math 113 will be given to students exhibiting high proficiency on the algebra and the trigonometry placement tests. Placement in succeeding courses is based on the proficiency of the student.
Credit may be earned for both Math 110 and Math 112 or in both Math 110 and 113 if taken in that order. Credit will not be allowed for both Math 112 and 113 or for both Math 113 and Math 120. Credit will not be allowed for both Math 123 and Math 222.
Beginning courses are available for students entering at times other than the fall semester.

Curriculum in Arts and Science, Mathematics Major
Leading to the Bachelor of Arts Degree

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr Comp, Engl 101</td>
<td>3</td>
</tr>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Calculus &amp; Analytic Geometry I, Math 123</td>
<td>5</td>
</tr>
<tr>
<td>Calculus &amp; Analytic Geometry II, Math 224</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Language*</td>
<td>8</td>
</tr>
<tr>
<td>Fitness and Lifetime Activities, PE 100</td>
<td>2</td>
</tr>
<tr>
<td>Social Science Electives**</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

Sophomore Year

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matrix Algebra, Math 215</td>
</tr>
<tr>
<td>Calculus &amp; Analytic Geometry III, Math 225</td>
</tr>
<tr>
<td>Elem Logic &amp; Sets, Math 253</td>
</tr>
<tr>
<td>Foreign Language*</td>
</tr>
<tr>
<td>Social Science Electives**</td>
</tr>
<tr>
<td>Humanities Electives**</td>
</tr>
<tr>
<td>Computer Programming (CSc 112, CSc 114, or Math 271)</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

Junior Year

<table>
<thead>
<tr>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Advanced Comp, Engl 300</td>
</tr>
<tr>
<td>Technical Communications, Engl 303</td>
</tr>
<tr>
<td>Math Electives (300 level or above) (Select 3 of Math 313, 315, 425, 426)</td>
</tr>
<tr>
<td>Social Science Electives*</td>
</tr>
<tr>
<td>Humanities Electives*</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

Senior Year

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math Electives (300 level or above)</td>
</tr>
<tr>
<td>Directed Studies, Math 491</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

Curriculum for Secondary Mathematics Teachers
Students planning to teach mathematics in the secondary schools may follow either the B.A. or the B.S. program above. Math 251 is required. In their junior and senior years, the 18 credits of 300 level or above mathematics courses must include Math 355, and, 2 (rather than 3) of Math 313, 315, 425, and 426. In addition, the following courses must be taken. Note that one semester of the senior year is devoted to education courses and student teaching. The student must plan other course work accordingly.

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen Psychology, Psyc 101*</td>
</tr>
<tr>
<td>Practicum, SeEd 287</td>
</tr>
<tr>
<td>Human Relations</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

Junior Year

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ed Psyc, EPsy 302</td>
</tr>
<tr>
<td>Teaching Special Needs Students, EdFn 370</td>
</tr>
<tr>
<td>Computers in Teaching, EdFn 385</td>
</tr>
<tr>
<td>Supervised Clinical/Field Experience, SeEd 314</td>
</tr>
<tr>
<td>Teaching of Reading, SeEd 450</td>
</tr>
<tr>
<td>History of Am Indians, Hist 368* or Indians of North Am, Anth 421*</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

Senior Year

First Six Weeks of Semester:
Methods of Teaching in Sec Schools, SeEd 400 | 3
Classroom Management and Discipline, SeEd 410 | 2
Last Ten Weeks of Semester:
Supervised Student Teaching, SeEd 488 | 10

*May be used as social science elective
Undergraduate Courses

010 Basic Algebra 3 FSSu
Integers, Rational numbers, signed numbers, absolute values, and basic operations. Solving algebraic equations and inequalities in one variable with applications. Basic operations applied to polynomials, special products and factoring. Algebraic fractions, square roots and radicals. (Note: Remedial Level)

110 Intermediate Algebra 3(3,0) FSSu
Set concepts, basic properties of real numbers, factoring of polynomials, solution of linear and quadratic equations, inequalities, systems of equations, exponents and radicals. Credit for Math 110 will not be granted to anyone who has previously received credit in Math 112 or 113. P, 1 unit of high school algebra.

112 College Algebra 3(3,0) FSSu
Basic properties of real numbers. Solutions of linear, quadratic, and rational equations and inequalities. Exponents and radicals, factors, graphing, and real zeros of polynomials. Systems of equations, exponentials, logarithmic, and inverse functions. Other topics selected from sequences, series, and complex numbers. Credit will not be allowed for both Math 112 and 113. P, 1 1/2 units of high school algebra or 110.

113 College Algebra & Trigonometry 5(5,0) FSSu
The real number system as related to linear, quadratic, rational, trigonometric, exponential, logarithmic and inverse functions and their applications. Other topics selected from mathematical induction, complex numbers, partial fractions, determinants, matrices, theory of equations, sequences & series. P, 1 1/2 units of high school Algebra. Credit will not be allowed for Math 113 in addition to credit in Math 112 or 120.

120 Plane Trigonometry 3(3,0) FS
Trigonometric functions, equations and identities; inverse trigonometric functions; exponential and logarithmic functions, and applications of these functions. P, 112 or equivalent.

140 Survey of Mathematics 3(3,0) (On demand)
To give the students in social science and liberal arts an appreciation of the nature of mathematics. An introduction to the logical structure of mathematics and its application to modern life, including such topics as logic, number systems, geometry, probability, statistics, and consumer mathematics. P, 1 unit of high school algebra.

143 Finite Mathematics 3(3,0) (On demand)
BASIC programming, linear equations and matrices, graph theory, probability, Markov chains, linear programming and the simplex algorithm, game theory. P, 1 1/2 units of high school algebra, or equivalent.

123, 224, 225 Calculus & Analytic Geometry I, II, III 5(5,0), 4(4,0), 3(3,0), FSSu
Plane analytic geometry, limits, derivatives of algebraic functions, applications of differentiation to extremes of functions, sketching of curves, related rates, differential and integral of algebraic and transcendental, definite integrals, fundamental theorem of calculus, applications of integration to area, volume, and selected physical applications. Calculus of exponential, logarithmic, trigonometric, and inverse functions, methods of integration, polar coordinates, arc length, and 2 and 3 dimensional vectors, solid analytic geometry. Indeterminate forms, improper integrals, Taylor's formula, infinite series, vector values and functions, partial derivative, multiple integrals, selected physical applications. P, 1 1/2 units of high school algebra, 1/2 unit of trigonometry, or 113.

215 Matrix Algebra 2(2,0) FS
An introduction to vectors, matrices, and determinants with applications to linear mathematical problems. Linear transformations of n-dimensional Euclidean space and their matrix representations. P, 113 or consent.

222 Calculus for Non-Math Majors 5(5,0) FSSu
An intuitive approach to functions, limits, calculus of algebraic, exponential and logarithmic functions, functions of several variables, applications of the derivative and integral. Credit will not be allowed for both Math 222 and Math 123. P, 112 or 113.

241 Mathematics of Finance 3(3,0) S
Application of algebra to problems involving simple and compound discount including annuities, amortization, sinking funds, valuation of bonds, depreciation and capitalized cost. P, 112, or consent.

243 Discrete Mathematics 3(3,0) S
The study of sets and functions, binary operations including trees, state graphs and automata, discrete probability, recurrence systems, analysis of algorithms and algebras. P, 113, 271 or Csc 114 or 213.

251 Geometry for Teachers 3(3,0)S
Axiomatic development of Euclidean and other geometries, coordinate geometry in two or three dimensions, transformational geometry, and informal Non-Euclidean geometry. Required of majors and minors planning to teach. P, Math 224, SeEd 287, or consent.

253 Elementary Logic & Set Theory 3(3,0) FS
Logical connectives, constants, variable, quantifiers, arguments, and proof. Set operations, index sets, relations, functions, cardinality, and mathematical induction. P, 123.

271 Mathematical Applications in FORTRAN 3(3,0) F
An appreciation of the use of computer use for non-engineers. FORTRAN programming, flow charting, data processing techniques, evaluation of computer hardware, binary arithmetic, elementary numerical analysis and optimization applications. P, 123, Csc 114.

313 Modern Algebra 3(3,0) FS
Groups, rings and fields. Homomorphism theorems. P, 224, 253 or consent.

315 Linear Algebra 3(3,0) FS
Vector spaces, linear transformations and matrices. P, 215, 253 or consent.

321 Differential Equations 3(3,0) FSSu
Ordinary differential equations including first order, higher order linear and systems of linear equations. General solutions and solutions to initial-value problems using matrices, Laplace transforms (in engineering sections) and power series and applications to physical science and geometry. P, 225.

327 Calculus of Several Variables 3(3,0) (On demand)
Calculus of functions of 2 and 3 variables starting with a review of Partial Derivations and Multiple Integration, and including the Implicit Function Theorems, Jacobians, Improper Integrals, Vector Field Theory, and Stokes' Theorem. P, 215, 225 or consent.

331 Advanced Engineering Math 3(3,0) FSSu
Fourier series, vector analysis, matrices, determinants, and topics selected from: complex variables, partial differential equations, numerical methods, P, 321.

355 Methods of Teaching Mathematics 3(3,0) FS
Techniques, materials and resources for teaching mathematics to junior high school and high school students. Required of majors planning to teach. P, Math 224, 251, and SeEd 287. May not be used for upper division math elective for majors not in Secondary Teaching Option.

361 College Geometry 3(3,0) F
Axiomatic study of elementary Euclidean geometry including various advanced topics. P, 253.

373 Intro to Numerical Analysis 3(3,0) S
Mathematical models, algorithms, sources of error, computer solution of systems of linear equations, non-linear equations; quadrature, approximation, and interpolation using the computer. P, Math 224, Csc 114 or 214.

381 Mathematical Statistics 4(4,0) FSSu
Statistical methods and probability, related to engineering and physical sciences. Common single and multiple variable densities and moment generating functions. Applications of random sampling to hypothesis testing, confidence limits, correlation, and regression. P, 225 or consent.

411 Theory of Numbers 3(3,0) S

425-426 Intro to Real Analysis I-II 3(3,0) FS
Properties of real numbers, sequences, and series of real numbers, limits of functions, uniform continuity, differentiation, sequences and series of functions, uniform convergence, theories of integration. Extensions of Rn may be considered. P, 225, 253.

433 Laplace Transform 3(3,0) (On demand)
Main features of Laplace transform theory. P, 321 or consent.

490 History of Mathematics 3(3,0) S
A general presentation of historical topics in mathematics emphasizing contributions to mathematics from ancient civilizations; developments leading to the creation of modern geometries, calculus and modern algebra; and contributions of outstanding mathematicians. P, 224 or consent.

491 Directed Studies 1-3(1-3,0) FSSu

493 Special Topics 1-3(1-3,0)FS Su
494-495-496 Cooperative Education/Internship/Field Experience 1-6 FS Su
Planned and supervised professional experience related to mathematics which takes place outside the formal classroom with private business or industry, or public agencies. P, consent of department program coordinator.

**Graduate Courses**

561-661 Intro to Topology 3(3,0) S
A first course in point set topology, covering the elementary concepts of metric and general topological spaces; closure, interior, boundary, connectedness, compactness, and separation. Special attention is given to continuity of functions.

566-666 Projective Geometry 3(3,0) S (On demand)
A synthetic and/or analytic approach to geometric properties invariant under projective transformations: Theorems of Desargues, Pascal, Brianchon and applications. P, 224 or consent of instructor.

571-671 Numerical Analysis 3(3,0) FSu
A survey of numerical methods including methods of interpolation, curve fitting, integration, solving equations (including differential equations with initial or boundary values). Errors of the methods are analyzed and the digital computer is used to apply the methods. P, 321.

572-672 Numerical Analysis 3(3,0) S

593-693 Special Topics 1-3
700 Seminar 1 FS (Pass/Fail)
716 Theory of Algebraic Structures I 3(3,0) F
717 Theory of Algebraic Structures II 3(3,0) S
726 Real Variables I 3(3,0) F
727 Real Variables II 3(3,0) S
728 Complex Variables I 3(3,0) F
729 Complex Variables II 3(3,0) S
731 Ordinary Differential Equations 3(3,0) S
732 Partial Differential Equations 3(3,0) F
784 Applied Probability Theory 3(3,0) S
790 Thesis 1-7 FSu (Pass/Fail)
791 Thesis Sustaining 1 FSu (Pass/Fail)
792 Research Paper 2 FSu
793 Advanced Topics 1-3 FSu
795 Special Problems 1-3 FSu

**Master of Science Teaching (MSTM)**

**Algebra**

711 Functions and Permutations 2
712 Algebraic Structures 2
713 Properties of Algebraic Structures 2
714 Vector Spaces and Linear Transformations 2
715 Applications of Algebra 2

**Analysis**

721 Analytic Geometry 2
722 Functions, Limits and Continuity 2
723 Analysis of Algebraic Functions 2
724 Analysis of Transcendental Functions 2
725 Convergence 2

**Geometry**

761 Foundations of Geometry 2
762 Advanced Euclidean Geometry 2
763 Non Euclidean Geometry 2
764 Projective Geometry 2

**Computer Applications**

771 Mathematical Applications for the Classroom I 2
772 Mathematical Applications for the Classroom II 2
773 Mathematical Applications for the Classroom III 2
744 Discrete Mathematics 2
775 Computer Applications 2

**Probability and Statistics**

781 Intro to Probability 2
782 Statistics (one and two populations) 2
783 Statistics (three and four populations) 2

**Statistics (Stat)**

Administrative Committee: Professors Edburn, Evenson, Ewing, Kim, Lacher, Monahan, Nielsen, Tucker, Vandever; Associate Professor Wicks; Instructor Ellingson.

Teaching Faculty: Professors Kim, Lacher, Monahan, Nielsen, Vandever; Associate Professors Evenson, Wicks; Assistant Professors Adamson, Roc; Instructor Ellingson.

Statistics is the development and application of the most effective methods of collecting, tabulating, and interpreting quantitative data in such a manner that the validity of conclusion and estimates may be assessed by means of inductive reasoning based on the mathematics of probability.

**Undergraduate Courses**

341 Statistical Methods I 3(2,2) FSu
Concepts in probability, data description, distributions, sampling, statistical inferences (parametric and non-parametric). P, Math 113 or 112.

381 Mathematical Statistics 4(4,0) FS
Statistical methods and probability, especially in engineering and physical sciences. Common single and multiple variable densities and moment generating functions. Applications of random sampling to hypothesis testing, confidence limits, correlation, and regression. P, Math 225 or consent.

Econ 428 Statistics II 3(3,2) FS
Probability, point and interval estimation, tests of hypotheses, multiple regression and correlation, chi square analysis, and analysis of variance. P, Stat 341.

441 Analysis of Variance 3(3,0) S
Data interpretation, hypothesis testing and modeling with analysis of variance and regression. P, 341 or 381.

**Graduate Courses**

541-641 Statistical Methods II 3(3,0) FS
Analysis of variance, various types of regression and other statistical techniques and distribution. Sections offered in the areas of Biological Science and Social Science. P, 341 or 381.

545-645 Nonparametric Statistics 2 F
Standard nonparametric methods of statistical analysis. Various methods will be compared with one another and with parametric methods where applicable. Special attention given to analogies with ordinary regression and ANOVA and an emphasis on the actual construction of tests tailored to specific problems. P, 341 or 381.

581-681 Statistics for the Physical Sciences 3(3,0) FS
Analysis of variance, various types of regression and other statistical techniques and distribution. P, 381.

751 Interpretation of Statistical Software Output 2 S
Interpretation of statistical software package(s). P, Stat 641.

761 Experimental Design 3 F
Experimental designs involving confounding will be explored as it relates to factorial experiments, incomplete block, lattice, and incomplete latin square designs. P, Stat 541-641.

791 Special Topics in Statistics 1-3,6 max/student
Advanced study of one or more selected topics as student need justifies such as sampling, statistical genetics, multivariate statistics. P, Stat 641.
Mechanical Engineering

College of Engineering

Associate Professor D.P. Froehlich, Head; Professors Ghazi, Hamidzadeh, Moutsoglow; Professors Emeriti Christianson, Knofczynski; Associate Professor Mikessell; Assistant Professors Bassett, Delanian, Remund; Instructors Tolle, Turner.

Mechanical Engineers have a remarkable range of career directions from which they can choose. They can work in research, development, design, testing, manufacturing, operations and maintenance, marketing and sales, or in management and administration. They can work in industry, business, government or in educational institutions. They can also work with other professions such as law and medicine. Mechanical Engineers are employed in almost all industries including automotive, chemical, aircraft/aerospace, power, petroleum, computer, machinery (industrial, farm, office), rubber, electronic, textile, pharmaceutical, paper products, utilities, and many others. Their work takes them to many parts of the world; they can probe the depths of the oceans or explore outer space as astronauts.

Mechanical Engineering is an exciting profession which offers breadth, flexibility and individuality to those who want challenge and satisfaction rather than just a job. Mechanical Engineers are also concerned with the needs of people and society. They deal with the physical aspects of human life applying their knowledge toward making life better and toward the solution of socio-humanistic problems. Mechanical Engineers are concerned, involved, and want to accomplish a better world.

The curriculum is made up of five categories or kinds of courses. These are: Basic Sciences, Engineering Sciences, Design, Communications, and Socio-Humanistic. The Basic Sciences of mathematics, physics and chemistry provide the foundation for all engineering and technical courses. The Engineering Sciences are: solid mechanics, fluid mechanics, thermodynamics, heat transfer, systems and controls, materials, electrical fields and others. These courses are analytical in nature and use mathematical modeling to represent engineering problems. In the Design category, the student is introduced to the systems approach of solving problems where ideas, imagination, modeling and analysis are joined together to create a new component or a new product. Communications courses include English, graphics and computer languages. Courses from the Socio-Humanistic areas are also required in our curriculum. Some of these are: sociology, history, psychology, economics, religion and others. These courses provide a rounded education which will enable Mechanical Engineers to understand their culture and society.

In the senior year, opportunity is given for specialization in various technical-option areas according to the student's interest and abilities. These include aerospace engineering, thermal engineering, industrial engineering, machine design, nuclear engineering, and environmental engineering. Elective courses are provided to allow this flexibility in the curriculum. Technical electives must be approved by the department head, and must total at least 11 credits, including one elective design course.

A minimum of 16 credits of Humanities and Social Sciences are required. Of the 16, a minimum of 6 credits (1 course from a department other than English) have to be Humanities and 9 credits Social Sciences (at least 2 courses from same department). The approved courses and restrictions are listed in the Humanities and Social Sciences sections under the Graduation Requirements in this catalog. These courses also have to satisfy the “in-depth” requirement of EAC/ABET. The laboratory program supports and supplements the classroom lectures with experimental work. Here, students learn to perform tests, collect and analyze data, compare with theory and arrive at conclusions. Also students develop a report writing capability which will be very valuable to them in their future careers.

The department will help interested students arrange cooperative work/study programs with industry. Credit may be obtained for these work experiences, by prior arrangement with the appropriate faculty member and department head, and by registering for ME 494, 495, or 496. These credits, upon approval, may fulfill part of the technical-elective requirements above.

In addition to the Graduation Requirements and Academic Performance Requirements specified in this catalog, the following grade requirements must be met to earn a Bachelor of Science Degree in Mechanical Engineering: a combined average of “C” or better in the Mechanical Engineering courses; a combined average of “C” or better in the Mathematics courses; a minimum grade of “C” in each of the following courses: Math 123, Math 224, Phys 211, ME 311, ME 312 and all EM designated courses. Students will not be permitted to enroll in ME 312 or EM 331 unless they have earned a minimum grade of “C” in ME 311.

To make the transition easier for high school students interested in a career in Mechanical Engineering, the following guidelines are suggested: study as much mathematics as available, including calculus (if possible), one year of physics, one year of chemistry and four years of English.

Curriculum in Mechanical Engineering

The Mechanical Engineering Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). 136 Semester Credits are required for the Bachelor of Science Degree

<table>
<thead>
<tr>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Year</td>
</tr>
<tr>
<td>Mathematical Analysis I-II Math 123-224......</td>
</tr>
<tr>
<td>General Chem, Chem 112.....................</td>
</tr>
<tr>
<td>Fr Comp, Engl 101, or Fund of Speech, SpCm 101 (either order).........</td>
</tr>
<tr>
<td>Engineering Design Graphics I-II, EG 121-122...</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100.........</td>
</tr>
<tr>
<td>Orientation for Engineers, GE 110-111........</td>
</tr>
<tr>
<td>Electives....................................</td>
</tr>
<tr>
<td>General Physics I, Phys 211................</td>
</tr>
<tr>
<td>Statics, EM 221.............................</td>
</tr>
<tr>
<td>Sophomore Year</td>
</tr>
<tr>
<td>Mathematical Analysis III, Math 225..........</td>
</tr>
<tr>
<td>General Physics II, Phys 213.................</td>
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<tr>
<td>Dynamics, EM 222................................</td>
</tr>
<tr>
<td>Industrial Machine Tool Applications, ES 225..</td>
</tr>
<tr>
<td>FORTRAN, CSc 213..............................</td>
</tr>
<tr>
<td>Engineering Materials, ME 241................</td>
</tr>
<tr>
<td>Computer Aided Graphics, EG 123..............</td>
</tr>
<tr>
<td>Differential Equations, Math 321...............</td>
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<tr>
<td>Mechanics of Materials, EM 321..............</td>
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<tr>
<td>Fund. Mechanical Design, ME 240.............</td>
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<tr>
<td>Thermodynamics I, ME 311...................</td>
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<tr>
<td>Intro to Literature, Engl 218................</td>
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<tr>
<td>Macroeconomics Principles, Econ 201.........</td>
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<tr>
<td>Junior Year</td>
</tr>
<tr>
<td>Kin. &amp; Dynamics of Mach. Elements, ME 321...</td>
</tr>
<tr>
<td>Fluid Mechanics, EM 331........................</td>
</tr>
<tr>
<td>Adv. Engr. Math, Math 331, or Numerical Analysis, Math 571...........</td>
</tr>
<tr>
<td>Technical Communications, Engl 303...........</td>
</tr>
<tr>
<td>Thermodynamics II, ME 312....................</td>
</tr>
<tr>
<td>Basic Electrical Engineering I-II, EE 305-306..</td>
</tr>
<tr>
<td>Heat Transfer, ME 415..........................</td>
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</table>
Math Stat, Math 381 ........................................ 4
Instrumentation Lab, ME 376 ................................. 2
Electives .................................................................. 5-6

Senior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ME 411</td>
<td>Design of Machine Elements, ME 421</td>
<td>4</td>
</tr>
<tr>
<td>ME 418</td>
<td>Design of Thermal Systems, ME 418</td>
<td>3</td>
</tr>
<tr>
<td>ME 422</td>
<td>Vibrations, ME 322</td>
<td>3</td>
</tr>
<tr>
<td>ME 427</td>
<td>Thermo-Fluids Lab, ME 476</td>
<td>1</td>
</tr>
<tr>
<td>ME 449</td>
<td>Inspection Trip, ME 480</td>
<td>0</td>
</tr>
<tr>
<td>ME 451</td>
<td>Automatic Controls, ME 451</td>
<td>3</td>
</tr>
<tr>
<td>ME 477</td>
<td>Mechanical Systems Design I, ME 477</td>
<td>1</td>
</tr>
<tr>
<td>ME 478</td>
<td>Mechanical Systems Design II, ME 478</td>
<td>2</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>5-6</td>
</tr>
</tbody>
</table>

Technical Electives (11 credits)
The 11 credits of technical electives may be chosen from the following list. At least three credit hours must be in design. Design courses are identified by an asterisk (*).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 341</td>
<td>Metallurgy, ME 341</td>
<td>3</td>
</tr>
<tr>
<td>ME 362</td>
<td>Industrial Engineering, ME 362</td>
<td>3</td>
</tr>
<tr>
<td>ME 411</td>
<td>Environmental Engineering, ME 411</td>
<td>3</td>
</tr>
<tr>
<td>ME 412</td>
<td>Internal Combustion Engines, ME 412</td>
<td>3</td>
</tr>
<tr>
<td>ME 413</td>
<td>Turbomachinery, ME 413</td>
<td>3</td>
</tr>
<tr>
<td>ME 428</td>
<td>Computer Aided Engineering, ME 428</td>
<td>3</td>
</tr>
<tr>
<td>ME 429</td>
<td>Heating &amp; Air Conditioning Design, ME 429</td>
<td>3</td>
</tr>
<tr>
<td>ME 431</td>
<td>Aerodynamics, ME 431</td>
<td>3</td>
</tr>
<tr>
<td>ME 461</td>
<td>Analysis &amp; Design of Industrial Systems, ME 461</td>
<td>3</td>
</tr>
<tr>
<td>ME 492</td>
<td>Special Problems, ME 492</td>
<td>1-5</td>
</tr>
<tr>
<td>ME 493</td>
<td>Special Topics, ME 493</td>
<td>1-5</td>
</tr>
</tbody>
</table>

Courses from other departments or disciplines accepted on approval.

Undergraduate Courses

240 Fundamentals of Mechanical Design 3(3,0) FS

241 Engineering Materials 3(3,0) FS
Structure of materials, including atoms, perfect and imperfect crystals and phases. Effect of mechanical stresses, thermal reactions, magnetic fields and corrosion on microstructure. Phases and mechanical behavior of ceramics. Linear and three dimensional polymers and deformation of polymeric materials. P, Chem 112.

311 Thermodynamics I 3(3,0) FS

312 Thermodynamics II 3(3,0) FS

313 Analytical Thermodynamics 3(3,0)*

314 Thermodynamics 3(3,0) FS

321 Kinematics & Dynamics of Machine Elements 3(1,4) FS

322 Vibrations 3(3,0) FS

341 Metallurgy 3(1,4) F
Crystalline structure and physical properties of metals, phase transformation diagrams, effect of mechanical or thermal treatment on grain structure of ferrous and non ferrous alloys. Laboratory demonstrates fundamental principles and presents necessary techniques of metallography. P, ME 241 and consent.

361 Methods Engineering & Work Measurement 2(0,4)*
Work methods design and measurement of industrial enterprises. Rigorous engineering approach to work methods design. Methods of setting time standards including stop watch time study, work sampling, predetermined motion times, and standard data. P, 362 or consent.

362 Industrial Engineering 3(0) F
Modern industrial engineering. Planning, organizing and directing industrial enterprises. Quantitative analysis of management problems in production planning and control, quality control, reliability, facility planning and PERT. Applications and examples from realistic situations. P, CSc 213.

376 Measurements and Instrumentation Lab 2(1,3) FS

381 Mechanical Equipment of Buildings 3(3,0)*

411 Environmental Engineering 3(3,0) F

412 Internal Combustion Engines 3(3,0) F
Theory, design and operation of spark ignition and compression ignition engines. Performance characteristics and efficiencies; combustion and thermochemistry of fuel-air mixture exhaust emissions as they pertain to air pollution. P, ME 311, EM 331.

413 Turbomachinery 3(3,0) S

415 Heat Transfer 3(3,0) FS

416 Computer-Aided Engineering 3(2,2)
Introduction to applied structural and thermal design and analysis using the ANSYS finite element software package. One-, two- and three- dimensional static structural problems modeled using the direct generation method as well as solid modeling techniques. Steady-state and transient thermal analysis are performed. Thermally-induced stresses and displacements that occur in non-uniform temperature structures, solutions of two- or three- dimensional fluid mechanics problems, and optimization techniques are discussed. P, EG 123, EM 222, ME 415 or instructor’s consent.

418 Design of Thermal Systems 3(3,0) F
Systems approach to design, mathematical modeling, simulation and optimization of systems, with particular emphasis on thermal systems. P, EM 331, ME 312, ME 415.

419 Heating and Air Conditioning Design 3(2,2) S
Analysis of heating and air conditioning equipment. Design of heating and air conditioning systems. Economic considerations. Use of computers as design aids. P, senior standing or consent.
Mechanized Agriculture

Mechanized Agriculture is a four-year major developed around the General Agriculture core curriculum. It is designed to give broad training in both Agricultural Sciences and Agricultural Mechanization. It prepares you for farm management, extension work, farm machinery and equipment sales, sales or contracting enterprises, farming, electric power use, work with federal agencies such as Soil Conservation Service, agricultural loan officer with banks, food and food processing plants, vocational agriculture teachers in multiple teacher programs, and other fields related to Agriculture. Cooperative Education and Industry Cooperative Programs are available in the department. Arrangements may be made for some credit under MA 494-495-496, Cooperative Education/Internship/Field Experience.

Curriculum in Agriculture, Mechanized Agriculture Major
Leading to the Bachelor of Science Degree

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
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<tbody>
<tr>
<td>527-627</td>
<td>Gas Dynamics I 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>590-690</td>
<td>Special Problems 1-5</td>
<td>S 5</td>
</tr>
<tr>
<td>595-695</td>
<td>Special Topics 1-3</td>
<td>F 5</td>
</tr>
<tr>
<td>700/701</td>
<td>Seminar 0-1</td>
<td>F 5</td>
</tr>
<tr>
<td>703</td>
<td>Thermo-Fluid Energy Systems 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>706</td>
<td>Statistical Thermodynamics 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>711</td>
<td>Advanced Heat Transfer I 3(3,0)</td>
<td>F 5</td>
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<tr>
<td>712</td>
<td>Convection Heat Transfer 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>721</td>
<td>Viscous Flow Theory I 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>728</td>
<td>Gas Dynamics II 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>731</td>
<td>Advanced Analytical Methods 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>735</td>
<td>Modeling &amp; Simulation of Dynamic Systems 3(2,3)</td>
<td>F 5</td>
</tr>
<tr>
<td>739</td>
<td>Advanced Metallurgy 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>741</td>
<td>Advanced Stress Analysis in Mechanical Design 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>745</td>
<td>Advanced Machine Design 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>761</td>
<td>Intro to Operations Research 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>762</td>
<td>Quality Control &amp; Reliability 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>763</td>
<td>Topics in Reliability Engineering 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>765</td>
<td>System Analysis 3(3,0)</td>
<td>F 5</td>
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<tr>
<td>767</td>
<td>Decision Theory 3(3,0)</td>
<td>F 5</td>
</tr>
<tr>
<td>790</td>
<td>Thesis 5-7</td>
<td>F 5</td>
</tr>
<tr>
<td>791</td>
<td>Thesis Sustaining</td>
<td>F 5</td>
</tr>
<tr>
<td>792</td>
<td>Research or Design Paper 1-2</td>
<td>F 5</td>
</tr>
<tr>
<td>794</td>
<td>Special Problems 1-3</td>
<td>F 5</td>
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<tr>
<td>795</td>
<td>Special Topics 1-3</td>
<td>F 5</td>
</tr>
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</table>

On sufficient demand if faculty loads allow.
### Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Mathematics of Finance, Math 241</td>
<td>3</td>
</tr>
<tr>
<td>Engineering Design Graphics, EG 121</td>
<td>1</td>
</tr>
<tr>
<td>Soils, PS 113</td>
<td>3</td>
</tr>
<tr>
<td>Farm Power Units, MA 213</td>
<td>3</td>
</tr>
<tr>
<td>Microcomputer Literacy, CSC 112</td>
<td>2</td>
</tr>
<tr>
<td>Principles of Actg I, Actg 210</td>
<td>3</td>
</tr>
<tr>
<td>Group I Elective*</td>
<td>6</td>
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<tr>
<td>Humanities Elective†</td>
<td>3</td>
</tr>
<tr>
<td>Social Science Elective†</td>
<td>3</td>
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</table>

### Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Advanced Composition, Engl 300**</td>
<td>3</td>
</tr>
<tr>
<td>Electricity for Farm and Home, MA 342</td>
<td>3</td>
</tr>
<tr>
<td>Macro or Microeconomics Principles, Econ 201 or Econ 202</td>
<td>3</td>
</tr>
<tr>
<td>Soil &amp; Water Mechanics, MA 333</td>
<td>3</td>
</tr>
<tr>
<td>Elementary Physics I-II, Phys 111-113</td>
<td>4</td>
</tr>
<tr>
<td>Farm Mach. &amp; Hydraulics, MA 313</td>
<td>3</td>
</tr>
<tr>
<td>Elective &amp; Option Courses</td>
<td>4</td>
</tr>
<tr>
<td>Humanities Elective†</td>
<td>3</td>
</tr>
<tr>
<td>Communication Elective**</td>
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</table>

### Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm Building Mechanization, MA 423</td>
<td>3</td>
</tr>
<tr>
<td>Processing, Equipment &amp; Agricultural Products, MA 443</td>
<td>3</td>
</tr>
<tr>
<td>Physical Climatology &amp; Meteorology, AE 353</td>
<td>3</td>
</tr>
<tr>
<td>Business Law, BAdm 350</td>
<td>3</td>
</tr>
<tr>
<td>Technical Elective**</td>
<td>3</td>
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<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Seminar, AE 471</td>
<td>1</td>
</tr>
<tr>
<td>Elective &amp; Option Courses</td>
<td>6</td>
</tr>
<tr>
<td>Agricultural Waste Management, MA 463</td>
<td>3</td>
</tr>
</tbody>
</table>

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1. Courses must be selected from the following areas: Botany, Biology, Entomology-Zoology, Plant Science, Microbiology.
2. Students majoring in Mechatronic Agriculture may not use Mechatronic Agriculture courses to satisfy the Group I requirements. Group I requirements include Plant Science 113 plus 9 additional credits from Group I.
3. See College of Agriculture and Biological Sciences Core Curriculum Requirements. "C" grade required in Engl 300 or you must pass Writing in the Sciences, Engl 307.
4. **Technical electives must be selected from the approved list provided.

In addition to the above courses a minimum of 15 semester hours under the Business, Science, Irrigation Equipment, Processing and Agricultural Education options is required. The elective program must be planned with the adviser and approved by the department head.

#### Business Option

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Microeconomics Principles, Econ 202</td>
<td>3</td>
</tr>
<tr>
<td>Money and Banking, Econ 330</td>
<td>3</td>
</tr>
<tr>
<td>Business Management, BAdm 360</td>
<td>3</td>
</tr>
<tr>
<td>Statistical Methods I, Stat 341 or equivalent</td>
<td>3</td>
</tr>
<tr>
<td>Business Finance, BAdm 310</td>
<td>3</td>
</tr>
<tr>
<td>Business Electives</td>
<td>3</td>
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<tr>
<td>Farm &amp; Ranch Management, AgEc 271</td>
<td>4</td>
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</table>

#### Science & Production Option

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>General Microbiology, Micr 231</td>
<td>4</td>
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<tr>
<td>Biological Science Electives</td>
<td>7</td>
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<tr>
<td>Chemistry</td>
<td>7</td>
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<tr>
<td>Mathematics and/or Physics</td>
<td>4</td>
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<tr>
<td>Science Electives</td>
<td>6</td>
</tr>
<tr>
<td>Animal Science Electives</td>
<td>4</td>
</tr>
<tr>
<td>Plant Science Electives</td>
<td>9</td>
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<tr>
<td>Small Power Equipment, MA 433</td>
<td>2</td>
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#### Irrigation Option

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Forage Crops and Pasture Management, PS 313</td>
<td>3</td>
</tr>
<tr>
<td>Soil Fertility &amp; Fertilizers, PS 323</td>
<td>3</td>
</tr>
<tr>
<td>Vegetable Growing, Ho 212</td>
<td>3</td>
</tr>
<tr>
<td>Conservation &amp; Management of Soils, PS 372</td>
<td>3</td>
</tr>
<tr>
<td>Physical Environment of Soils &amp; Plants, PS 352</td>
<td>2</td>
</tr>
<tr>
<td>Irrigation, PS 483</td>
<td>3</td>
</tr>
<tr>
<td>Geology, PS 243</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Plant Pathology I, PS 223</td>
<td>3</td>
</tr>
<tr>
<td>Plant Kingdom, Bot 201</td>
<td>3</td>
</tr>
<tr>
<td>Elementary Surveying, CE 106</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics and/or Physics, Chemistry</td>
<td>6</td>
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</tbody>
</table>

#### Equipment & Processing Option

(15 credits to be selected from following courses)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Grain &amp; Seed Production &amp; Processing, PS 312</td>
<td>2</td>
</tr>
<tr>
<td>General Microbiology, Micr 231</td>
<td>4</td>
</tr>
<tr>
<td>Food Microbiology, Micr 311</td>
<td>3</td>
</tr>
<tr>
<td>Dairy Product Processing I, DS 321</td>
<td>5</td>
</tr>
<tr>
<td>Vegetable Growing, Ho 212</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Plant Pathology I, PS 223</td>
<td>3</td>
</tr>
<tr>
<td>Meat: Production to Consumption, AS 241</td>
<td>3</td>
</tr>
<tr>
<td>Meat Processing Lab, AS 242</td>
<td>4</td>
</tr>
<tr>
<td>Experimental Foods, NFS 341</td>
<td>3</td>
</tr>
<tr>
<td>Experimental Testing &amp; Development in Food Science, NFS 342</td>
<td>3</td>
</tr>
<tr>
<td>Dairy Plant Management, DS 421</td>
<td>3</td>
</tr>
<tr>
<td>Small Engines and Equipment, MA 433</td>
<td>2</td>
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</tbody>
</table>

#### Vocational Agriculture Teacher Option*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>General Psychology, Psy 101</td>
<td>3</td>
</tr>
<tr>
<td>Educational Psychology, EPsy 302</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Education Seminar, AgEd 301</td>
<td>1</td>
</tr>
<tr>
<td>Summer Experience, AgEd 470</td>
<td>1</td>
</tr>
<tr>
<td>Principles of Vocational Education &amp; Practical Arts, VTTE 405</td>
<td>2</td>
</tr>
<tr>
<td>Program Planning in Vocational Agriculture, AgEd 404</td>
<td>4</td>
</tr>
<tr>
<td>Special Methods in Vocational Agriculture, AgEd 434</td>
<td>3</td>
</tr>
<tr>
<td>Teaching Agricultural Mechanics, AgEd 464</td>
<td>2</td>
</tr>
<tr>
<td>Student Teaching in Agricultural Education, AgEd 475</td>
<td>8</td>
</tr>
<tr>
<td>Indian Studies, Anth 421 or History, Hist 368</td>
<td>3</td>
</tr>
<tr>
<td>Teaching of Reading, SeEd 450</td>
<td>3</td>
</tr>
</tbody>
</table>

* Option credits may be applied to a double major in Agricultural Education. A degree in Ag.Ed. is presently required for teaching certification in South Dakota. Students should check with the Ag.Ed. office by the end of the Sophomore year to find out the specific certification requirements for the particular state that they plan to teach in.

#### Technical Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Finance, BAdm 310</td>
<td>3</td>
</tr>
<tr>
<td>Personal Finance, BAdm 380</td>
<td>3</td>
</tr>
<tr>
<td>Environmental Safety and Society, MA 262</td>
<td>2</td>
</tr>
<tr>
<td>Small Engines and Equipment, MA 433</td>
<td>3</td>
</tr>
<tr>
<td>Microcomputer Appl. in AE, AE 372</td>
<td>2</td>
</tr>
<tr>
<td>Special Problems, MA 492</td>
<td>1-3</td>
</tr>
<tr>
<td>Cooper. Education, MA 494 or 495 or 496</td>
<td>1-3</td>
</tr>
<tr>
<td>Any 300 or higher level course in Animal and Range, Plant Science</td>
<td>3</td>
</tr>
<tr>
<td>Sciences, excluding Group I courses</td>
<td></td>
</tr>
</tbody>
</table>

MINOR REQUIREMENTS: MA 202, 213, 333, 342, plus 6 hours from the following: MA 262, 273, 313, 423, 443, 463, and 492.
Undergraduate Courses

402 Agricultural Mechanics 2(1,2) FS
Wood and concrete building materials; efficient construction procedures; hand tools, portable and stationary power tools; safe working practices.

213 Farm Power Units 3(2,2) FS
Operation and maintenance of large and small spark ignition engines and diesel engines. Proper selection of tractors with respect to horsepower, fuel efficiency, safety, cost of operation, traction and power train type will be covered. P, Math 110.

223 Auto Mechanics 2(1,2) FS
Engine tune-up, servicing and repairing engine accessories; testing valves, carburetors, ignition systems; installing new rings, valves, and general work required of mechanics.

222 Environmental Safety and Society 2(2,0) F
Examination of appropriate safety procedures and practices for rural environments and associated occupations. Explorations of the social, economic and physical consequences of their implementations. Individual and societal responsibilities with regard to safety and safe practices.

273 Micro-Computer Applications in Agriculture 3(2,2) S
Explains basics of micro/transducer/control interfacing as used for farm machinery and equipment. Popular agricultural software, data management for agricultural applications will be explored. Practical experience in monitoring and controlling agricultural processes, equipment and systems.

313 Farm Machinery and Hydraulics 3(2,2) S

333 Soil & Water Mechanics 3(2,2) FS
Engineering phases of soil and water conservation; elementary measurements and surveying and application to field problems; design and layout of conservation, drainage and irrigation practices.

342 Electricity for Farm & Home 3(2,2) FS
Basic wiring, electrical circuits, controls, lighting, electric motor selection and operation. Electric distribution system design, including wire and service entrance sizing.

423 Farm Building Mechanization 3(2,2) FS
Materials and construction techniques for farm buildings. Special attention to planning mechanization of livestock housing facilities, feeding operations, and manure removal systems.

443 Processing Equipment for Agricultural Products 3(2,2) F
Mechanics, refrigeration, heat transfer, instrumentation, and equipment operation as applied to materials, handling, storing, preserving, packaging and processing agricultural products.

452 Teaching Agricultural Mechanics 2(3,3) 5 weeks & 8 hours TBA FSSu
Shop management, safety, shop plans, selection, care, and use of hand and power tools and equipment to be taken as part of student teaching block in Agricultural Education. P, senior in agricultural education. Offered first half of semester. P, MA 202.

463 Agricultural Waste Management 3(3,0) F

492 Special Problems 1-3
Must have approval of adviser and department head.

493 Special Topics 1-4

494-495-496 Cooperative Education/Internship/Field Experience 1-12 FSSu
Planned and supervised professional experience related to mechanized agriculture which takes place outside the formal classroom with private business or industry, or public agencies. P, consent of department program coordinator.

Graduate Courses

512-612 Advanced Farm Machinery 2(1,3) Su (even years)
Operation, care, adjustment, new developments in farm machinery, with emphasis on field and farm machinery as related to needs of agricultural production.

522-622 Advanced Farm Structures 2(1,3) Su (even years)
Materials for farm construction; construction methods and techniques; new developments in farm building.

562-662 Advanced Irrigation Mechanics & Practices 2(1,3) Su (odd years)
Sprinkler, surface and trickle irrigation systems and equipment. Irrigation scheduling, management, and economics. Water laws and irrigation program financing. Water quality and environmental impact of irrigation.

582-682 Advanced Farm Engines 2(1,3) Su (odd years)
Operation, selection, care, adjustment, and new development of internal combustion engines as applied to farm power units.

792 Special Problems 1-3 FSSu

793 Special Topics 1-4 FSSu

Microbiology (Mic)
(See Biology and Microbiology)

Military Science (Mil)
(Army ROTC)

College of Arts and Science
LTC Berry, Professor of Military Science, Head; Professor Emeritus Adams; Assistant Professors of Military Science Brannock, Gaub, Griesenbrock, Henry, Tubandt; Master Sergeant Walker, Sergeant First Class Aikin.

The Department of Military Science offers instruction and practical experience in leadership and management, the development of selected military skills and problem solving techniques, the role of the Army in modern society, the customs and traditions of the Army, marksmanship, military law, administration and professional ethics. Military Science training prepares qualified students seeking a baccalaureate degree to serve as commissioned officers in the active Army, the Army National Guard or the Army Reserve.

Programs

The department has three on-campus officer training programs: the four-year program consisting of the basic course for freshmen and sophomores followed by the advanced course for juniors and seniors; a three-year program where the basic course is compressed into the sophomore year followed by the advanced course, and a two-year program with four entry points for students. The first entry point is where placement credit is allowed for the basic course to qualified veterans and members of the Army National Guard and the Army Reserve. A second entry point is available to students who desire to be paid for the equivalent of the basic course by attending the ROTC Basic Camp in the summer prior to their junior year. Finally, qualified students can be admitted to the Advanced Course by signing a contract to complete the ROTC Basic Camp and Advanced Camp requirements during their last two years in college. BY ENROLLING IN THE BASIC COURSE OR ITS EQUIVALENT SUBSTITUTE TRAINING, STUDENTS DO NOT MAKE ANY COMMITMENT TO THE US ARMY UNLESS THEY ARE SCHOLARSHIP RECIPIENTS. TUITION IS NOT CHARGED FOR ROTC COURSES. All necessary ROTC textbooks, uniforms and other essential materials are furnished to the student at no cost. Fifty percent tuition credit for Advanced Course non-scholarship cadets.
Courses

101-102 Military Science I

101 The Army Officer 1 FSSu
Includes the following meaningful for life subjects: The role of the Reservists Training Corps (ROTC), organization of the Army, and leadership and management of personnel and resources in an outdoor environment. Optional laboratory exercises include small arms, marksmanship, and leadership practices.*

102 Military Geography and Leadership Tasks 1 FSSu
Fundamentals of military geography and the use of maps and modern technologies to develop leadership skills. Optional laboratory exercises include land navigation using maps and compasses, military ceremonies, and an outdoor leadership and tactics exercise.*

201-202 Military Science II

201 Leadership Theory and Application 2** FS
This course is designed to provide students with opportunities to apply basic leadership and management skills within the context of realistic situations. Each simulation exercise is based on real-life problems requiring knowledge and skills. The course consists of four exercises followed by individual performance feedback and group seminars on each of the leadership dimensions. Optional laboratory exercises include military ceremonies, land navigation, leadership in drill and ceremonies, and an outdoor adventure practicum.*

202 Officer Development and Tactics 2** FS
This program evaluates student attributes in twelve leadership dimensions through exercises designed to bring out specific behavior. The course consists of four exercises followed by individual performance feedback and group seminars on each of the leadership dimensions. Optional laboratory exercises include military ceremonies, physical development practicum, and an outdoor adventure practicum.*

291 ROTC Six Week Basic Camp 4 Su
Substitutes for freshman and sophomore on-campus instruction by giving practical experience in a field training environment. Challenges the student physically and mentally. The camp provides a practical introduction to small unit operations. Course grade derived from student's overall camp evaluation results and a paper on the training and leadership experience. The student should be a second semester sophomore or junior with more than 2 years remaining before graduation.

301-302 Military Science III

301 Military Communication and Human Relations 3(3**) FS
Development of skills necessary to be an effective leader to include an understanding of communication skills, leadership, and organizational structures. The course focuses on small arms marksmanship, leadership in small unit operations, and leadership reaction practical exercises.*

302 Military Operations and Tactics 3(3**) FS
Application of skills learned in Mil 301 with emphasis on leadership and management of personnel and resources in an outdoor environment. Subjects include: leadership, communications, weapons systems, and military skills orientation. A 2.0 academic grade point average is required for enrollment. Laboratory work includes physical fitness, land navigation, leadership in drill and ceremonies, and leadership reaction practical exercises.*

365 American Military History 3(3.0)
Taught by special arrangement through the History Department. Dr. Jerry Sweeney is the instructor.

401-402 Military Science IV

401 Soviet Studies & Military Law 3(3**) FS
The first half of the semester will deal with the contemporary Soviet military organization, strategy and tactics, and weapons systems. The second half of the semester will provide the student with the fundamentals of US Army administration procedures. Laboratory work includes practical work as a cadet officer trainee within the structure of the cadet corps as well as special projects stressing the leadership dimensions of planning and organizing, administrative control, delegation, influence and decision making. Labs are a continuation of Mil 301 and 302.

402 Ethics and Professionalism 3(3**) FS
Outlines the historical basis for the development of the current military law system. The student will learn the intent and methods of application of military justice. This course also provides the student with an introduction to the profession of the leadership dimensions of legal knowledge, the characteristics of the military life, and duties and responsibilities of an officer. Laboratory work is a continuation of Mil 401 with emphasis on conducting a tactical training exercise for the Army in MS II.

492 Military Science V 1-3
Designed as a special projects course. Students will be permitted to enroll in this class only with the approval of the Professor of Military Science. The PMS will approve individual proposals and assign credits.

494 Military Science Advanced Camp and Internship 4 Su
ROTC six week Advanced Camp supplements on-campus instruction by giving practical experience in a field training environment. Provides opportunities to develop and demonstrate leadership capabilities in various situations, with emphasis on small group level, through problem analysis, decision-making, and troop leadership experiences. Challenges you physically and mentally and provides a practical introduction to Army life. Course grade derived from student's overall camp evaluation results and a paper on the training, or training management analysis of internship experience.

495 ROTC Nursing Advanced Camp 3 Su
Clinical experience in a military hospital. Includes a one-week field training exercise followed by a five-week clinical practicum with self-study and research. Provides Advanced Course ROTC students leadership experiences in the clinical nursing setting and knowledge of the duties, responsibilities, and expectations of the Army Nurse. With approval of College of Nursing, experience may be substituted for three of required six credits of Nurs 491, Directed Studies in Nursing (See Nurs 481). F, Mil 302 and approval of College of Nursing for credit.

Leadership Development Lab

Military Science I and II Laboratories
A series of labs on military-related subjects such as orientation, recondo, mountain climbers, and various physical activities. These outdoor enrichment labs are optional for freshmen. Schedule to be arranged.

Military Science III Lab
Duties and responsibilities of junior leaders, emphasis on developing confidence, proficiency, and physical fitness.

Military Science IV Lab
Application of leadership principles, stressing responsibilities of the leader and affording experience and developing potential through the planning, conduct, and execution of training management experiences.

Requirements for Advanced Course
All those enrolling in the Advanced Course must:
(1) Have completed the Basic Course or its equivalent.

166 Military Science
Be a U.S. citizen and able to complete the Advanced Course, graduate, and be commissioned prior to age 30.

(3) Be physically qualified under standards prescribed by the Department of the Army.

(4) Successfully complete such survey and general screening tests as may be prescribed.

(5) Have an academic cumulative grade point average of 2.0 or higher.

(6) Complete a University offered Military History course prior to graduation.

(7) Have two years of academic work remaining for a degree.

(8) Sign a written agreement.

Army ROTC Scholarships

Financial Assistance

Scholarships. Qualified students can compete for 4-year and 3-year scholarships which cover full tuition, laboratory and instructional fees, University student fees (less tickets for athletic events), transcript, cap and gown, diploma, and selected graduation fees. 3-year and 2-year (nurse) scholarship interviews are conducted during the fall semester in the Military Science Department on campus. A flat rate book and supplies payment and a $100.00 a month subsistence allowance are provided each semester. Scholarship competition (4-year scholarship) is conducted by the Department of the Army in the fall for University bound high school students. Applications are available in Room 200, DePuy Military Hall. NOTE: High school students should contact their high school counselor for 4-year scholarship application forms, to be completed following the junior year or early in the fall of the senior year. If your counselor does not have the forms, contact the Department of Military Science, SDSU, Brookings, SD 57007 or call (605) 688-6151. Scholarship students must successfully complete a University offered foreign language course prior to graduation.

Optional Army Schooling Available to Qualified Cadets

(1) Airborne training at Fort Benning, Georgia for 3 weeks

(2) Air Assault training for 10 days

(3) Cadet Troop Leader Training at selected Army posts with an active Army or Reserve component unit for 2 to 3 weeks

(4) Northern Warfare training at Fort Greely, Alaska for 3 weeks

(5) Nursing Advanced Camp at selected Army hospitals for 4 weeks

Minor in Military Science

A minor in Military Science is available for those who complete 12 credits offered and who enroll and complete Mil 494 Internship. This minor is compatible to fields of major studies.

Music (Mus)

College of Arts and Science

Professor Hatfield, Head; Professor Emeritus P. Royer; Professors Colson, Johnson, McKinney, Piersel, Walker; Associate Professors H. Berberian, Canaan, Vensand; Assistant Professors A. Berberian, Lis, Spencer; Instructors Coull, R. Royer; Adjunct Instructor Wyse.

It is the responsibility of the music department to culturally serve and enrich the university community. Students are served through several options offered: participation in various academic courses; participation in making music (performance) in a variety of music organizations and/or through Applied Music (private instruction in performance); and by attending the various cultural programs presented by the department and the University throughout the year. It is further the responsibility to train student musicians to pursue a career in music, through offering quality programs in music education, performance and music merchandising. The department is committed to serving the state in this capacity.

General Information

Several courses are offered to non-majors to stimulate the appreciation and understanding of music as a dynamic cultural force in our civilization, and to provide opportunities for further development of Musical Aesthetics for lifetime enjoyment and for future avocational pursuits. Credits earned in some of these courses may be applied toward Humanities requirements of the University Core.

A. Courses which do not require previous musical knowledge or instructor consent: Music Appreciation—Mus 100; Blues, Jazz and Rock—Mus 300; Class Voice—MuAp 105-106; Class Piano—MuAp 115-116.

B. Courses which require some musical background and consent of instructor: All 100 and 200 Applied Music Courses (Private Instruction in Voice, Keyboards, Strings, Woodwinds, Brass or Percussion); Music Literature courses (I, II, III, IV); Basic Musicianship I & II (Music Theory).

C. Performance Groups (audition with director required): Concert Choir, Marching Band, Statesmen, Concert Band, Pasquettes, Symphonic Band, Chamber Singers, Jazz Ensembles, Symphony Orchestras, Woodwind Ensembles, String Ensembles, Brass Ensembles, Opera Theatre, Percussion Ensemble, Broadway Musical Production, and Opera Workshop.

The Music Major or Minor

Degrees offered for a major are the Bachelor of Arts in Music (B.A. Music), the Bachelor of Science in Music Merchandising (B.S.), and the Bachelor of Music Education (B.M.E.). The latter leads to teaching certification.

Bachelor of Arts — Music Major Program

General Studies & Electives (B.A. & University Core plus electives) .................................................... 70 hrs.

Music Curriculum:

Basic Musicianship (Theory & Literature) ........................................ 32 hrs.
Performance (Applied Music & Ensembles) ................................... 20 hrs.
Senior Recital or Honors Recital .............................................. 0-2 hrs.
Music Electives ........................................................................ 4-6 hrs.

Total 128 hrs.

This program is recommended for those whose intellectual temperament is more suited to a Liberal Arts program rather than the professional Bachelor of Music Education program. It provides an appropriate background for some candidates for advanced degrees preparing for such careers as musicologists, composers, music librarians, or teachers. Classical or jazz performance, composition, analysis or history and literature may be elected. (Students may pursue the B.A. and combine teaching certification by adding the appropriate Music Education courses and Professional Education courses found in the B.M.E. program.) This program is also recommended for those who want a double major or who want a complementary area such as Art, Dance, Drama, Foreign Language, Business, Electronics, and Radio-Television. Careful planning with advisers from music and these other disciplines is extremely important in considering schedules.

Bachelor of Science (Music Merchandising Option)

General Studies (B.S.+University Core+electives) .................................................... 49 hrs.

Music Curriculum:
Basic Musicianship (Theory & Literature) ........................................ 30 hrs.
Music Education and Pedagogy ................................ 16-18 hrs.
Music Curriculum: Basic Musicianship................... 31 hrs.

or related fields.
Leading
Bachelor of Music Education Program
General Studies (B.M.E. + University Core +
Professional Education)................................... 65 hrs.
Music Curriculum: Basic Musicianship................ 31 hrs.
Performance .................................................... 16-18 hrs.
Music Education and Pedagogy............................. 16-18 hrs.
Senior Recital................................................. 0-2 hrs.
Total 128 hrs.

This program is recommended for those who wish to gain
proficiency is required of all majors. B.A. and
lever, or by adding appropriate hours, students may prepare in both areas.

Specific Courses Required for Choral Emphasis
Conducting Fundamentals, Mus 260; Pedagogy I-II, Mus
270-271; Pedagogy III-IV, Mus 370-371; Music Education I:
Elementary Music Concepts, Mus 351; Music Education II:
Conducting, Mus 361; Music Education III: Methods and
Materials, Mus 362; Music Education IV: Supervision & Ad-
ministration of School Music, Mus 365.

Specific Courses Required for Instrumental Emphasis
Conducting Fundamentals, Mus 260; Pedagogy I-II, Mus
270-271; Pedagogy III-IV, Mus 370-371; Music Education I:
Elementary Music Concepts, Mus 351; Music Education II:
Conducting, Mus 361; Music Education III: Methods and
Materials, Mus 362; Music Education IV: Supervision & Ad-
ministration of School Music, Mus 365.

Music Requirements: (All music majors)
1. Admission as a music major in any of the music degree
programs requires the successful completion of an
audition in the student's major area of applied
instructor.
2. Music majors in all degree programs must choose one
area of applied instruction in which to specialize.
Further, students must meet the applied proficiency
standards of the department in that area. To that end,
students must:
  a. successfully complete a jury examination each
semester.
  b. apply for and be granted approval to advance to
upper level applied study (300-400 levels).
  c. complete a minimum of 6 hours of upper level
(300-400) applied study.
3. Piano proficiency is required of all majors. B.A. and
B.M.E. students must meet the requirement by
successfully completing a piano proficiency
examination. Music Merchandising majors must
successfully pass two semesters of class or private
piano instruction.
4. Fretted instrument proficiency is required of Music
Education students. Proficiency may be met by
successfully passing the guitar proficiency examination
or by completing all requirements of the guitar class.
5. Voice or instrumental proficiency is required of all
keyboard majors.

6. Foreign language study is strongly recommended for
students whose applied concentration is voice in the
B.M.E. program. 14 hours of foreign language is
required of all students enrolled in the B.A. program.
7. Ensemble Requirements:
   a. In addition to the applied music requirement,
all music majors must participate in at least
one major ensemble each semester they are
enrolled as a regular university student (a
minimum of seven semesters).
   1) Wind and percussion students must elect band,
including two semesters (minimum) of
marching band.
   2) String students must elect orchestra.
   3) Voice students must elect an appropriate choral
group.
   4) Keyboard majors must elect six pedagogy courses to achieve a
stronger preparation for teaching.

8. A minimum of four pedagogy courses is required for
students in the B.M.E. program. Instrumental majors
may wish to take six pedagogy courses to achieve a
stronger preparation for teaching. The following
courses are suggested:

<table>
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<th>Course</th>
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<td>Brass Major</td>
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<td>2 W. W. Ped.</td>
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<td>1 Brass Ped.</td>
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<td>1 Percussion Ped.</td>
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<td>1 String Ped.</td>
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<td>(1 Extra Brass Ped.)</td>
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<td>Woodwind Major</td>
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<td>1 Percussion Ped.</td>
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<tr>
<td>1 String Ped.</td>
<td>2 hrs</td>
</tr>
<tr>
<td>(1 Extra W. W. Ped.)</td>
<td>2 hrs</td>
</tr>
<tr>
<td>Percussion Major</td>
<td>16 hrs</td>
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<tr>
<td>2 Brass Ped.</td>
<td>2 hrs</td>
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<tr>
<td>(1 Percussion Ped.)</td>
<td>2 hrs</td>
</tr>
<tr>
<td>(1 String Ped.)</td>
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9. Recommendations for enrolling in student teaching will
be issued by the department head following an
interview with the student and his or her adviser.
10. A senior recital is required of all music majors.
11. Students must enroll for Recital Attendance (Mus 195)
each semester they are enrolled for applied music
courses. Requirements for this course obligate the
student to attend recital/forums as scheduled each
semester plus a prescribed number of recitals, concerts,
and programs outside the forum format. Specifics for
this requirement are delineated in the Student
Handbook.

Music Minor
Music Theory I & II........................................ 8 hrs.
Music Literature I....................................... 2 hrs.
Conducting Fundamentals................................ 2 hrs.
Music Education II (Vocal or Instrumental
Conducting) or Music Electives.................... 2 hrs.
Applied (at least two hours upper level — 300 or
400)...................................................... 6 hrs.
Music Electives........................................ 2 hrs.
Total 22 hrs.

(In addition, minors must participate in Major Ensembles
each semester in which they are enrolled in Applied Music
lessons. Participation in small ensembles is strongly encour-
aged.)
### Suggested Curriculum in Arts and Science, Music Major — B.A.

**Leading to the Bachelor of Arts Degree (128 Semester Hours)**

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<tr>
<th>Year</th>
<th>Freshman Year</th>
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<th>SENIOR YEAR</th>
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<td>Fund of Speech, SpCm 101</td>
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<td>Music Literature I-II, Mus 130-131</td>
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<td>Intermediate Musicianship III-IV, Mus 110-111</td>
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<td>Counterpoint, Mus 311</td>
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<td>Forms and Analysis, Mus 313</td>
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*Must be taken in at least two areas.

### Suggested Curriculum in Arts and Science, Music Education Major B.M.E.

**Leading to the Bachelor of Music Education Degree (128 Semester Hours)**

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<th>Year</th>
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<th>JUNIOR YEAR</th>
<th>SENIOR YEAR</th>
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<td>Freshman Year</td>
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<tr>
<td>Math Core</td>
<td>3</td>
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<td>3</td>
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</tr>
<tr>
<td>Microcomputer Literacy, CSc 112</td>
<td>2</td>
<td>2</td>
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<td>2</td>
</tr>
<tr>
<td>Basic Musicianship I-II, Mus 110, 111</td>
<td>4</td>
<td>4</td>
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</tr>
<tr>
<td>Country Music, Mus 100</td>
<td>3</td>
<td>3</td>
<td>3</td>
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</tr>
<tr>
<td>Blues, Jazz and Rock, Mus 300</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Applied Music</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Music Organizations</td>
<td>1</td>
<td>1</td>
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</tr>
<tr>
<td>Recital Att., Mus 195</td>
<td>0</td>
<td>0</td>
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</tr>
</tbody>
</table>

*Must be taken in at least two areas.

**This course may be taken in either the fall or spring semester.

### Suggested Curriculum in Arts and Science, Music Merchandising Major

**Leading to Bachelor of Science Degree (128 semester hours)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Freshman Year</th>
<th>SOPHOMORE YEAR</th>
<th>JUNIOR YEAR</th>
<th>SENIOR YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Credit</td>
<td>Credit</td>
<td>Credit</td>
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<tr>
<td>Freshman Year</td>
<td>18</td>
<td>15</td>
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<tr>
<td>Freshman Comp, Engl 10</td>
<td>3</td>
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<td>Fund of Sp, SpCm 101</td>
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<td>Class Piano, MuAp 111-113</td>
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<tr>
<td>Music Industry</td>
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<td>Math Core</td>
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<tr>
<td>Country Music, Mus 100</td>
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<tr>
<td>Blues, Jazz and Rock, Mus 300</td>
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<tr>
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<td>Music Organizations</td>
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<td>0</td>
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</tbody>
</table>

*Must be taken in at least two areas.

**This course may be taken in either the fall or spring semester.

***May elect fall semester if Orchestration and Arranging and Music Literature V have been completed along with all other music courses listed for freshman, sophomore, and junior years. Must seek approval from B.M.E. degree coordinator and department head.
The Music courses are divided into the following areas: Music (Mus); Applied Music (MuAp); and Ensemble (MuEn).

**Music (Mus)**

### Undergraduate Courses

#### General

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>100 Music Appreciation (Topical)</td>
<td>2-3</td>
</tr>
<tr>
<td>Social Science* or Elective</td>
<td>2-3</td>
</tr>
<tr>
<td>Bio Science</td>
<td>3</td>
</tr>
<tr>
<td>Microeconomics Principles, Econ 202</td>
<td>3</td>
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<tr>
<td>Fitness and Lifetime Activities, PE 100</td>
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<tr>
<td>Humanities</td>
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<tr>
<td>Intermediate Musicianship III-IV, Mus 210, 211</td>
<td>4</td>
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<tr>
<td>Music Literature III-IV, Mus 230, 231</td>
<td>2</td>
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<tr>
<td>Applied Music</td>
<td>1</td>
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<tr>
<td>Music Organizations</td>
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<tr>
<td>Recital Att., Mus 195</td>
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#### Sophomore Year

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Junior Year</td>
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<tr>
<td>Advanced Comp, Engl 300</td>
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<tr>
<td>Physical Science</td>
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<tr>
<td>Principles of Advertising, MCom 370</td>
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<tr>
<td>Principles of Accounting, Actg 210</td>
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<tr>
<td><strong>Music Elective</strong></td>
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<tr>
<td>Applied Music</td>
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<tr>
<td>Music Organization</td>
<td>1</td>
</tr>
<tr>
<td>Electives or Humanities</td>
<td>2-4</td>
</tr>
<tr>
<td>Recital Att., Mus 195</td>
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#### Junior Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Senior Year</td>
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<tr>
<td>Business Finance, BAdm 310</td>
<td>3</td>
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<tr>
<td>Social Science*</td>
<td>3</td>
</tr>
<tr>
<td>Programming I, CSc 114</td>
<td>3</td>
</tr>
<tr>
<td>Marketing, Econ 353</td>
<td>3</td>
</tr>
<tr>
<td>Music Literature V, Mus 433</td>
<td>3</td>
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<tr>
<td><strong>Professional Electives</strong></td>
<td>6-8</td>
</tr>
<tr>
<td>Senior Recital, Mus 483</td>
<td>0-2</td>
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<tr>
<td>Applied Music</td>
<td>2</td>
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<tr>
<td>Music Organizations</td>
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<td>Recital Att., Mus 195</td>
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#### Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>200 Music Appreciation in Music Theatre 2(2,0)</td>
<td></td>
</tr>
<tr>
<td>For the non-major: Development of the Broadway Musical, Opera and Operetta in America. Offered on sufficient demand.</td>
<td></td>
</tr>
<tr>
<td>202 The Music Industry 3(3,0)</td>
<td></td>
</tr>
<tr>
<td>This course examines the many facets of the music industry: music publishing, copyright distribution and merchandising music and the mass media, the recording industry, manufacturing and music management. Music in the marketplace. P, consent.</td>
<td></td>
</tr>
<tr>
<td>300 Blues, Jazz &amp; Rock 3(3,0)</td>
<td></td>
</tr>
<tr>
<td>This course examines the origins and developments of three uniquely American music and their cultural impact upon, and within, American society.</td>
<td></td>
</tr>
<tr>
<td>302 Introduction to the Recording Industry 2(2,0)</td>
<td></td>
</tr>
<tr>
<td>This course explores the scope of the record industry, record markets, artists' recording contracts, record production, the recording studio business, and record promotion and distribution. Off-campus speakers will be utilized in their specialty areas, and area recording studies will provide practical support for classroom work. P, Mus 202.</td>
<td></td>
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</table>

#### Theory

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>110 Basic Theory &amp; Musicianship I 4(3,2) F</td>
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<tr>
<td>Emphasis on fundamentals and basic skills. Terminology, fundamentals of musicianship, ear training, sight singing, chord structures, score analysis. Introduction to four-part writing. (Majors and Minors must enroll for Mus 110 and Mus 130 concurrently.)</td>
<td></td>
</tr>
<tr>
<td>111 Basic Theory &amp; Musicianship II 4(3,2) S</td>
<td></td>
</tr>
<tr>
<td>Continuation of Mus 110. Continued development of fundamental skills. Rhythmic and melodic dictation, sight singing, keyboard skills, score analysis, four-part writing. (Majors should enroll for Mus 111 and Mus 131 concurrently.) P, Mus 110.</td>
<td></td>
</tr>
<tr>
<td>210 Intermediate Theory &amp; Musicianship III 4(3,2) F</td>
<td></td>
</tr>
<tr>
<td>Continuation of Mus 111. Harmonic and melodic techniques of music literature - analysis, composition, dictation, sight singing and ear training. Introduction to principles of orchestration and arranging. P, Mus 111.</td>
<td></td>
</tr>
<tr>
<td>211 Intermediate Theory &amp; Musicianship IV 4(3,2) S</td>
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</tr>
<tr>
<td>311 Counterpoint (Advanced Musicianship V) 2-3(3,0)</td>
<td></td>
</tr>
<tr>
<td>Analysis and composition in contrapuntal techniques, with a concentration on the music of J.S. Bach. P, Mus 211.</td>
<td></td>
</tr>
<tr>
<td>313 Form &amp; Analysis (Advanced Musicianship VI) 2-3(3) S</td>
<td></td>
</tr>
<tr>
<td>Analysis of small and large forms. Concentrated study of selected scores ranging through contemporary music. P, Mus 211.</td>
<td></td>
</tr>
<tr>
<td>420 Orchestration &amp; Arranging (Advanced Musicianship VII) 2-3(3,0) FS</td>
<td></td>
</tr>
<tr>
<td>Projects in scoring for various groups, advanced study and analysis of scores. P, Mus 311, 313 or consent.</td>
<td></td>
</tr>
<tr>
<td>424 Composition 2-5(3,2)</td>
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</table>

#### Music Literature

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>130 Music Literature &amp; History I 2(2) F</td>
<td></td>
</tr>
<tr>
<td>An introductory course of music cultures of the world. Emphasis on developing a fundamental knowledge of distinctive and unique music of different nations, especially non-Western music. May be taken as humanities elective.</td>
<td></td>
</tr>
<tr>
<td>131 Music Literature &amp; History II 2(2) S</td>
<td></td>
</tr>
<tr>
<td>Ancient through Medieval and Renaissance music literature - analysis of style and form, study of historical development and significance, comparison to similar works in other periods of music history. Emphasis on listening and score study. May be taken as humanities elective.</td>
<td></td>
</tr>
<tr>
<td>230 Music Literature &amp; History III 2(2) F</td>
<td></td>
</tr>
<tr>
<td>Baroque and Classical Music literature - analysis of style and form, study of historical development and significance, comparison to similar works in other periods of music history. Emphasis on listening and score study. May be taken as humanities elective.</td>
<td></td>
</tr>
<tr>
<td>231 Music Literature &amp; History IV 2(2) S</td>
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</tr>
<tr>
<td>Romantic Music Literature - analysis of style and form, study of historical development and significance, comparison to similar works in other periods of music history. Emphasis on listening and score study. May be taken as humanities elective.</td>
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</tr>
<tr>
<td>433 Music Literature V: 20th Century Music 2(2) F</td>
<td></td>
</tr>
<tr>
<td>This course examines musical developments of the twentieth century in terms of three great cycles: first, the demise of functional tonality (1870-1918); second, the era of exploration, experimentation, and consolidation between the world wars (1918-1945); and third, the post-Hiroshima epoch (1945-present), with its attendant rationalist-anti-rationalist dichotomy.</td>
<td></td>
</tr>
</tbody>
</table>
385 Music Bibliography (3,0)
Source material for music research. Not offered every year. P, instructor consent.

Music Education
260 Conducting Fundamentals (2,1,2) F
Basic principles in conducting - rehearsal and performance. Score reading and preparation. P, Mus 110 and 111. (Concurrent with Mus 210 or 211.)

381 Music Education I Elementary Concepts (2,1,2) F
An eclectic approach to K-8 music education curriculum, methods and materials.

381 Music Education II: Conducting (2,1,2) S
Section 1: Instrumental music and materials. Emphasis on rehearsal techniques, conducting and study of appropriate materials. Section 2: Choral music methods and materials. Emphasis on rehearsal and conducting techniques through study of appropriate materials.

382 Music Education III: Methods and Materials (2,1,2) F
Section 1: Instrumental Music Methods and Materials. Emphasis on lesson, solo and ensemble materials and pedagogy for the school instrumental music teacher. Teaching techniques for individual, small, and large instrumental music ensembles are offered. Students participate in supervised on-site teaching experiences at the elementary instrumental music and general music class levels.

Section 2: Vocal Music Methods and Materials. Emphasis on choral teaching materials and teaching concepts and techniques for individual, class and ensembles for the school vocal teacher. Students participate in supervised on-site teaching experiences in choral music and general music classes.

385 Music Education IV: Supervision & Administration of School Music (2,1,2) FS
A goal and objective approach to developing student skills in managing the total school music program, including choral and instrumental at the elementary and high school levels. Organizational and administrative skills are offered with hands-on opportunities for practical application. Units are also offered in music education history and philosophy.

465 Music Education V: Instrumental Techniques (2,0) F or S (alternate years)
Three major technical topics for the prospective music teacher will be covered: Marching Band techniques, Jazz Ensemble techniques and Instrumental Repair. Emphasis on in depth development of skills and practical application. (Offered every year or on demand.)

488 Supervised Teaching in Secondary Schools (TBA) FS
Students may register for 5 hours under SeEd 488 and 5 hours under Mus 488. (Second half of semester)

Pedagogy
270 Pedagogy I 1-2(0-1,2) F
Pedagogical considerations in teaching music. Methods and concepts in specialized areas: Section 1 - Voice; Section 2 - Strings; Section 3 - Keyboard; Section 4 - Clarinet & Flute; Section 5 - Double Reeds & Saxophone; Section 6 - High Brass; Section 7 - Low Brass; Section 8 - Percussion, Voice & Keyboard offered even years only.

271 Pedagogy II 1-2(0-1,2) S
Continuation of Mus 270 sections 1-8 as in 270. Voice & Keyboard offered odd years only.

270 Pedagogy III 1-2(0-1,2) F
Continuation of Mus 271, sections 1-8 as in 270. Voice and Keyboard offered odd years only.

271 Pedagogy IV 1-2(0-1,2) S
Continuation of Mus 271, sections 1-8 as in 270. Voice and Keyboard offered even years only.

Individual Offerings
102 Living and Study Abroad
See description in Arts and Science section.

293 Course Specials Program 5
See description in Arts and Science section.

392-492 Independent Studies 1-3
Consent. May be used as substitute for music requirement.

391-491 Directed Studies 1-3
Special projects in music for which there is no course. Projects must be approved by Music Department staff. Consent.

385 Course Specials Program 5
See description in Arts and Science.

483 Public Recital 0-1-2 FS
All music majors are required to present a Senior Recital. Students may elect to enroll for Public Recital as follows: 0 credits, 1 credit, or with permission from the Department Head and Applied Instructor, for 2 credits. The latter option requires a research paper on the literature performed, a recital preview with an oral defense of the research paper and the public performance. Students enrolled in Mus 493 must be concurrently enrolled in 400 level Applied lessons.

493-495-496 Cooperative Education/Internship/Field Experience (Topical) 3-12
See description in Arts and Science section.

Graduate Courses
590-690 Independent Studies 1-3
Consent. May be used as substitute for music requirement.

595-695 Course Specials 1-5
See description in Arts and Science section.

791 Directed Studies 1-3
Special projects in music which must be approved. Consent.

Applied Music (MuAp)
(Private or Class Instruction in Literature & Techniques)
Selected lessons at the 100 level may be taken for Fine Arts credit as part of the Liberal Studies Core (see p.26). These courses may be repeated for credit twice.

Undergraduate Courses
Individual Instruction in Voice
100-101-102-103 1(1/2,0)FS 200-201-202-203 1(1/2,0) FS 300-301-302-303 2(1,0) FS 400-402 2(1,0) FS

Class Instruction in Voice
105-106 1(1,0) FS 205-206 1(1,0) FS 305-306 2(2,0) FS 405-406 2(2,0) FS

Individual Instruction in Keyboard
110-111-112-113 1(1,0) FS 210-211-212-213 1(1,0) FS 310-311-312-313 2(1,0) FS 410-412 2(1,0) FS

Section 1 | Piano
Section 2 | Harpsichord
Section 3 | Organ

Class Instruction in Keyboard
115-116 1(1,0) FS 215-216 1(1,0) FS 315-316 2(2,0) FS 415-416 2(2,0) FS

Individual Instruction in Woodwinds
120-121-122-123 1(1/2,0) FS 220-221-222-223 1(1/2,0) FS 320-321-322-323 2(1,0) FS 420-422 2(1,0) FS

Section 1 | Flute
Section 2 | Oboe
Section 3 | Bassoon
Section 4 | Clarinet
Section 5 | Saxophone

Class Instruction in Woodwinds
125-126 1(1,0) FS 225-226 1(1,0) FS 325-326 2(2,0) FS 425-426 2(2,0) FS

Section 1 | Flute
Section 2 | Oboe
Section 3 | Bassoon
Section 4 | Clarinet
Section 5 | Saxophone

Individual Instruction in Brass
130-131-132-133 1(1/2,0) FS 230-231-232-233 1(1/2,0) FS

Music 171
**Music Organizations**

**Accompanying (Pianists only)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Type</th>
<th>Schedule</th>
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</thead>
<tbody>
<tr>
<td>161-183</td>
<td>1(2,0) FS</td>
<td>281-283</td>
<td>1(2,0) FS</td>
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<tr>
<td>381-383</td>
<td>2(2,0) FS</td>
<td>481-483</td>
<td>2(2,0) FS</td>
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</tbody>
</table>

All private applied lessons must have instructor's consent. Class instruction consists of Master Classes at two levels: 1) Beginners; 2) Advanced.

**Ensembles (MuEn)**

**Performance of Significant Literature**

**Undergraduate Courses**

Music Organizations are open to all University Students. Auditions are required. Freshmen and Sophomores must register for 100 level of large ensembles. Juniors and Seniors register for 300 level. Small ensembles: Freshmen 100 level, Sophomores 200 level, Juniors 300 level, Seniors 400 level. Students may register for selected ensembles at the 100 level for Fine Arts credit as part of the Liberal Studies Core. (See page 26). Each course may be repeated for credit.

**University Chorus/Pasquettes**

<table>
<thead>
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<th>Course Code</th>
<th>Credits</th>
<th>Type</th>
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<tbody>
<tr>
<td>100-300</td>
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**Concert Choir**

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<tbody>
<tr>
<td>101-301</td>
<td>1(2,0) FS</td>
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**Statesmen**

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<tbody>
<tr>
<td>102-302</td>
<td>1(0,2) FS</td>
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**Civic-University Orchestra**

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<tbody>
<tr>
<td>110-310</td>
<td>1(0,2) FS</td>
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**Marching Band**

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<th>Schedule</th>
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<tbody>
<tr>
<td>120-320</td>
<td>1(2,0) FS</td>
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**Symphonic Band**

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<th>Course Code</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>121-321</td>
<td>1(0,3) FS</td>
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**Concert Band**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Type</th>
<th>Schedule</th>
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</thead>
<tbody>
<tr>
<td>122-322</td>
<td>1(0,2) FS</td>
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</table>

**Pep Band**

<table>
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<th>Course Code</th>
<th>Credits</th>
<th>Type</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>123-323</td>
<td>1(0,2) S</td>
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</table>

**Opera Workshop**

<table>
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<th>Type</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>107-207</td>
<td>1(2,0) S</td>
<td>307-407</td>
<td>1(2,0) S</td>
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**String Ensembles**

<table>
<thead>
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<tbody>
<tr>
<td>140-240</td>
<td>1(0,2) FS</td>
<td>340-440</td>
<td>1(0,2) FS</td>
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**Woodwind Ensembles**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Type</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>150-250</td>
<td>1(0,2) FS</td>
<td>350-450</td>
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</table>

**Brass Ensembles**

<table>
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<th>Course Code</th>
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<tbody>
<tr>
<td>160-260</td>
<td>1(0,2) FS</td>
<td>360-460</td>
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**Percussion Ensemble**

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<tbody>
<tr>
<td>170-270</td>
<td>1(0,2) FS</td>
<td>370-470</td>
<td>1(0,2) FS</td>
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**Jazz Ensemble**

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</thead>
<tbody>
<tr>
<td>180-280</td>
<td>1(0,2) FS</td>
<td>380-480</td>
<td>1(0,2) FS</td>
</tr>
</tbody>
</table>

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**Nursing (Nurs)**

College of Nursing

Professor M. Adams, Acting Dean; Associate Professor T. Gaspar, Head, Department of Undergraduate Nursing; Professor Hegge, Head, Department of Advanced Studies; Associate Professor McBreen, Head, Department of Research and Special Services; Professors Hofland, C. Peterson, E. Peterson, Westwick; Professors Emeriti Blazey, Holter, Johnson; Associate Professors Anderson, P. Gaspar, Goddard, Gross, Howe, Kropenske, Moriarty, Ritter; Assistant Professors Assam, Ayotte, Burns, Brotsky, Chappell, Folkland, Gehre, Iken, Jensen, Joffer, McGovern, Ott, Schroeder, Scott, Sorenson, Wagner, Instructors Aaberg, Barnard, Berg, Bergman, Birch, Burger, Carson, Crawford, Dieter, Greer, Harrison, Hess, Hobus, Kenefick, Mammenga, Tschetter, Timmerman.

The program purposes are to: (a) provide a liberal educational environment where persons, regardless of ancestry, sex, or creed, may prepare themselves for beginning professional practice as nurse generalists, so they may provide health care in a variety of settings, using a deliberative nursing process characterized by a holistic client-centered approach in cooperation with other professionals; (b) provide an educational base for participation in professional nursing practice, interdisciplinary health care delivery, and further academic study.

The professional program leading to a Bachelor of Science degree with a major in Nursing is four academic years, but may be lengthened for those who need a longer time or want an enriched program.

The program consists of the humanities, natural and social sciences supportive to nursing; the student's choice of electives; and professional nursing courses. The curriculum places emphasis on both the service provided outside of the hospital setting and to those who are hospitalized for treatment of acute and chronic illnesses.
Candidates for graduation in the basic curriculum are eligible to write the National Council Licensure Examination-RN (NCLEX-RN) for licensing as registered nurses. Licensing as a registered nurse (RN) is required by law in every state in order to practice professional nursing.

Graduates have a broad and basic preparation for professional nursing practice. They are qualified for first level positions in hospitals, community health agencies and other institutions where professional nurses are employed, such as an industry or the Indian Health Service. Graduates are prepared to assume professional responsibility for promotion of health, prevention of illness, and for nursing diagnosis, therapy, and rehabilitation. They assume responsibility for the guidance of nursing personnel and work cooperatively with other health care providers. They have the foundation for advanced study in nursing or specialization at the graduate level.

Both the undergraduate and graduate nursing programs at SDSU are approved by the South Dakota Board of Nursing, and are accredited by the North Central Association of Colleges and Secondary Schools, and the National League for Nursing. The College is a member agency in the National League for Nursing Council of Baccalaureate and Higher Degree Programs, American Association of Colleges of Nursing and the Midwest Alliance in Nursing.

Professional Organizations
Membership is encouraged in the local, state and national nursing student organizations, preprofessional organizations open to students in the Department of Undergraduate Nursing. The purpose of these organizations is to prepare the student for professional activity.

Phi Chapter, Sigma Theta Tau, an honor society in nursing, was established in 1961. Membership is by election; undergraduate criteria include, but are not limited to: placement in program, demonstrated ability in nursing, and a 3.0 grade point average. Sigma Theta Tau stimulates professional growth and creative activity in nursing.

Laboratory Facilities
Enrollment in clinical nursing courses will be limited when necessary due to staff and clinical facility limitations.

Majors in nursing have clinical experience in hospitals and community health agencies which are chosen by the Department of Undergraduate Nursing. In these hospitals and community health agencies, students are taught principles of professional nursing care under the supervision of SDSU faculty. They learn the concepts of long-term and short-term client care in the fields of parent-child, medical-surgical, psychiatric, gerontological and community health nursing. Social, cultural and community health concepts are integrated throughout all areas of instruction.

All students have an opportunity to participate in general and specialized client care at rural and urban hospitals, outpatient clinics and public health agencies. Student learning experiences to meet curriculum goals are selected from the following hospitals and community health agencies: Brookings Community Hospital; Brookings Clinic; Brookview Manor Nursing Home; Brookings United Retirement Center; White Care Center; Crippled Children's Hospital, Sioux Falls; health departments in Brookings, Moody, Lake, Cordining, Hamlin or Deuel Counties; Prairie Lakes East and West, Watertown; Sioux Valley Hospital, Sioux Falls; South Dakota Human Services Center, Yankton; Veterans' Administration Center, Sioux Falls; McKennan Hospital, Sioux Falls; and a variety of other community agencies. Students in the Rapid City sections will have their learning experiences selected from a variety of health care agencies, including Rapid City Regional Hospital; Black Hills Rehabilitation Center; the Veterans' Administration Hospital at Ft. Meade, SD; community health agencies in Rapid City; and in the surrounding counties; and a number of other clinics, nursing homes, and community agencies.

Requirements, Pre-Nursing
Any student eligible for admission to SDSU and who desires to enroll in the College of Nursing and Department of Undergraduate Nursing, is accepted into pre-nursing.

Nursing Major
Upon admission to the nursing course, Nurs 213 Introduction to Nursing Process, the student is accepted into the nursing major. Students are admitted to the nursing major both fall and spring semesters on the Brookings campus, and for the spring semester only at Rapid City. The student, when applying, should indicate the preferred site. Minimum requirements for entrance to the nursing major are:

1. A grade of "C" or above in each of the required pre-nursing courses. Courses may be repeated one time only to raise an unsatisfactory grade.
2. A minimum cumulative grade point average of 2.5 in all work completed to date, and successful completion of the pre-nursing courses.
3. Applications for acceptance to the major are available through the Student Services Coordinator. Deadline for application and acceptance is the third Friday of October for applicants wishing to enter the nursing major spring semester or the third Friday of February for applicants wishing to enter the nursing major fall semester. Failure to meet the application deadline may automatically disqualify the applicant for enrollment in the nursing course that semester.
4. Students preparing for the field of professional nursing must show a reasonably stable personality and demonstrate ability to meet the demands of the professional nurse.

As a generalist in nursing, a professional nurse is expected by the employer, consumers, and other health care providers to assume specific role responsibilities in a safe and competent manner. Therefore, all skills taught and evaluated in the SDSU nursing program are requisites for successful completion of the program. For admission to the nursing major courses, the student must meet standards for the nursing major and maintain related satisfactory demonstration of these standards for progression through the program. These standards are in the areas of general abilities, observational ability, communication, motor ability, intellectual-conceptual ability, and behavioral/social attributes.

Applicants to the major courses are evaluated by the Admissions skills required by the curriculum. Information on the skills and abilities that have been identified as necessary to meet nursing curriculum technical standards are available in the Dean's office, or the student should see his or her adviser.

Fulfillment of the above requirements does not ensure admission. Applicants are selected competitively. Total enrollment in the major may vary, depending upon available clinical facilities, qualified faculty and funds, with the selection made from among those best qualified for the study and practice of nursing. Students who have been out of school following high school or college for at least 2 years before beginning prerequisite nursing courses at SDSU, and have completed at least 3 semesters of course work in another major at SDSU or another university or college should see their adviser regarding the application for admission to the major as a non-traditional student.

A cumulative GPA of 2.5 must be maintained for entrance into the second semester of the major courses. If a student drops out of a course in the major for any reason, there is no guarantee that there will be a place for him or her in another semester due to the necessity to limit size of clinical classes.
After acceptance into the major, students failing to obtain a grade of "C" or above in each required course will need the recommendation of the Committee on Admission and Scholaristic Standards before being allowed to continue. Nursing courses may be repeated only once to raise an unsatisfactory grade.

The student must have a valid driver's license and insurance for personal liability and property damage when enrolled in courses which require the operation of an automobile other than their own. Professional malpractice and liability insurance will be required when enrolled in courses requiring clinical practice. This insurance is available at a group rate for non-licensed students.

For many of the clinical experiences transportation is provided through the University, however, in Nurs 491 Directed Study, the students are required to provide their own transportation.

Professional Conduct
All undergraduate and graduate nursing students are expected to adhere to the principles of the American Nurses Association Code with Interpretive Statements (1985). The Code for Nurses communicates a standard of professional behavior expected throughout the total program and in each individual nursing course. Therefore, in addition to dismissal for academic failure, the faculty and administration of the Departments of Undergraduate Nursing and of Advanced Studies reserve the right to dismiss any student enrolled in either the undergraduate or graduate program for unethical, dishonest, or illegal conduct that is inconsistent with the Code for Professional Nurses.

Registered Nurse Students
The registered nurse who is a graduate of a hospital school of nursing or an associate degree program and who wishes to earn a Bachelor of Science Degree in nursing follows the regular application and admission procedure of the university and satisfies the requirements for the degree. Credits for a limited number of courses may be earned by examination. (See Examination for University Credit in Information section.) Upward mobility programs/courses to meet the needs of Registered Nurses have been established in Aberdeen, Brookings, Mitchell, Sioux Falls, and Rapid City. See listing of specific courses for RN Upward Mobility students. For answers to specific questions, direct inquiries to the Head, Department of Undergraduate Nursing.

Transfer Students
Students transferring from other schools are accepted into the Department of Undergraduate Nursing under the general university guidelines. Those wishing to transfer into upper level nursing courses must furnish additional information as follows:
1. Three references, one of which must be from the director of the program in which the student was previously enrolled.
2. A statement regarding reasons for transferring.

These statements must be on file in the Department of Undergraduate Nursing prior to acceptance into the upper level nursing major courses. They should be sent to the Coordinator of Student Services.

Curriculum Design
Required courses are listed in the following plans: Plan A specifies entry into the nursing major spring semester of the sophomore year. Plan B specifies entry into the major fall semester of the junior year. These plans can be altered to meet individual needs. Other plans are available from advisors. Students may complete the program in four or five years of full-time study or may choose to extend coursework through part-time study.

Plan A

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Freshman Year</td>
<td></td>
</tr>
<tr>
<td>General Chemistry, Chem 110</td>
<td>4</td>
</tr>
<tr>
<td>Anatomy, Zool 221</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100*</td>
<td>1</td>
</tr>
<tr>
<td>General Psychology, Psych 101</td>
<td>3</td>
</tr>
<tr>
<td>Freshman Comp, Engl 101*</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Math Core* (College Algebra recommended)</td>
<td>3</td>
</tr>
<tr>
<td>Intro Organic &amp; Biochem, Chem 111</td>
<td>5</td>
</tr>
<tr>
<td>Intro To Sociology, Soc 100</td>
<td>3</td>
</tr>
<tr>
<td>Human Dev. &amp; Pers. I, HDCF 211</td>
<td>3</td>
</tr>
<tr>
<td>Fund of Speech, SpCm 101*</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Elective/Humanities/Fine Arts*</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
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</table>

Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Mammalian Physiology, Zool 325</td>
<td>4</td>
</tr>
<tr>
<td>Human Nutrition, NFS 321</td>
<td>3</td>
</tr>
<tr>
<td>General Microbiology, Micr 231</td>
<td>4</td>
</tr>
<tr>
<td>Human Dev. &amp; Pers. III, HDCF 313</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Abnormal Behavior, Psych 451</td>
<td>3</td>
</tr>
<tr>
<td>Pharmacology, Pha 241</td>
<td>3</td>
</tr>
<tr>
<td>Pathogenic Microbiology, Micr 423</td>
<td>4</td>
</tr>
<tr>
<td>Professional Ns. &amp; Hlth Care I, Nurs 202</td>
<td>2</td>
</tr>
<tr>
<td>Communication in Nsg, Nurs 203</td>
<td>3</td>
</tr>
<tr>
<td>Intro to Nsg Process, Nurs 213</td>
<td>4</td>
</tr>
<tr>
<td>Elective/Humanities/Fine Arts*</td>
<td>2 or 2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Nursing Process (NP): Adults in Secondary Care, Nurs 314</td>
<td>4</td>
</tr>
<tr>
<td>NP: Adults-Secondary Care, Clin Appn, Nurs 315</td>
<td>4</td>
</tr>
<tr>
<td>NP: Ind/Groups Community Mental Health I, Nurs 353</td>
<td>2</td>
</tr>
<tr>
<td>NP: Ind/Groups-Community MH I, Clin Appn, Nurs 355</td>
<td>2</td>
</tr>
<tr>
<td>Diet Therapy, NFS 303</td>
<td>1</td>
</tr>
<tr>
<td>Advanced Comp, Engl 300*</td>
<td>3</td>
</tr>
<tr>
<td>Elective/Humanities/Fine Arts</td>
<td>2</td>
</tr>
<tr>
<td>NP: Children in Primary &amp; Second Care, Nurs 324</td>
<td>3</td>
</tr>
<tr>
<td>NP: Children in Primary &amp; Second Care, Clin Appn, Nurs 325</td>
<td>4</td>
</tr>
<tr>
<td>NP: Childbearing Family in Primary &amp; Second Care, Nurs 363</td>
<td>3</td>
</tr>
<tr>
<td>NP: Childbearing Fam. in Prim &amp; Sec Care, Clin Appn, Nurs 365</td>
<td>3</td>
</tr>
<tr>
<td>Elective/Humanities/Fine Arts</td>
<td>2</td>
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<tr>
<td>Public Health Science, HSc 443</td>
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<td><strong>Total</strong></td>
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Senior Year

<table>
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<tr>
<th>Course</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Adv. NP: Ind/Groups in Community MH II, Nurs 405</td>
<td>2</td>
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<tr>
<td>Adv. NP: Ind in Tertiary Care, Clin Appn, Nurs 412</td>
<td>3</td>
</tr>
<tr>
<td>Adv. NP: Ind in Tertiary Care, Clin Appn, Nurs 413</td>
<td>4</td>
</tr>
<tr>
<td>NP: Community as Client, Nurs 415</td>
<td>3</td>
</tr>
<tr>
<td>Leadership in Nursing, Nurs 453</td>
<td>2</td>
</tr>
<tr>
<td>Elective/Humanities/Fine Arts*</td>
<td>3</td>
</tr>
<tr>
<td>Intro to Research in Nsg., Nurs 473</td>
<td>1</td>
</tr>
<tr>
<td>Prof Ns &amp; Hlth Care II, Nurs 463</td>
<td>1</td>
</tr>
<tr>
<td>Directed Study in Nsg, Nurs 491</td>
<td>6</td>
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<tr>
<td>Elective/Humanities/Fine Arts*</td>
<td>7</td>
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<td><strong>Total</strong></td>
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Plan B

For the student who desires a slower pace. For the student who needs to be gainfully employed.
**Undergraduate Courses**

**Required Courses**

### Level I: Semesters 1 and 2 — Application of Knowledge

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
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<td>First Year</td>
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</tr>
<tr>
<td>General Chemistry, Chem 110</td>
<td>4</td>
</tr>
<tr>
<td>Anatomy, Zool 221</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Act., PE 100*</td>
<td>1</td>
</tr>
<tr>
<td>Math Core* (recommended College Algebra)</td>
<td>3</td>
</tr>
<tr>
<td>Freshman Composition, Engl 101*</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Intro to Organic &amp; Biochem, Chem 111</td>
<td>5</td>
</tr>
<tr>
<td>General Psychology, Psyc 101</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Speech, SpCm 101*</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Elective/Humanities/Fine Arts*</td>
<td>1 or 3</td>
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<tr>
<td><strong>Total Credits</strong></td>
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**Second Year**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
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<td>General Microbiology, Micr 231</td>
<td>4 or 4</td>
</tr>
<tr>
<td>Mammalian Physiology, Zool 325</td>
<td>4 or 4</td>
</tr>
<tr>
<td>Intro to Sociology, Soc 100</td>
<td>3</td>
</tr>
<tr>
<td>Human Dev. &amp; Person. I, HDCF 211</td>
<td>3</td>
</tr>
<tr>
<td>Electives/Humanities/Fine Arts*</td>
<td>6</td>
</tr>
<tr>
<td>Human Dev. &amp; Person. III, HDCF 313</td>
<td>2 or 2</td>
</tr>
<tr>
<td>Human Nutrition, NFS 321</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Abnormal Behavior, Psyc 451</td>
<td>3 or 3</td>
</tr>
<tr>
<td>Diet Therapy, NFS 303</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>15</td>
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**Third Year**

<table>
<thead>
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<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Pharmacology, Pha 241</td>
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</tr>
<tr>
<td>Prof. Nsg. &amp; Hlth Care I, Nurs 202</td>
<td>3</td>
</tr>
<tr>
<td>Communication in Nursing, Nurs 203</td>
<td>3</td>
</tr>
<tr>
<td>Intro to Nsg. Process, Nurs 213</td>
<td>4</td>
</tr>
<tr>
<td>Electives/Humanities/Fine Arts*</td>
<td>3 or 3</td>
</tr>
<tr>
<td>NP: Adults-Secondary Care, Nurs 314</td>
<td>3</td>
</tr>
<tr>
<td>NP: Adults, Clin. App., Nurs 315</td>
<td>3</td>
</tr>
<tr>
<td>NP: Ind/Groups-Comm. MH I, Nurs 363</td>
<td>3</td>
</tr>
<tr>
<td>Diet Therapy, NFS 303</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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**Fourth Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NP: Children-Primary &amp; Secondary Care, Nurs 324</td>
<td>3</td>
</tr>
<tr>
<td>NP: Children, Clin. App., Nurs 325</td>
<td>4</td>
</tr>
<tr>
<td>NP: Childbearing Family in Primary &amp; Secondary Care</td>
<td>3</td>
</tr>
<tr>
<td>NP: Childbearing, Clin App, Nurs 365</td>
<td>3</td>
</tr>
<tr>
<td>Public Health Science, HSc 443</td>
<td>3</td>
</tr>
<tr>
<td>Adv NP: Ind/Ggrps in CMH II, Nurs 405</td>
<td>2</td>
</tr>
<tr>
<td>Adv NP: Individuals in Tertiary Care, Nurs 412</td>
<td>3</td>
</tr>
<tr>
<td>Adv NP: Ind. in Tertiary Care, Clin. App., Nurs 413</td>
<td>3</td>
</tr>
<tr>
<td>NP: Community as Client, Nurs 415</td>
<td>2</td>
</tr>
<tr>
<td>Leadership in Nursing, Nurs 453</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>14</td>
</tr>
</tbody>
</table>

**Last (9th) Semester — Graduate in December**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Pathogenic Microbiology, Micr 423</td>
<td>4</td>
</tr>
<tr>
<td>Intro to Research in Nsg., Nurs 473</td>
<td>1</td>
</tr>
<tr>
<td>Prof. Nsg &amp; Hlth Care II, Nurs 463</td>
<td>1</td>
</tr>
<tr>
<td>Directed Study in Nsg., Nurs 491</td>
<td>6</td>
</tr>
<tr>
<td>Elective/Humanities/Fine Arts*</td>
<td>3 or 3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>15</td>
</tr>
</tbody>
</table>

**Required pre-nursing courses:** Chem 110, 111; Psyc 101; Soc 100; Zool 221. MAJOR: Nurs 202, 203, 213, 314, 315, 324, 325, 353, 355, 363, 365, 405, 412, 413, 415, 453, 463, 473, 491. Other required supporting courses: HDCT 211, 313; NFTS 303, 321; Pha 241; Zool 325; HSc 443; Micr 231, 423 (HSc 440 Epidemiology or Stat 341 may be substituted for Micr 423); Psyc 451.

Twelve credits are allowed as general electives, 6 humanities/fine arts credits are required to meet core requirements. A total of 136 credits is required for graduation.

For students interested in post-baccalaureate study in nursing, Stat 341, Statistical Methods is recommended as an elective.

*University core courses — required for graduation.

**Undergraduate Courses**

**Required Courses**

### Level II: Semester 3 and 4 — Analysis of Knowledge

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>324 Nursing Process: Child in Primary and Secondary Care</td>
<td>3 or 3</td>
</tr>
<tr>
<td>325 Nursing Process: Child in Primary and Secondary Care — Clinical Application 4(0,12)</td>
<td>4</td>
</tr>
<tr>
<td>Clinical application of content in Nurs 324 including hospital and outpatient settings. P, Nurs 324, 213, 214. P or concurrent, Nurs 325, 324.</td>
<td>3</td>
</tr>
</tbody>
</table>

**Level III: Semesters 1 and 2 — Application of Knowledge**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>201 Medical Terminology 1</td>
<td></td>
</tr>
<tr>
<td>Study of definition and use of medical terms common to many health-related disciplines.</td>
<td></td>
</tr>
<tr>
<td>202 Professional Nursing and the Health Care System I 2(2,0)</td>
<td></td>
</tr>
<tr>
<td>Development of professional skills with introduction to deliberate processes of research and epidemiology used in studying the external environment and the community as a client. Enrollment limited. P, or concurrent Nurs 213.</td>
<td></td>
</tr>
<tr>
<td>203 Communication in Nursing 3(2,3)</td>
<td></td>
</tr>
<tr>
<td>213 Introduction to Nursing Process 4(2,6)</td>
<td></td>
</tr>
<tr>
<td>Deliberative nursing process with emphasis on assessment, nursing diagnosis and selected skills, including basic physical assessment techniques. Simulated laboratory experiences and/or community-based experiences in health screening. Admission to nursing major. P or concurrent, Micr 321, Zool 325; HDCT 211, NFTS 321. Concurrent Pha 241, Nurs 202, 203.</td>
<td></td>
</tr>
<tr>
<td>314 Nursing Process: Adults in Secondary Care* 4(4,0)</td>
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</tr>
<tr>
<td>Application of deliberative nursing process through making an assessment and nursing diagnosis as basis for beginning planning and intervention for individuals with moderate to high level of health. Pathophysiology of well-defined medical-surgical conditions with high probability of outcome. P, Nurs 203, 213, Pha 241. P or concurrent, HDCT 313, NFTS 303.</td>
<td></td>
</tr>
</tbody>
</table>

*Theory and clinical application courses on the same topic such as these and Nurs 324-325, 335-335, 363-365, 412-413, are companion courses and should be taken concurrently.

**315 Nursing Process: Adults in Secondary Care — Clinical Application 4(0,12)**


**353 Nursing Process: Individuals/Groups in Community Health 1(2,0)**

Application of nursing process with emphasis on psychological assessment and advanced communication skills required for care of individuals and selected groups for promotion of mental health. P, Nurs 203, 213, Psyc 451.

**355 Nursing Process: Individuals/Groups in Community Health I — Clinical Application 1(2,0)**

363 Nursing Process: Childbearing Family in Primary or Secondary Care 3(3,0)

Normal childbearing process and related pathophysiology. Application of the deliberative nursing process with emphasis on planning and implementation based on the assessment and nursing diagnoses, working with selected communities and childbearing families. P, Nurs 314, 315, 353, 355.

365 Nursing Process: Childbearing Family in Primary or Secondary Care — Clinical Application 3(0,9)


405 Advanced Nursing Process: Individuals/Groups in Community MH II 2(1,3)


412 Advanced Nursing Process: Individuals in Tertiary Care 3(3,0)


413 Advanced Nursing Process: Individuals in Tertiary Care — Clinical Application 4(0,12)


415 Nursing Process: The Community as Client 3(1,6)


453 Leadership in Nursing 2(2,0)


Level III: Semester 5 — Synthesis of Knowledge

463 Professional Nursing and the Health Care System II 1(1,0)


473 Introduction to Research in Nursing 1(1,0)

Application of research process to study problems in nursing and related environmental factors. P, Nurs 405, 412, 413, 415, 453.

491 Directed Study in Nursing 1-6(0-2;0-12)

Consolidation of previous learning. Application of the deliberative nursing process in a realistic work setting. Opportunity to increase self-confidence functioning in a variety of nursing roles. Care of clients experiencing varying levels of health and illness. Evaluation of self as well as the practice of nursing in general. ROTC and other students may substitute MIL 495 ROTC Nursing Advanced Camp for 3 of 6 required credits with approval of Dean, College of Nursing. P, Nurs 405, 412, 413, 415, 453. P or concurrent, Nurs 463, 473.

Optional Undergraduate Courses (Availability of these depends on demand and availability of faculty)

110 Orientation RN Upward Mobility Program 0

Registered Nurse orientation. P, RN, consent.

200 Nursing Workshops 1-3

Special session in specific areas of nursing. Approximately 45 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. Students limited to 4 credits to apply toward degree. P, consent.

350 Nursing in the Community 1-6

Community aspects of planning for health needs. Designed for non-credit or variable assignment of credits. May include some practice.

422 Women in Health Care Professions 2(2,0)

Women's roles and contributions in health care professions from ancient to modern times. Factors affecting women's activities in these fields. Movements and developments in these fields where women made significant contributions. Open to nursing and non-nursing students. Elective for junior or senior in nursing or for registered professional nurses. Elective to apply to women's study minor.

450 Nursing Physical Assessment 3(3,0)


483 Computer Applications in Health Care 3(3,0)

Capabilities and limitations of computers; basic concepts and principles of system organization and operation; application of computer programs in health diagnosis, treatment and facilities operations; teaching, continuing education and research. P, Math 112 or 113. Open to upper division undergraduate students.

490 Seminar in Nursing 1-0(1-2)

Discussion and evaluation of the impact of nursing action in care of patients. Students limited to 4 credits to apply toward degree.

492 Special Problems in Nursing 1-3

Open to upper division students by permission. Students limited to 4 credits to apply toward degree. P, consent.

493 Special Topics in Nursing 1-4

Study of selected topics in nursing under direction of faculty. Offered on sufficient demand. Senior or consent of instructor.

494 Cooperative Education in Nursing 1-4

Opportunity to receive academic credit for work experience related to nursing. Course requirements and amount of credit granted will be determined on an individual basis. Up to four credits may apply toward graduation. P, completion of two semesters of nursing major; permission of department head.

R.N. Upward Mobility Courses

206 Professional Nursing 2(2,0)

Overview of professional nursing for the registered nurse. Introduction to the deliberative processes of research and epidemiology used in studying the external environment and the community as client. Conceptual framework of the nursing curriculum. (Substitute for Nurs 202 Professional Nursing and Health Care System I.)

216 Nursing Process 4(2,6)

Deliberative nursing process with emphasis on assessment, nursing diagnosis and basic physical assessment techniques. Simulated laboratory experiences and/or community based experiences in health screening and applications of nursing process. P, registered nurse, Chem 110, Zool 221, Soc 100, Micr 261, Psy 101, Nurs 206. (Substitute for Nurs 313 Introduction to Nursing Process.) Successful completion of Nurs 216 validates Nurs 314 Adults in Secondary Care and Nurs 315 Adults, Clinical Application.

356 Therapeutic Communication 4(2,6)

Application of deliberative process with emphasis on psychological assessment, advanced communication skills and promotion of mental health for individuals and groups. Clinical application of content including care of individuals and selected groups in community settings. P or concurrent, Nurs 216, registered nurse. (Substitute for Nurs 355 Individuals & Groups in Community Mental Health.) Successful completion of Nurs 356 validates Nurs 203 Communication in Nursing.

380 Family as Client 4(3,3)

Application of deliberative process with emphasis on health status and developmental tasks of individual and family. Clinical experiences in a variety of settings to provide care for families and individuals throughout the life span. P, Chem 111, Zool 325, HDCF 211, 313, NFS 303, 321, Pha 241, Psy 451, Nurs 356, registered nurse. (Substitute for Nurs 363 Childbearing Family in Primary and Secondary Care.) Successful completion of Nrs 308 and Nurs 324 Adult in Primary and Secondary Care, Nurs 325 Child, Clinical Application and Nurs 365 Childbearing Family, Clinical Application.
LEVEL I

Register For: Substitute For: Validates:
Nurs 206  Nurs 202  Nrs 324
Prof. Nursing, 2cr  Prof. Nursing & Health  & Secondary Care, 3
Care Systems 1, 2 cr.  Nrs 325
Nurs 216  Nurs 314  Nrs 315
Intro. to Nursing  Adults in Secondary
Process, 4  Care, 4 cr.  Adults in Secondary
Nurs 213  Nrs 315
Care, Clinical
Nurs Process, 4
Nurs 315
Application, 4
Nurs 356
Therapeutic
Communication, 4
Nurs 353
Individuals/Groups
Communication in
Nurs 303
Community Mental
Health, I, 2
Nurs 210
Nurs 365
Individuals/Groups
in Community Mental
Health I, Clinical
Application, 2

LEVEL II

Register For: Substitute For: Validates:
Nurs 380  Nurs 363  Nurs 324
Family as Client, 4  Childbearing
Childbearing  Family, 3
Nurs 405
Nurs 413
Individuals/Group
in Community
Individuals in
Nurs 412
Health Problems, 4  Mental Health II, 2
Tertiary Care, 3
Nurs 412
Tertiary Care, 3
Nurs 413

LEVEL III

Register For:
Nurs 415
Nurs 453
Nurs 473
Nurs 491

Graduate Courses

510-610 Theory and Conceptual Frameworks in Nursing 2(2,0)
A systematic study and interpretation of nursing phenomena by
critical examination of theoretical concepts and models.

520-620 Pathophysiologic Basis for Nursing Practice 3(3,0)
Manifestations of complex clinical problems analyzed through
pathophysiologic mechanisms with implications for nursing prac-
tice. Assumes a basic knowledge of anatomy and physiology.

521-621 Developmental Physiology 3(3,0)
Physiological development of the child from conception through
adolescence, as well as the pregnant woman.

523-623 Physiology for Family Nurse Practice 4(4,0)
522-625 Human Sexuality in Health Care 3(3,0)
Provides the opportunity to identify and discuss those areas
in human sexuality which concern human interaction and in particu-
lar the work with clients and their families in health care. P, graduate
student in nursing; graduate student in other disciplines with per-
misson of instructor.

530-630 Nursing Science 2(0,6)
Experience in systematic assessment of clients/patients in the
identification of nursing diagnosis with emphasis on evaluation of
nursing intervention.

532-635 Death and Dying: Principles and Practices of Care 3(3,0)
Provides an opportunity to identify and discuss issues surrounding
death and ways in which health professionals may provide appro-
riate care for the dying person and family.

540-640 Legal & Ethical Accountability in Health Care 2(2,0)
Study of ethical positions and legal factors influencing behavior
and decision making in health care. Emphasis on developing a
justifiable ethical framework with consequent rights, responsibilities
and conflicts. P, senior or graduate students in nursing and other
health professionals with instructor's permission.

545-645 Management of Acute and Chronic Pain 3(3,0)
Provides opportunity to identify and discuss management prin-
ciples of acute and chronic pain with noninvasive and invasive meas-
ures. P, senior or graduate nursing student; other graduate students
with consent of instructor.

555-655 Health and the Older Adult 2(2,0)
Based on a multidisciplinary perspective, issues and factors affect-
ing the older adult will be analyzed for their implications in planning
and implementing nursing and health care for this group. A guided
study approach to a conventional course. P, senior or graduate nurs-
ing students, graduate or senior students of other health disciplines
or by consent.

565-665 Health Care for Victims of Abuse 3(3,0)
Provides student opportunities to study the historical perspectives
of health care for the victim. P, Payc 101, Soc 100, seniors or graduate
nursing students, graduate or senior students of other health care
disciplines or by consent.

570-670 Issues in Health Care Delivery 3(3,0)
Study of the organization and the political, economic and social
aspects of international, national and regional health care systems.

590-690 Seminar: Guided Study in Nursing I-4
Investigation of a selected problem in nursing theory or practice.
May be repeated for two semesters for variable credit.

592-692 Special Problems I-3(1-3,0-3)
Directed study, analysis and/or research of selected problems re-
lated to clinical practice in nursing. May be a combination of discus-
sion/conference and clinical experience. Open to qualified seniors,
 RN's and/or graduate students by consent. Limit of 3 credits can be
applied to a degree.

594-694 Research Methods in Nursing 3(3,0)
Components of the research process with emphasis on research in
nursing and the health care system. P, statistics course covering
description and inferential statistics. P or concurrent 510-610.

595-695 Special Topics I-3(1-3,0-3)
Review and discussion of special concerns, issues, or trends in the
nursing profession, such as, but not limited to, legislation, ethics,
administration, education. Topics will be of a non-clinical nature.
Open to qualified seniors, RN's and/or graduate students by consent.
Limit of 3 credits can be applied to a degree.

710 Curriculum Development in Nursing 2(2,0)

720 Leadership and Role Development 2(2,0)

725 Patient Care Management 3(3,0)

760 Concepts in Advanced Nursing I 3(2,3)

765 Concepts in Advanced Nursing II 4(2,6)

766 Concepts in Advanced Nursing of Families 4(2,6)

770 Clinical Nursing Specialization 6(3,9)

771 Clinical Specialization for Family Nurse Practitioner 6(3,9)

775 Nurse Role Practicum 4-12(0,12-26)

780 Seminar in Advanced Nursing I-3(1-3,0)

782 Communication in Advanced Nursing Practice 3(2,3)

Nursing 177
Nutrition and Food Science (NFS)

College of Home Economics
Professor M. Crews, Head; Professors Emeriti Colburn, Deethardt, Guild, Shank, Wills; Assistant Professors Bohannon, G. Crews, Krishnan, M. Rose, R. Rose; Instructor Pitts. Lecturers Hayes, Henzlik.

Major in Nutrition and Food Science and Hotel, Restaurant and Institution Management
Options available in the Nutrition and Food Science major are Dietetics and Food Science.

Minor in Nutrition and Food Science
A minor in Nutrition and Food Science requires 16 semester credits of NFS-prefixed courses which include NFS 321 and at least 5 credit hours of courses at the 300 level or higher. All courses for the minor must be approved by the NFS Department. Students planning a minor in Nutrition and Food Science must contact the NFS Department Head by the junior year.

Nutrition and Food Science — Dietetic Option
Dietetics offers a wide variety of jobs in hospitals, nursing homes, public health agencies, industries, schools, universities, the armed services, and state, national and international organizations.

A dietitian must have a good background in the basic sciences as well as the behavioral sciences in applying the science of nutrition to nutritional care of people, sick or well, whether in the hospital or in the community.

The dietitian is essential to the total care of the patient in a health-care facility, giving nutritional guidance and instruction that will continue on an out-patient basis. Dietitians also work in clinical research units. The role of the dietitian is changing with changes in health care. The dietitian has become more involved in preventive health care and in community nutrition programs as an integral part of total health care.

The dietitian finds employment opportunities in many types of institutions and commercial food services. The educational experiences require development of competence in application of modern management theory and the behavioral sciences to the management of food service systems. The use of the computer as a decision-making tool is an important part of this expertise. Dietitians with an interest in mathematics are introducing computer methods in food systems management.

Governmental regulations require the services of the dietitians in federally supported programs. The consulting services of a dietitian are often sought by architects and hospital administrators in planning and equipping food preparation and services facilities.

Dietetics
Through the program in dietetics, students develop understanding and competency in food, nutrition, and management of a dietary department. The curriculum is approved by the ADA. Completion of an internship at one of approximately 100 sites in the U.S. or other ADA approved experience qualifies the student for eligibility to take the registration exam.

Freshman Year
Perspectives in Nutrition, NFS 110................................ 3
General Chemistry, Chem 110 or Chem 112.................... 4
General Chemistry, Chem 114..................................... 4
Foods Principles, NFS 141......................................... 4
Freshman Comp, Eng 101......................................... 3
Fund of Speech, SpCm 101...................................... 3
Fitness and Lifetime Activities, PE 100......................... 2
Algebra, Math 112.................................................. 3
Intro to Soc., Soc 100............................................. 3
General Psychology, Psych 101.................................. 3
Computer Literacy, CSc 112..................................... 3

Sophomore Year
Professional Foundations, HE 201.............................. 2
Mammalian Physiology, Zool 325................................ 4
Food Service Purchasing, NFS 371.............................. 2
Microeconomics Principles, Econ 201.......................... 3
Gen Microbiology, Mier 231...................................... 3
Anatomy, Zool 221.................................................. 3
Elementary Organic Chemistry, Chem 120.................... 4
Elementary Biochemistry, Chem 361............................ 4
Human Nutrition, NFS 321...................................... 3
Humanities/Electives.............................................. 3
Food Service Operations, NFS 261.............................. 3

Junior Year
Families and Their Ecological Systems, HE 301.............. 3
Intro to Dietetics, NFS 322...................................... 5
Quantity Food Production & Service, NFS 381.............. 2
Advanced Food Science, NFS 341............................... 4
Advanced Comp, Eng 300...................................... 3
Equipment, Layout and Design, NFS 372..................... 3
Principles of Accounting, Actg 210............................. 3
Community Nutrition, NFS 424................................ 3
Humanities/Electives.............................................. 4

Senior Year
Exp. in Adult Ed., HEd 421..................................... 2
Professional Perspectives, HE 401.............................. 2
Institution Organization & Management, NFS 391.......... 3
Advanced Human Nutrition, NFS 422.......................... 3
Clinical Nutrition, NFS 423..................................... 4
Seminar, NFS 490.................................................. 1
Statistical Methods, Stat 341.................................... 3
Hospitality Mgmt. Infor. Systems, NFS 471................. 3
Electives.......................................................... 6

Suggested electives:
Human Development and Personality, HDCF 211; Manage­ment in Personal and Family Living, HE 241; Meat: Production to Consumption, AS 241; Cultural Anthropology, Anth 220; Meal Management, NFS 251; Intro to Med. Sci, Zool 307; Interpersonal Communication, SpCm 201; Exercise Physiology, PE 450.

Food Science
This option prepares students for careers in food production technology, promotion and advertising of foods, food research and development, or for advanced degree programs in food science and technology. Two curricular tracks are provided to guide students in the technical or the promotional aspects of the food industry.

Well-equipped laboratories enable students to receive practical experience while learning the principles of food science.

178 Nutrition & Food Science
Meal Management, NFS 251
Algebra, Math 112 or 113
Gen Psychology, Psyc 101
Gen Chemistry, Chem 114
Intro to Sociology, Soc 100

Sophomore Year
Professional Foundations, HE 201
Gen Microbiology, Micr 231
Technical Control of Dairy Products I, DS 221
Dairy Foods, DS 221
Organic Chemistry, Chem 120
Food Microbiology, Micr 311
Meat: Production to Consumption, AS 241
Fundamentals of Speech, SpCm 101
Electives

Junior Year
Families and Their Ecological Systems, HE 301
Quantitative Analysis, Chem 232
Math Elective
Principles of Advertising, MCom 370
Human Nutrition, NFS 321
Statistical Methods, Stat 341
Quantity Food Production, NFS 381
Advanced Comp, Engl 300
Food Processing, NFS 351
Electives

Senior Year
Professional Perspectives, HE 401
Applied Chemical Instrumentation, Chem 330
Advanced Food Science, NFS 341
Animal Science Elective
Technical Control of Dairy Products II, DS 422
Research Problems, NFS 342
Humanities Electives
Electives

Suggested electives:
Elementary Physics I & II, Phys 111-113; Elementary Physical Chemistry, Chem 340; Computer Programming, CSC 311; Technical Communication, Engl 303; Macroeconomics Principles, Econ 201; Food Microbiology, Micr 311.

Food Science (Food Promotion/Advertising Curriculum)

Freshman Year
Perspectives in Nutrition, NFS 110
Food Technology, NFS 151
Freshman Comp, Engl 101
Fund. of Speech, SpCm 101
Foods: Principles, NFS 141
Algebra, Math 112
Basic Photography, Micr 160
Intro to Sociology, Soc 100
Gen Psychology, Psyc 101

Sophomore Year
Professional Foundations, HE 201
Meal Management, NFS 251

Meat: Production to Consumption, AS 241
Organic Chemistry, Chem 120
Journalism Typography, MCom 213
Gen Microbiology, Micr 231
Animal Science Elective
Dairy Foods, DS 221
Human Nutrition, NFS 321
Electives

Junior Year
Families and Their Ecological Systems, HE 301
Biochemistry, Chem 361
Principles of Advertising, MCom 370
Advanced Comp, Engl 300
Consumer and the Market, HE 391
Magazine Writing & Editing, MCom 315
Food Processing, NFS 351
Writing for Radio & TV, MCom 330
Publicity Methods, MCom 313
Statistical Methods, Stat 341
Dairy Science Elective

Senior Year
Professional Perspectives, HE 401
Advanced Food Science, NFS 341
Technical Communications, Engl 303
Writing in the Sciences, Engl 307
Research Problems, NFS 342
Advanced Human Nutrition, NFS 422
Advertising Copy and Layout, MCom 371
Broadcast Advertising, MCom 372
Experiences in Adult Education, HEd 421
Humanities/Electives

Suggested electives:
Biology, Bio 151, 153; Environmental Chemistry, Chem 380; Introduction to Computers and Programming; Institution Organization and Management, NFS 391; Community Nutrition, NFS 424; Radio and TV Production, MCom 331; Intro to Printing, Prtg 112; Macroeconomics Principles, Econ 201.

Hotel, Restaurant and Institution Management
The Department of Nutrition and Food Science offers curriculum leading to a Bachelor of Science degree in Hotel, Restaurant and Institution Management. The program provides a firm foundation in both lodging and food service operational management supported by a strong background in business and economics. On-the-job work experience for practicum credit strengthens the academic program.

Students will be prepared for management careers in hotels, motels, restaurants, private clubs, airlines, and food services in various industrial, health care and school facilities. Students with up to two years general education credits will usually find that most of their credits will transfer into this program.

Curriculum in Hotel, Restaurant and Institution Management Major
Leading to the Bachelor of Science Degree

Freshman Year
Perspectives in Nutrition, NFS 110
Microcomputer Literacy, CSC 112
Meal Management, NFS 251
General Psychology, Psyc 101
Intro to Hospitality, NFS 171
Foods: Principles, NFS 141
Freshman Comp, Engl 101
Fund of Speech, SpCm 101

Nutrition & Food Science 179
### Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Foundations, HE 201</td>
<td>2</td>
</tr>
<tr>
<td>Food Service Operations, NFS 261</td>
<td>3</td>
</tr>
<tr>
<td>Business Law, BAdm 350</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science</td>
<td>8</td>
</tr>
<tr>
<td>Quantity Food Production, NFS 381</td>
<td>2</td>
</tr>
<tr>
<td>Intro to Sociology, Soc 100</td>
<td>3</td>
</tr>
<tr>
<td>Macroeconomics Principles, Econ 201</td>
<td>3</td>
</tr>
<tr>
<td>Prin of Accounting I, Actg 210</td>
<td>3</td>
</tr>
<tr>
<td>Hotel/Motel Operational Mgt, NFS 271</td>
<td>3</td>
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</tbody>
</table>

### Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Families and Their Ecological Systems, HE 301</td>
<td>3</td>
</tr>
<tr>
<td>Food Service Purchasing, NFS 371</td>
<td>3</td>
</tr>
<tr>
<td>Equipment, Layout and Design, NFS 372</td>
<td>3</td>
</tr>
<tr>
<td>Meat: Production to Consumption, AS 241</td>
<td>3</td>
</tr>
<tr>
<td>Hospitality Industry Law, NFS 361</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Accounting II, Actg 311</td>
<td>3</td>
</tr>
<tr>
<td>Microeconomics Principles, Econ 202</td>
<td>3</td>
</tr>
<tr>
<td>Marketing, Econ 353</td>
<td>3</td>
</tr>
<tr>
<td>Business Management, BAdm 360</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Comp, Engl 300</td>
<td>3</td>
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</tbody>
</table>

### Electives**                                                      | 6       |

**Must include one course selected from Econ 301, 302, 433 and Stat 341 for EconMinor.

### Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitality Management Information Systems, NFS 471</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Selling, BAdm 450</td>
<td>3</td>
</tr>
<tr>
<td>Professional Perspectives, HE 401</td>
<td>3</td>
</tr>
<tr>
<td>Institution Organization and Management, NFS 391</td>
<td>3</td>
</tr>
<tr>
<td>Money and Banking, Econ 330</td>
<td>3</td>
</tr>
<tr>
<td>Labor, Law &amp; Econ, Econ 382</td>
<td>3</td>
</tr>
<tr>
<td>Professional Practicum, NFS 497</td>
<td>3</td>
</tr>
<tr>
<td>Hospitality Marketing, NFS 482</td>
<td>3</td>
</tr>
</tbody>
</table>

### Electives**                                                      | 9       |

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### Nutrition and Food Science (NFS)

#### Undergraduate Courses

**110 Perspectives in Nutrition 3(3,0)F**
Interdependence of the principles of human nutrition and food behavior and health of individual groups.

**111 Food and Man 2(2,0) FS**
Considerations of the role of food, and man's use of food substances, in the development and growth of human cultures. Study of the cultural, social and economic impacts of food.

**141 Foods: Principles 4(2,6) FS**
Scientific investigation of basic foods used to maintain optimum nutrition.

**151 Food Technology 2(3,0)F Odd years**
Survey of the technology used in the conversion of raw foods into finished food products suitable for human consumption. World and domestic food needs, chemical additives and food safety will be discussed. Required of all food science majors.

**171 Introduction to the Hospitality Industry 3(2,0) F**
History, organizational structure, and trends in the hospitality industry. Place of lodging and food service establishments in the state and national economy.

**221 Survey of Nutrition 3(3,0) FS**
Fundamentals of nourishing the body properly and the role that food plays in meeting the nutritional requirements of individuals. Designed for the student who lacks a science background but wishes to study human nutrition in some detail.

**251 Meal Management 3(1,4) S**
Planning, purchasing, preparing and serving food for the family. Selection and preparation of low-cost meals, convenience foods, and ethnic foods. Case study of meal planning at specific income levels. P, 141 or consent.

**261 Food Service Operations 3(3,0)S**
Planning, preparing, and evaluating menus. Safe and sanitary use of equipment for quantity food preparation and service. Recipe standardization, menu costing and pricing, and food, beverage and labor cost controls. P, 141 or consent.

**271 Hotel/Motel Operational Management 3(2,3)S**
Functions of management as applied to the lodging industry, including office management, housekeeping, sales, marketing, engineering and maintenance, and food and beverage operations. P, 171 or consent.

**292 Special Problems 1-3**
A program of directed studies in specialized areas not covered by normal class offerings. May be repeated for credit.

**293 Current Topics 1-3**
May be repeated for credit.

**303 Diet Therapy 1(1,0) FS**
Discussion of role of nutrition or diet intervention in treatment of patients or clients with particular emphasis on dietary management of pathological conditions. Students will become familiar with methods and materials of therapeutic nutrition. P, NFS 321, concurrent with Nurs 312.

**321 Human Nutrition 3(3,0) FS**
The science of food, the nutrients and other substances therein, their action, interaction, and balance in relation to health and disease and the processes by which the organism ingests, digests, absorbs, transports, utilizes and excretes food substances. P, Chem 111 or 120 or consent.

**322 Introduction to Dietetics 5(3,2) F**
Principles of dietetics and the roles of the professional dietitian. Terminology of the dietetic professions and the function of the dietitian as a member of the health team. P, 321 or consent.

**341 Advanced Food Science 4(2,6) F**
Study of physical/chemical factors affecting food quality resulting from preparation and processing methods. Students will become familiar with techniques in sensory evaluation and basic principles of food analysis. P, 141 and Chem 120.

**342 Research Problems in Nutrition, Food Science & Food Systems 3(1,6) S**
Investigation of problems in nutrition, food science and/or food systems management with results submitted as a technical paper. P, 341.

**351 Principles of Food Processing 3(3,2) S Odd years**
Study of the physical/chemical principles and approaches used in heat processing, freezing, dehydration, and fermentation of foods. Current processing methods will be considered in terms of preparation, processing, packaging, and quality control of food products. P, Chem 110 or 114, NFS 151, or consent.

**360 Food Chemistry 4(3,3) Odd years**
Basic composition, structure and properties of foods and the chemistry of changes occurring during processing and utilization. P, Chem 120 and 360 or consent.

**361 Hospitality Industry Law 2(2,0) S**
This course presents common and civil law as it relates to the operation of various hospitality industry enterprises. Preventative law is presented to permit managers to be aware of potential legal pitfalls and steps required to minimize legal problems.

**371 Food Service Purchasing 2(2,0) S**
Purchasing food and supplies for food service establishments. Quality evaluation, specifications, record keeping inventory control systems. P, 261.

**372 Equipment, Layout & Design 3(1,4) S**
Planning food service facilities with emphasis on kitchen layout, food service facilities design, equipment and furniture selection. A study of management factors which affect the human element in food production and service. P, 261.

**381 Quantity Food Production & Service 3(0,6) FS**
Management of production and service of quantity food in institutions and commercial establishments. Experience in planning, preparing and serving meals in a variety of food service establishments. P, 261 or concurrent with 261.

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180 Nutrition & Food Science
391 Institution Organization & Management 3(3,0) F
Management principles in food service facilities including organization, personnel policies, job analysis, employee selection, training, evaluation, supervision of production areas.

422 Advanced Human Nutrition 3(3,0) F
Principles of physiological chemistry and physiology applied to nutrition. P, 312, Zool 221 and 325, Chem 111 or 361 or consent.

423 Clinical Nutrition 4(4,0) F
Role of nutritional intervention in pathological conditions. P, 422 or concurrent enrollment.

424 Community Nutrition 3(2,2) S Odd years
Application of learning principles, teaching methods and knowledge of nutrition in community nutrition education programs and out-patient nutrition counseling. Introduction to the role of the consultant dietician. P, 321.

450 Food Analysis 4(2,6) S Even years
Principles, methods and techniques necessary for quantitative physical and chemical analysis of food products. The analysis of foods will be related to the standards and regulations for the food-processing industry. P, Chem 120, NFS 360 or consent.

451 Advanced Food Processing 4(2,6) F Even years
Characteristics of vegetables and animal products as affected by shipping, storage and processing. Mass and energy transfer in food systems. Processing and waste treatment associated with various classes of food factors that affect yield and acceptability. Process control and quality assurance in food processing. P, NFS 351, Mier 311, or consent.

471 Hospitality Management Information Systems 3(3,0) F
Simulated day to day transactions using the computer to assist in management decisions. Use of data files for inventory and production control, food cost accounting. P, CSc 112.

482 Hospitality Marketing 3(3,0) S
Applied marketing covering case studies in the hotel and restaurant industry. Emphasis on implementing marketing strategies including: demographics, image development, advertising, sales promotion, public relations, administering and controlling a marketing plan. P, Econ 353.

490 Seminar 1(1,0) FS Alt. Semesters
Presentation and discussion of topics based on nutrition, foods and institutional management literature in professional journals and related resources. Open to advanced students in dietetics, food science and restaurant management. P, junior standing in dietetics, food science or restaurant management.

492 Special Problems 1-3
A program of directed studies in specialized areas not covered by normal class offerings. May be repeated for credit.

493 Current Topics 1-3 FSSu
In the following and other selected areas: nutrition, clinical dietetics, food service systems management, food science, hospitality industries. P, junior standing in dietetics, food science or restaurant management and consent.

497 Professional Practicum 1-12 FSSu
Supervised work or clinical experience in dietetics, food service or hospitality management, nutrition programs or in food industries. P, consent.

Graduate Courses

503-603 Seminar in Food & Nutrition 1-2
This seminar is designed to explore in depth topics related to the role of nutrition in health promotion and disease prevention in the community.

592-692 Special Problems 1-3
Special study in food and nutrition. P, consent.

593-693 Current Topics 1-3
May be repeated for credit.

560/660 Maternal and Infant Nutrition 3

562/662 Sociocultural Aspects of Nutrition 3(3,0)

724 Recent Developments & New Approaches in Human Nutrition 3(3,0)

725 Nutrition and Human Performance 3(3,0)

734 Techniques in Nutrition Research 3(1,6)

760 Child Nutrition 3(3,0)

761 Nutrition of the Aged 3(3,0)

792 Special Problems 1-3

793 Current Topics 1-3(3,0)

Pharmacy (Pha)

College of Pharmacy

Pre-Pharmacy Curriculum

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Fitness and Lifetime Activities, PE 100</td>
<td>1</td>
</tr>
<tr>
<td>Fr Comp, Engl 101</td>
<td>3</td>
</tr>
<tr>
<td>Gen Chem, Chem 112, 114</td>
<td>4</td>
</tr>
<tr>
<td>Intro Biology, Bio 151</td>
<td>3</td>
</tr>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Calculus for Non-Math Majors, Math 222</td>
<td>5</td>
</tr>
<tr>
<td>Humanities &amp; Social Sciences...</td>
<td>3</td>
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<tr>
<td>General Electives</td>
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</table>

| Total | 16 | 16 |

Professional Program

Second Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Organic Chem, Chem 326, 328</td>
<td>4</td>
</tr>
<tr>
<td>Gen Microbiology, Micr 231</td>
<td>4</td>
</tr>
<tr>
<td>Anatomy, Zool 221</td>
<td>3</td>
</tr>
<tr>
<td>Intro to Pharmacy, Pha 251</td>
<td>3</td>
</tr>
<tr>
<td>Mammalian Physiology, Zool 325</td>
<td>4</td>
</tr>
<tr>
<td>Pharmacy I, Pha 211</td>
<td>3</td>
</tr>
<tr>
<td>Pharmaceutical Calculations, Pha 313</td>
<td>1</td>
</tr>
<tr>
<td>Humanities &amp; Social Sciences...</td>
<td>3</td>
</tr>
<tr>
<td>Macroeconomics Principles, Econ 201</td>
<td>3</td>
</tr>
<tr>
<td>General Electives</td>
<td>2</td>
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</tbody>
</table>

| Total | 16 | 16 |

Third Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Pharmaceutical Biochem, Pha 323</td>
<td>4</td>
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<tr>
<td>Pharmaceutical Biotechnology, Pha 324</td>
<td>4</td>
</tr>
<tr>
<td>Pharmacy II, Pha 312</td>
<td>4</td>
</tr>
<tr>
<td>Medicinal Chemistry I &amp; II, Pha 421, 422</td>
<td>4</td>
</tr>
<tr>
<td>Interpersonal Comm., SpCm 201</td>
<td>2</td>
</tr>
<tr>
<td>Biopharmaceuticals &amp; Pharmacokinetics, Pha 411</td>
<td>4</td>
</tr>
<tr>
<td>Drug Literature Evaluation I, Pha 350</td>
<td>1</td>
</tr>
<tr>
<td>Pathophysiology, Pha 360</td>
<td>3</td>
</tr>
<tr>
<td>Pharmacy Management, Pha 552</td>
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| Total | 17 | 16 |

Fourth Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Medicinal Chemistry III, Pha 423</td>
<td>4</td>
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<tr>
<td>Pharmacology I &amp; II, Pha 541, 542</td>
<td>4</td>
</tr>
<tr>
<td>Drug Therapy I &amp; II, Pha 545, 546</td>
<td>3</td>
</tr>
<tr>
<td>Toxicology, Pha 543</td>
<td>2</td>
</tr>
<tr>
<td>Prescription Practice, Pha 412</td>
<td>3</td>
</tr>
<tr>
<td>Pharmaceutical Sciences Lab, Pha 460</td>
<td>3</td>
</tr>
<tr>
<td>Pharmacy Elective</td>
<td>3</td>
</tr>
<tr>
<td>Pharm Jurisprudence, Pha 314</td>
<td>3</td>
</tr>
<tr>
<td>Pharmacy Administration, Pha 351</td>
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</table>

| Total | 17 | 18 |

Fifth Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Advanced Composition, Engl 300</td>
<td>3</td>
</tr>
<tr>
<td>OTC Products, Pha 517</td>
<td>2</td>
</tr>
<tr>
<td>The Geriatric Patient, Pha 519</td>
<td>3</td>
</tr>
<tr>
<td>Drug Literature Evaluation II, Pha 550</td>
<td>1</td>
</tr>
<tr>
<td>Pharmacy Elective</td>
<td>3</td>
</tr>
<tr>
<td>General Elective</td>
<td>7</td>
</tr>
<tr>
<td>Pharmacy Externship, Pha 516</td>
<td>6</td>
</tr>
<tr>
<td>Clinical Pharmacy, Pha 513</td>
<td>6</td>
</tr>
</tbody>
</table>

| Total | 16 | 16 |

*Humanities and Social Sciences should be selected to satisfy university core requirements.

A minimum of 6 credits of Pharmacy electives are required.

*All credits must be non-science and 5 must be 300-400 level.

Pharmacy 181
It will be noted that some pharmacy courses have prerequisites such as “3rd year standing,” etc. These are defined as follows:

2nd year standing — The student must have been admitted to the second year and have completed Chem 114, Bio 151, Math 222.

3rd year standing — completion of Chem 328, Micr 231, Zool 221, 325, Pha 211, 251, 313.

4th year standing — completion of Pha 324, 350, 360, 411, 422, 552.

5th year standing — completion of Pha 314, 351, 412, 423, 460, 542, 543, 546.

Specialty Tracks

Suggested electives for specialty tracks are listed in the following sections. Students should discuss their plans with an adviser.

1. Community Pharmacy

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Agricultural Pharmacy, Pha 431</td>
<td>3</td>
</tr>
<tr>
<td>Pharmaceutical Pharmacy, Pha 425</td>
<td>2</td>
</tr>
<tr>
<td>Adverse Drug Reactions, Pha 414</td>
<td>2</td>
</tr>
<tr>
<td>Current Topics, Pha 401</td>
<td>1</td>
</tr>
<tr>
<td>Accounting, Actg 210</td>
<td>3</td>
</tr>
<tr>
<td>Business Law, BAdm 350</td>
<td>3</td>
</tr>
<tr>
<td>Microcomputer Literacy, CSc 112</td>
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</tbody>
</table>

2. Institutional Pharmacy

(A residency following graduation is highly recommended.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Clinical Laboratory Monitoring, Pha 520</td>
<td>2</td>
</tr>
<tr>
<td>Current Topics, Pha 401</td>
<td>1</td>
</tr>
<tr>
<td>Hospital Pharmacy, Pha 554</td>
<td>3</td>
</tr>
<tr>
<td>Adverse Drug Reactions, Pha 414</td>
<td>2</td>
</tr>
<tr>
<td>Advanced Pharmacokinetics, Pha 560-560</td>
<td>3</td>
</tr>
<tr>
<td>Pharmaceutical Marketing, Pha 425</td>
<td>2</td>
</tr>
<tr>
<td>Statistical Methods, Stat 341</td>
<td></td>
</tr>
<tr>
<td>Microcomputer Literacy, CSc 112</td>
<td>2</td>
</tr>
<tr>
<td>Business Law, BAdm 350</td>
<td>3</td>
</tr>
<tr>
<td>Accounting, Actg 210</td>
<td>3</td>
</tr>
<tr>
<td>Nutritional Aspects in Pharmacy Practice, Pha 539</td>
<td>2</td>
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</table>

3. Clinical Pharmacy

(Pharm.D. degree is highly recommended.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Current Topics, Pha 401</td>
<td>1</td>
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<tr>
<td>Hospital Pharmacy, Pha 554</td>
<td>3</td>
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<tr>
<td>Advanced Pharmacokinetics, Pha 560-560</td>
<td>3</td>
</tr>
<tr>
<td>Adverse Drug Reactions, Pha 414</td>
<td>2</td>
</tr>
<tr>
<td>Microcomputer Literacy, CSc 112</td>
<td>2</td>
</tr>
<tr>
<td>Clinical Laboratory Monitoring, Pha 520</td>
<td>2</td>
</tr>
<tr>
<td>Nutritional Aspects in Pharmacy Practice, Pha 539</td>
<td>2</td>
</tr>
<tr>
<td>Statistical Methods, Stat 341</td>
<td>3</td>
</tr>
<tr>
<td>Research Problems, Pha 492</td>
<td>1-3</td>
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4. Graduate Study

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Math Analysis, Math 123, 224</td>
<td>5,4</td>
</tr>
<tr>
<td>Physical Chemistry, Chem 342, 344</td>
<td>3,3</td>
</tr>
<tr>
<td>Statistical Methods, Stat 341</td>
<td>3</td>
</tr>
<tr>
<td>Mathematical Statistics, Stat 381</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Programming with FORTRAN, CSc 213</td>
<td>3</td>
</tr>
<tr>
<td>Research Problems, Pha 492</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Pharmacokinetics, Pha 560-560</td>
<td>3</td>
</tr>
</tbody>
</table>

Students preparing for graduate study may, with permission of the Curricular Variations Committee, waive one or more of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy Administration, Pha 351</td>
<td>3</td>
</tr>
<tr>
<td>Pharmacy Management, Pha 552</td>
<td>3</td>
</tr>
</tbody>
</table>

Geriatric Patient, Pha 519........................................... 3
OTC Products, Pha 517............................................. 2
Pharmacy Electives.................................................. 5

Pharmaceutical Sciences

Professor Chappell, Head; Professors Billow, Dwivedi, Hietbrink, Houglum; Associate Professor Singh; Assistant Professors Engineer, Helgeland, Pathak, Smar, Van Riper.

Undergraduate Courses

201 Medication and the Consumer 2(2,0) FS
Principles of drug action, examination of medical and legal aspects of use and misuse of prescription, non-prescription and illicit drugs. Not open to pharmacy students.

211 Pharmacy I 3(2,3) S

241 Pharmacology 3(3,0) FS

251 Introduction to Pharmacy 1(1,0) F
Practice, literature, ethics, history, organization and regulation. The pharmaceutical industry and its relation to the profession. Medical terminology. P, 2nd year standing.

312 Pharmacy II 4(3,3) F
Theory, preparation, and application of pharmaceutical solid, plastic, and polyphasic dosage forms. P, 3rd year standing.

313 Pharmaceutical Calculations 1(1,0) F
Systems of weights and measures and mathematical problems encountered in pharmaceutical practice. P, 2nd year standing.

314 Pharmaceutical Jurisprudence 3(3,0) F
State and federal laws and regulations. P, 4th year standing.

323 Pharmaceutical Biochemistry 4(4,0) F
Chemistry of structure, function, biosynthesis and metabolism of biopolymers in order to better understand the biochemical basis of disease and the metabolism and mechanism of action of medicinal agents. P, 3rd year standing.

324 Pharmaceutical Biotechnology 4(4,0) S
Properties, activities, mechanism of action and therapeutic use of biologies (e.g., monoclonal antibodies, vaccines, therapeutic proteins) and technologies involved in their production. P, 3rd year standing, Pha 323.

351 Pharmacy Administration 3(3,0) F
Economic and social forces influencing the organization and delivery of pharmaceutical services. P, 4th year standing.

401 Current Topics in Pharmacy 1(1,0) S
Current issues of interest not included in more formalized courses. P, 4th or 5th year standing.

411 Biopharmaceutics and Pharmacokinetics 4(4,0) S
Physio-chemical relationships of pharmaceutical dosage forms and their practical application. Introduction to biopharmaceutics and pharmacokinetics and dosage form adjustment. P, Pha 312.

412 Prescription Practice 3(1,4) S
Pharmacist’s professional role in dispensing medications. P, 4th year standing.

421 Medicinal Chemistry I 4(4,0) F
Nomenclature and properties of compounds as they relate to pharmacy and medicine. Structure-activity relationships, incompatibilities, uses and doses. P, 3rd year standing.

422 Medicinal Chemistry II 4(4,0) S
Continuation of 421. P, Pha 421, 3rd year standing.

423 Medicinal Chemistry III 4(4,0) F
Continuation of 422. P, 422, 4th year standing.

425 Pharmaceutical Marketing 2(2,0) F
Marketing functions of the manufacturer, wholesaler and practitioner. P, 4th year standing.

431 Agricultural Pharmacy 3(2,2) F
Animal health care including visits to livestock units on campus. P, 4th year standing.
460 Pharmaceutical Sciences Laboratory 3(1,6) S
An integrated pharmaceutical sciences laboratory. P, 4th year standing, Pha 423, 541.

491 Directed Studies 1-3(0,3-9)
A study of an area of student's interest in which a pharmacy faculty member is competent but which is not covered by the regular courses. P, consent.

492 Research Problems 1-3(0,3 per credit) FS
Students may elect research problems in one of the pharmaceutical sciences, biopharmaceutics, pharmacology, pharmaceutical chemistry, or pharmacy. P, consent.

493 Special Topics 1-3 FS
Organized by an instructor in consultation with the Department Head and a group of students. The course content will normally be taught only once or sporadically for a group of students.

517 OTC Products 2(2,0) FS

541 Pharmacology I 4(4,0) F
Basic principles of pharmacology and therapeutics. P, 4th year standing.

542 Pharmacology II 4(4,0) S
Continuation of 541. P, Pha 541.

543 Toxicology 2(2,0) S
Toxicology and medicolegal aspects of poisonings. Common poisons with emphasis on antidotal measures. P, 541.

552 Pharmacy Management 3(3,0) FS
Economic and professional considerations in management of a pharmacy. P, 3rd year standing.

560-660 Advanced Pharmacokinetics 3(3,0) FS
Theory and application of compartmental models for the study of the time course of drug in the body. P, Pha 411 or consent.

Clinical Pharmacy

Associate Professor Kaatz, Head; Associate Professors Fischer, Mort, Powers, Wallenberg; Assistant Professors Caliendo, Dees, Farver; Instructor Hendricks.

Undergraduate Courses

350 Drug Literature Evaluation 1(1,0) S

360 Pathophysiology 3(3,0) F
The etiology and pathogenesis of the human disease process as compared to the normal physiologic state. P, 3rd year standing, or Mirc 231, Zool 221, 325, and consent.

414 Adverse Drug Reactions 2(2,0) S
Study by organ systems of untoward reactions to therapeutic agents. Clinical presentations of representative reactions include pathophysiology, mechanisms, complications and treatments. P, Pha 541, 545.

491 Directed Studies 1-3(0,3-9)
A study of an area of student's interest in which a pharmacy faculty member is competent but which is not covered by the regular courses. P, consent.

492 Research Problems 1-3(0,3 per credit) FS
Students may elect research problems in an appropriate area of pharmacy practice. P, consent.

493 Special Topics 1-3 FS
Organized by an instructor in consultation with the Department Head and a group of students. The course content will normally be taught only once or sporadically for a unique group of students.

513 Clinical Pharmacy 6 FS
Cooperative clinical experience in several types of professional environments. P, 5th year standing.

515 Pharmacy Internship 6 FS
Cooperative clinical experience in a selected community and an institutional pharmacy. Ten weeks in an outlined program under the supervision of a practitioner-preceptor. P, 5th year standing.

519 The Geriatric Patient 3(2,3)/2(2,0) FS
Psychological, social and physiological aspects of aging with attention to the altered health care needs of geriatric patients and their altered medication requirements. P, 5th year standing or consent.

520 Clinical Laboratory Monitoring 2(2,0) F
Monitoring of drug therapy through the use of clinical assessment and laboratory data. P, Pha 541 and 545 or consent.

521 Ethics in Healthcare Practice 2(2,0) FS
Overview of ethical principles and theory, with emphasis on the professional-client relationship. P, 5th year standing or consent.

539 Nutritional Aspects in Pharmacy Practice 2(2,0) S
Study of the use of nutrition as a therapeutic modality in various disease states. Emphasis on enteral and parenteral products and therapy. P, 4th or 5th year standing.

545-645 Drug Therapy I 3(3,0) F
Drug therapy of disease states by organ system with emphasis on etiology, pathogenesis, complications, drug selection, dosage regimen and interactions. P, 4th year standing.

546-646 Drug Therapy II 3(3,0) S
Continuation of Pha 545. P, Pha 541, 545.

550 Drug Literature Evaluation II 1(1,0) FS
Critical evaluation of original research in the area of medications and health care. P, 5th year standing or consent.

554 Hospital Pharmacy 3(2,1) S
Principles of contemporary pharmacy services within hospitals and other health care institutions. P, 4th year standing or consent.

Philosophy and Religion (Phil-Rel)

College of Arts and Science
Professor Burns, Acting Head; Professors Kedl, Nelson; Assistant Professors Bahr, Glass.

Philosophy may be characterized as one's attempt to find a meaningful perspective from which to view oneself, one's world and one's place in that world. Students from any major may profit from philosophy.

The academic study of religion involves the use of critical and interpretative skills in examining the vast range of ideas, practices, and writings that are reflected in religion. Present course work is designed to enrich the student's perspectives and introduce some of the important features of philosophy and religion.

A minor in Philosophy is available in either the B.A. or the B.S. program. The minor requires 16 credit hours of philosophy, including Phil 205. Of these 16 hours, 6 must be in upper division courses.

A minor in Religion may be pursued in either the B.A. or the B.S. program. Completion of the minor requires 15 credit hours of religion.

Pre-ministerial students are advised to explore the pre-professional offerings. Contact the department.

Philosophy (Phil)

205 Introduction to Philosophy 4(4,0) FS
Inquiry into some of the basic problems of philosophy leading to an appreciation of the place and value of philosophy in the intellectual community, and intellectual activities of the student.

215 Introduction to Social/Political Philosophy 3(3,0) FS
The search for order for society; major political and social theories from Socrates to the present and critical analysis of these theories. The relation of theories of human nature, metaphysics, epistemology, and ethics to the order in society.

225 Introduction to Ethics 3(3,0) FS
Major ethical theories, investigation of some of the problems arising from these theories, and a critical analysis of the validity of these theories in light of the student's ethical intuitions.

235 Elementary Logic 3(3,0) FS
Investigation of informal and formal (symbolic) reasoning to promote thoughtfulness in one's academic and personal life.
301 Philosophy of Religion 3
Topics such as proofs for the existence of God, religious knowledge, religious language, the nature of God, the nature of the holy, and the nature of religious experience. Cross listed as Rel 301. No prerequisites.

313 Great Philosophers: (Topical) 2-3(2-3,0) FS Su
Explores the thinking of a selected philosopher. Seeks to understand the ideas behind the philosopher's thinking and their implications for the modern world. (May be repeated for a total of 9 hours).

331 Philosophy of Science 3(3,0) FS
An investigation into the nature of science from the perspectives of the scientific disciplines themselves and from the study of the history of scientific development. Inquiry into the structure of scientific method, the scope and limitations of scientific knowledge, and the implications of competing paradigms of scientific world view.

332 Environmental Ethics (See Rel 332)
383 Bioethics 4(4,0) (cross-listed as Bio 383)
491 Directed Studies
See general description in College of Arts and Science Alternatives and Options.

423 Political Philosophy 3(3,0) FS (See P o lS 461)
424 Modern Political Theory 3(3,0) FS (See PolS 462)
493 Undergraduate Course Specials
See general description in College of Arts and Science Alternatives and Options.

495 Internship 1-12 FS Su
See general description in College of Arts and Science Alternatives and Options.

592-692 Special Problems in Philosophy 1-3
Individual guided research culminating in formal research paper or series of essays. May be repeated until 6 credits are earned.

Religion (Rel)

213 Introduction to Religion 3(3,0) FS
An introduction to the academic study of religion, focusing on the variety of methods which can be used to facilitate discussion about religion issues in a public and pluralistic setting.

226 Old Testament 3(3,0) F
The history, writings and selected theological themes of the Old Testament.

227 New Testament 3(3,0) S
The history, writings and selected theological themes of the New Testament.

237 Religion in American Culture 3(3,0) F
Examines both the diversity of religious expression and tradition found within American culture (from Adventism to Zen) and the impact of American culture upon those traditions. Religious dimensions of selected features of the American enterprise: popular culture; politics; construction of the landscape; war and peace; social conflict; race, ethnicity, and gender.

238 Native American Religions 3(3,0) S
A survey of Native American religious traditions and their relation to both traditional and contemporary cultures. Focus on ritual, myth and practice in traditional settings, as well as forms of religious resurgence in the 20th century.

301 Philosophy of Religion 3
Topics such as proofs for the existence of God, religious knowledge, religious language, religious pluralism, and the nature of religious experience. Cross listed with Phil 301. No prerequisites.

331 Feminism and Theology 3(3,0)
A critical examination of traditional theological areas from the perspective of feminist theologians. Areas covered include women in the Bible, Church history, and the contemporary Church.

332 Environmental Ethics 3(3,0) F
Focus on contemporary and traditional efforts to think about the environment in moral terms, with attention to practical issues illustrating the role of moral reflection in the shaping of public policy. Cross listed with Phil 332.

338 World Religions 3(3,0) S
An in-depth introduction to three or four major world faiths, chosen from among the following: Hinduism, Buddhism, Islam, Confucianism, Taoism, Judaism, and tribal religions.

349 Current Issues in Religion 3(3,0) F
Selected issues in contemporary religious life and thought, such as the New Age Movement, religion and human relationships, religion in relation to environmental issues and technology, religion and social change. May be repeated for a total of nine credit hours.

360 Moral and Ethical Perspectives on Death and Dying
Attitudes and issues that focus on death and dying in society, the religious and moral dimensions of these attitudes and issues. F, Rel 213 or Phil 205, or consent of instructor.

491 Directed Studies
See general description in College of Arts and Science Alternatives and Options.

495 Internship 1-12 FS Su
See general description in College of Arts and Science Alternatives and Options.

592-692 Special Problems in Religion 1-3
Individual guided research culminating in a formal research paper or a series of essays. May be repeated until 6 credits are earned.

Physics (Phys)

College of Engineering
Professor W. Hein, Head; Professors Graetzer, Leisure, Quist; Professors Emeriti Duffy, Miller, Parker, Williams; Associate Professors Kitterman, Rauber; Assistant Professors Browning, Schiller; Instructor T. Hein.

Two main objectives are considered in the organization of course work in the department. First, that the basic courses meet the needs of students in the various colleges of the university who need basic physics. Secondly, the selection of advanced courses makes it possible to follow one of two curricula which specialize in the engineering and science of physics. The department is well-supplied with laboratory and lecture-demonstration equipment and other facilities in support of these objectives.

The curriculum in Engineering/Professional Physics, administered in the College of Engineering, is built around a strong core of physics courses complemented by courses from engineering departments and consists of three tracks. The two Engineering Physics tracks are designed to give students the ability to apply new research developments to pressing problems of society. Students interested in industrial employment should consider one of these tracks. Students can choose either the mechanical engineering track or the electrical engineering track as their emphasis. The difference between these two tracks is that required and elective courses either emphasize the mechanical aspects or the electrical aspects of the physics-engineering relationship. A graduate with this background may enter employment immediately as an Engineer or continue graduate work in a field such as Nuclear Engineering, Electrical Engineering, Mechanical Engineering or Aerospace Engineering.

The Professional Physics track is a third track parallel to the two Engineering Physics tracks described above. A student can switch from the Professional Physics track to either of the Engineering Physics tracks at any time prior to his or her fifth semester. Alternatively, a student could switch from one of the Engineering Physics tracks to the Professional Physics curriculum as late as his or her sixth semester. The required and elective courses in this curriculum lead to a strong physics major suitable for preparation for graduate school and eventually a position in research or university teaching.

The other curriculum leads to a B.S. degree with a physics major in the College of Arts and Science. This program is
arranged so that with proper choice of electives a student may emphasize training for one of several careers. One elective area leaves 33 hours of electives, giving maximum flexibility. For instance, a student pursuing meteorology as a career should choose elective courses in climatology, geography, and computer science. A student pursuing a career in medical physics should choose elective courses in physiology, anatomy, microbiology, and electronics. A more complete listing of elective courses for various technical careers is available in the Physics Department office. A second elective area includes all professional education courses that are required to enter secondary teaching education.

To be eligible for graduation with a major in physics, a student must have a 2.0 average or above for all physics courses. An average of 2.0 or above must also be obtained for the three courses: Phys 211-213 (or Phys 111-113) and Phys 331. Any deviations from departmental requirements must be approved by the Head of the Physics Department.

Curriculum in Engineering/Professional Physics
128 Semester Credits Required for Graduation

### I. Electrical Engineering Track

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Freshman Year</strong></td>
<td></td>
</tr>
<tr>
<td>Math Analysis I-II, Math 123-224</td>
<td>F S</td>
</tr>
<tr>
<td>General Chemistry, Chem 112-114</td>
<td>5 4</td>
</tr>
<tr>
<td>Fr Comp, Engl 101; Fund of Speech, SpCm 101</td>
<td>3 3</td>
</tr>
<tr>
<td>Engineering Design Graphics I-II, EG 121-122</td>
<td>1 1</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1 1</td>
</tr>
<tr>
<td>Intro. to Engineering, GE 110-111</td>
<td>1 1</td>
</tr>
<tr>
<td>General Physics I, Phys 211</td>
<td>4</td>
</tr>
<tr>
<td><strong>Sophomore Year</strong></td>
<td></td>
</tr>
<tr>
<td>Math Analysis III, Math 225</td>
<td>F S</td>
</tr>
<tr>
<td>General Physics II, Phys 213</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Programming with FORTRAN, CSc 213</td>
<td>3</td>
</tr>
<tr>
<td>Differential Equations, Math 321</td>
<td>3 3</td>
</tr>
<tr>
<td>Introduction to Modern Physics, Phys 331</td>
<td>3 3</td>
</tr>
<tr>
<td>*Non-technical Electives</td>
<td>3 6</td>
</tr>
<tr>
<td><strong>Junior Year</strong></td>
<td></td>
</tr>
<tr>
<td>Classical Mechanics, Phys 351</td>
<td>F S</td>
</tr>
<tr>
<td>Thermodynamics &amp; Statistical Mechanics, Phys 341</td>
<td>3</td>
</tr>
<tr>
<td>Measurement Theory and Exper. Design, Phys 312</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Engineering Mathematics, Math 331 or Calculus of Several Variables, Math 327</td>
<td>2</td>
</tr>
<tr>
<td>Electronics I-II, EE 320-321</td>
<td>3 3</td>
</tr>
<tr>
<td>Electrons Lab I-II, EE 322-323</td>
<td>1</td>
</tr>
<tr>
<td>Optics, Phys 361</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Lab I, Phys 314</td>
<td>1</td>
</tr>
<tr>
<td>Advanced Comp, Engl 300 or Technical Communications, Engl 303</td>
<td>3 6</td>
</tr>
<tr>
<td><strong>Technical Electives</strong></td>
<td>3 6</td>
</tr>
<tr>
<td><strong>Senior Year</strong></td>
<td></td>
</tr>
<tr>
<td>Quantum Mechanics I, Phys 471</td>
<td>F S</td>
</tr>
<tr>
<td>Intro to Nuclear Engineering, Phys 435 or Physics of the Solid State, Phys 439</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Lab II, Phys 412</td>
<td>1</td>
</tr>
<tr>
<td>Physics Colloquium, Phys 490</td>
<td>3</td>
</tr>
<tr>
<td>Electromagnetism, Phys 421</td>
<td>3</td>
</tr>
<tr>
<td>Senior Design, Phys 464</td>
<td>4</td>
</tr>
<tr>
<td>*Non-technical Electives</td>
<td>3</td>
</tr>
<tr>
<td><strong>Technical Electives</strong></td>
<td>3 6</td>
</tr>
</tbody>
</table>

II. Mechanical Engineering Track

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Freshman Year</strong></td>
<td></td>
</tr>
<tr>
<td>Math Analysis I-II, Math 123-224</td>
<td>F S</td>
</tr>
<tr>
<td>General Chemistry, Chem 112-114</td>
<td>5 4</td>
</tr>
<tr>
<td>Fr Comp, Engl 101; Fund. of Speech, SpCm 101</td>
<td>3 3</td>
</tr>
<tr>
<td>Engineering Design Graphics I-II, EG 121-122</td>
<td>1 1</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1 1</td>
</tr>
<tr>
<td>Intro. to Engineering, GE 110-111</td>
<td>1 1</td>
</tr>
<tr>
<td>General Physics I, Phys 211</td>
<td>4</td>
</tr>
<tr>
<td><strong>Sophomore Year</strong></td>
<td></td>
</tr>
<tr>
<td>Math Analysis III, Math 225</td>
<td>F S</td>
</tr>
<tr>
<td>General Physics II, Phys 213</td>
<td>3</td>
</tr>
<tr>
<td>Intro. to Programming with FORTRAN, CSc 213</td>
<td>3</td>
</tr>
<tr>
<td>Electric Circuits I-II, EE 215-216</td>
<td>3 3</td>
</tr>
<tr>
<td>Differential Equations, Math 321</td>
<td>3 3</td>
</tr>
<tr>
<td>Introduction to Modern Physics, Phys 331</td>
<td>3 3</td>
</tr>
<tr>
<td>Statics, EM 221</td>
<td>3</td>
</tr>
<tr>
<td>Metal Processing, ES 225</td>
<td>1</td>
</tr>
<tr>
<td>Fundamentals of Mechanical Design, ME 240</td>
<td>3</td>
</tr>
<tr>
<td>*Non-technical Electives</td>
<td>3</td>
</tr>
<tr>
<td><strong>Junior Year</strong></td>
<td></td>
</tr>
<tr>
<td>Classical Mechanics, Phys 351</td>
<td>F S</td>
</tr>
<tr>
<td>Thermodynamics and Stat. Mechanics, Phys 341</td>
<td>3</td>
</tr>
<tr>
<td>Measurement Theory and Exper. Design, Phys 312</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Engineering Mathematics, Math 331 or Calculus of Several Variables, Math 327</td>
<td>2</td>
</tr>
<tr>
<td>Optics, Phys 361</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Lab I, Phys 314</td>
<td>1</td>
</tr>
<tr>
<td>Fluid Mechanics, EM 331</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Composition, Engl 300 or Technical Communications, Engl 303</td>
<td>3</td>
</tr>
<tr>
<td><strong>Technical Electives</strong></td>
<td>3</td>
</tr>
</tbody>
</table>

### Humanistic and Social Science Requirements

- **Humanistic and social science non-technical electives must be chosen to satisfy the University Core. The humanistic and social science electives must include in-depth course work to meet the rigorous EACABET requirements. Six humanities credits from at least two areas and nine social science credits from two areas must be taken for graduation. An additional one credit must be taken for a total of sixteen. A list of approved core courses that shows how the depth requirement can be met is available in the Physics Department office.**

Physics Department Office.
**Technical electives will be selected with the assistance of the student's adviser from courses offered by the Mechanical Engineering, Physics, Computer Science, Chemistry, Biology, and Mathematics Departments. Technical electives must be chosen so that the design component will be at least five hours and the engineering science component will be at least six hours to meet EAC/ABET requirements. A complete list of departmental approved technical electives is available in the Physics Department office. Any departures from this list must be approved by the Head of the Physics Department.**

### III. Professional Physics Track

#### Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math Analysis I-II, Math 123-224</td>
<td>4</td>
</tr>
<tr>
<td>General Chemistry, Chem 112-114</td>
<td>3</td>
</tr>
<tr>
<td>Phys Comp, Engl 101; Fund. of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Engineering Design Graphics I-II, EG 121-122</td>
<td>1</td>
</tr>
<tr>
<td>Fitness and Lifetime Activities, PE 100</td>
<td></td>
</tr>
<tr>
<td>Intro to Engineering, GE 110-111</td>
<td>1</td>
</tr>
<tr>
<td>General Physics I, Phys 211</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math Analysis III, Math 225</td>
<td>3</td>
</tr>
<tr>
<td>General Physics II, Phys 213</td>
<td>4</td>
</tr>
<tr>
<td>Intro to Programming with FORTRAN, CSc 213</td>
<td>3</td>
</tr>
<tr>
<td>Electric Circuits I-II, EE 215-216</td>
<td>3</td>
</tr>
<tr>
<td>Differential Equations, Math 321</td>
<td></td>
</tr>
<tr>
<td>Introduction to Modern Physics, Phys 331</td>
<td>6</td>
</tr>
</tbody>
</table>

#### Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classical Mechanics, Phys 351</td>
<td>3</td>
</tr>
<tr>
<td>Thermodynamics and Stat. Mechanics, Phys 341</td>
<td></td>
</tr>
<tr>
<td>Measurement Theory and Exper. Design, Phys 312</td>
<td>2</td>
</tr>
<tr>
<td>Advanced Engineering Mathematics, Math 331 or Calculus of Several Variables, Math 327</td>
<td>3</td>
</tr>
<tr>
<td>Elective, Phys 361</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Lab I, Phys 314</td>
<td>1</td>
</tr>
<tr>
<td>Electromagnetism, Phys 421</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Composition, Engl 300 or Technical Communications, Engl 303</td>
<td>3</td>
</tr>
</tbody>
</table>

*Non-technical Electives...

**Technical Electives...

#### Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantum Mechanics I, Phys 471</td>
<td>3</td>
</tr>
<tr>
<td>Nuclear and Elem. Particle Physics, Phys 533</td>
<td>3</td>
</tr>
<tr>
<td>Physics of the Solid State, Phys 439</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Lab II, Phys 412</td>
<td>1</td>
</tr>
<tr>
<td>Physics Colloquium, Phys 490</td>
<td>1</td>
</tr>
<tr>
<td>Quantum Mechanics II, Phys 473</td>
<td>3</td>
</tr>
</tbody>
</table>

**Technical Electives...

*Non-technical electives are provided to strengthen cultural growth and education in the humanistic and social science areas. At least fifteen additional credits must be selected from the approved list found in the front of the catalog under Graduation Requirements and should be logical and purposeful selections.

**Technical electives will be selected with the assistance of the student's adviser from courses offered by the Physics, Computer Science, Chemistry, Biology, and Mathematics Departments. A complete list of allowed electives is available in the Physics Department office. Any departures from this list must be approved by the Head of the Physics Department.

#### Curriculum in Arts and Science, Physics Major

Leading to the Bachelor of Science Degree

128 Semester Credits Required

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr Comp, Engl 101, and Fund of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Algebra &amp; Trigonometry, Math 113</td>
<td>5</td>
</tr>
<tr>
<td>Mathematical Analysis I, Math 123</td>
<td>5</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1</td>
</tr>
</tbody>
</table>

- General Chemistry, Chem 110 or 112 and 114 or 120                   | 4      |
- Biology, Botany, or Zoology                                         | 3      |
- Electives                                                           | 1      |

### Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematical Analysis II-III, Math 224-225</td>
<td>4</td>
</tr>
<tr>
<td>Elementary Physics I-II, Phys 111-113 or General Physics I-II, Phys 211-213</td>
<td>4</td>
</tr>
<tr>
<td>Pascal Programming, CS 114 or Intro to Programming with FORTRAN, CS 213</td>
<td>3</td>
</tr>
<tr>
<td>Technology and Society, GE 231</td>
<td>2</td>
</tr>
</tbody>
</table>
- Electives                                                           | 5      |

### Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to Modern Physics, Phys 331</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Composition, Engl 300</td>
<td>3</td>
</tr>
<tr>
<td>Intro to Measurement Theory and Experiment Design, Phys 312</td>
<td>2</td>
</tr>
<tr>
<td>Electives</td>
<td>21</td>
</tr>
</tbody>
</table>

### Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philosophy of Science, Phil 331 or Elementary Logic, Phil 235</td>
<td>3</td>
</tr>
<tr>
<td>Physics Colloquium, Pharm 490</td>
<td>1</td>
</tr>
</tbody>
</table>
- Electives                                                           | 28     |

### Elective Areas of Study

I. General Physics

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phys 351, Phys 471, or Phys 421</td>
<td>3</td>
</tr>
<tr>
<td>Additional Physics electives</td>
<td>10</td>
</tr>
<tr>
<td>Additional Social Sciences electives from approved list..............</td>
<td>10</td>
</tr>
<tr>
<td>Additional Humanities electives from approved list.....................</td>
<td>6</td>
</tr>
<tr>
<td>Additional electives</td>
<td>33</td>
</tr>
</tbody>
</table>

II. Science Teaching

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology, Psych 101</td>
<td>3</td>
</tr>
<tr>
<td>Practicum &amp; Professional Laboratory Experiences, SeEd 287</td>
<td>2</td>
</tr>
<tr>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>Educational Psychology, EPay 302</td>
<td>2</td>
</tr>
<tr>
<td>Methods of Teaching in Secondary Schools, SeEd 400</td>
<td>3</td>
</tr>
<tr>
<td>Strategies in Science Teaching, SeEd 416</td>
<td>3</td>
</tr>
<tr>
<td>Indian Studies, Hist 368 or Anth 421</td>
<td>3</td>
</tr>
<tr>
<td>Teaching of Reading, SeEd 450</td>
<td>3</td>
</tr>
<tr>
<td>Supervised Student Teaching SeEd 488</td>
<td>10</td>
</tr>
<tr>
<td>Classroom Management and Discipline, SeEd 410</td>
<td>3</td>
</tr>
<tr>
<td>Physics Electives</td>
<td>7</td>
</tr>
<tr>
<td>Chemistry or Biology Electives</td>
<td>4</td>
</tr>
<tr>
<td>Descriptive Astronomy, Phys 103</td>
<td>3</td>
</tr>
<tr>
<td>Social Science electives from approved list (additional)..............</td>
<td>4</td>
</tr>
<tr>
<td>Humanities electives from approved list (additional)...................</td>
<td>6</td>
</tr>
<tr>
<td>Additional electives</td>
<td>3</td>
</tr>
</tbody>
</table>

### Curriculum in Arts and Science Physics Minor

The physics minor consists of a minimum of 17 credit hours of physics. Eleven of these must consist of Elementary Physics, Phys 111 and 113 or General Physics, Phys 211 and 213 together with Introduction to Modern Physics, Phys 331. The six remaining credit hours can be chosen from all remaining courses in the Physics Department except Phys 101.

### Undergraduate Courses

101 Introductory Physics 4(3,2) FSSu

One-semester course. Concepts, vocabulary and methods of the science. P: Math 112, 113, or consent. (Credit will not be allowed in both 101 and 111-113 or 211-213.)
103 Descriptive Astronomy 3(3,0) FS
Introductory course: moon, sun, planets, constellations, galaxies, stellar evolution, radio astronomy, black holes, instrumentation, use of telescopes for viewing.

111 Elementary Physics I 4(3,2) FSSu
First semester of a year course, primarily for students in the biological, agricultural, and health sciences. Mechanics, heat, wave motion. P, Math 112 or 113. (Credit will not be allowed in both 111-113 and 211-213)

113 Elementary Physics II 4(3,2) FSSu
Continuation of 111. Electricity, light, atomic and nuclear physics. P, 111.

211 General Physics I 4(3,2) FSSu
For students in physical science and engineering. Mechanics and Thermodynamics. P, concurrent registration in Math 224. (Credit will not be allowed in both 111-113 and 211-213)

213 General Physics II 4(3,2) FSSu
Continuation of 211. Electricity, waves, and optics. P, 211.

312 Measurement Theory and Experiment Design 2(1,3) F

314 Advanced Laboratory I 10(0,3) S
Selected experiments in classical and modern physics which illustrate the principles and development of physics and emphasize experiment design and data analysis. Extensive use is made of computers for data collection and analysis. P, 312 and 331 or consent.

331 Introduction to Modern Physics 3(3,0) FSSu
Atomic and nuclear structure with emphasis on impact of 20th century developments on science and engineering. P, 213 or 113 and consent.

341 Thermodynamics & Statistical Mechanics 3(3,0) F

351 Classical Mechanics 3(3,0) S
Newton's laws, motion in one and three dimensions, central forces, harmonic oscillations, non-inertial reference frames, rotations of rigid bodies, and Lagrangian Mechanics. P, 113 or 213 and concurrent registration in Math 321.

361 Optics 3(3,0) F
Intermediate course in geometrical and physical optics with principal emphasis on physical optics. Analysis of refraction phenomena, thick lenses, wave nature of light, interference, diffraction, and polarization. P, 113 or 213 or consent and Math 225.

412 Advanced Lab II 10(0,3) S
Selected experiments in modern physics: gamma ray spectroscopy, half life, beta decay, positron annihilation, neutron capture, bubble chamber events, nuclear statistics, etc.

414 Advanced Lab III 10(0,3) S
Continuation of 412 into individualized projects. Also, experiments in solid state physics, such as electron spin resonance and diamagnetism. P, 412.

421 Electromagnetism 3(3,0) S

431 Introduction to Astrophysics 3(3,0) S
The study of stars, star clusters and galaxies. This will include application of the principles of atomic structure and radiation laws to the interpretation of stellar and nebular spectra, energy generation by thermonuclear reactions and nucleosynthesis, theoretical and observational aspects of stellar evolution and the constitutents and structure of stellar systems. P, 331.

435 Introduction to Nuclear Engineering 3(3,0) S
Design of nuclear fission and fusion reactors and particle accelerators including discussion of basic nuclear properties, the fusion process and reactor control, fusion reactors, environmental effects and nuclear waste management. P, 331 or consent.

439 Physics of the Solid State 3(3,0) S

464 Senior Design 3(1,6) FSSu
Students will design a piece of equipment, an experiment or design and assemble a system to perform a particular measurement or engineering task. A complete analysis of the design including a literature review and an oral and written report is required. P, 512.

471 Quantum Mechanics I 3(3,0) F

473 Quantum Mechanics II 3(3,0) S
Atomic and molecular structure in terms of vector model and quantum mechanics. P, 471.

490 Physics Colloquium 1(1,0) FS
Recent developments in the field of physics, and topics of related interest. Participation required for physics majors for 1 semester during the senior year. P, senior standing.

493 Special Problems in Physics 1-3 FSSu
Individual study in physics for qualified students. P, consent.

493 Special Topics 1-3 FSSu
Special problems. Six total credits may be taken with maximum of 3 credits at one time. P, consent.

494-496 Cooperative Education/Internship/Field Experience 1-4 FSSu
Planned and supervised professional experience related to physics or engineering physics which takes place outside the formal classroom with private business or industry, or public agencies. P, consent of department program coordinator.

Graduate Courses

533-633 Nuclear and Elementary Particle Physics 3(3,0) F
Radioactivity, nuclear spectra and structure, nuclear models, elementary particle theories and high energy physics. P, 471 or consent.

537-637 Science of Solids 3(3,0) F
Topics covered to satisfy student interests in areas such as magnetism, semi-conductors, superconductors, ferroelectrics, and devices based on these aspects of solids. The role of defects in solids and strength of materials may also be included. P, 439 or consent.

700 Seminar 0-1 FS

721 Electrodynamics 3(3,0) F

743 Statistical Mechanics 3(3,0) S

751 Theoretical Mechanics 3(3,0) S

761 Plasma Physics 3(3,0) S

771 Quantum Mechanics 3(3,0) F

775 Tensors & General Relativity 3(3,0) F

779 Group Theory in Quantum Mechanics 3(3,0)

790 Thesis

792 Research or Design Paper 2 FSSu

793 Special Topics 1-3 FS

Master of Science Teaching (MSTP)

701 Mechanics I

702 Mechanics II

703 Mechanics III

704 Vibrations and Waves I

705 Thermodynamics I

706 Electricity

707 Magnetism

708 Optics

709 Relativity

710 Introduction to Quantum Theory

711 Quantum Mechanics and the Atom

712 Physics of Molecules and Solids

713 Nuclear and Radiation Physics

714 Astronomy
Planning (Plan)

Associate Professor Sandness, chairperson and coordinator.

Planning is an essential part of most private and public activities. It is a process that can be learned and applied to increase effectiveness in decision making and operations.

The Minor in Planning (Master's Degree Level) and teaching Planning courses are governed by a Coordinating Committee appointed by and responsible to the Vice President for Academic Affairs.

Graduate Courses

591-691 Principles of State, Regional and Community Planning 3(3,0)F

Purpose, structure, and dynamics of the planning process. Identification of different types of planning. Interdependencies among persons who contribute to the planning process and are trained in separate academic disciplines. Basic techniques employed within different phases of the planning process. P: Enrollment within a minor in planning at the Master's level or consent.

592-692 Techniques of State, Regional and Community Planning 3(3,0)S

Brief review of basic approaches, procedures, and methods employed within different phases of the planning process. Coordination required among persons trained in separate academic disciplines in order to carry out these basic techniques. Exercises in the practical application of selected techniques and review of their applications in ongoing to completed planning efforts. P: Plan 591.

(See also specialized courses in planning within departmental listings in Economics; Education; Engineering; Geography; Horticulture, Forestry, Landscape and Parks; Political Science; and Sociology.)

Plant Pathology

(See Plant Science)

Plant Science (PS)

College of Agriculture and Biological Sciences

Professor Cholick, Head; Professors Arnold, Boe, Buchenau, P. Evenson, Kenean, Kohl, Malo, McDaniel, Moore, Reeves, Smolik, Wicks, Wragge; Professors Emeriti Brage, P. Carson, Derscheid, Fine, Gardner, Horton, Kuntack, Kinch, Mankin, Semeniuk, Shank, Shubeck, Walstrom, Wells, Westin, White, Wood; Associate Professors Beck, Carlson, Carter, Gerwing, B. Hall, Pollmann, Ricker, Schumacher, Stymiest; Assistant Professors Bleakley, Chase, D. Clay, S. Clay, Doolittle, Espinasse-Gellner, Fuller, Geise, Gelderman, Gellner, Grady, Kephart, Langham, Rudd, Scott, Sutton, Twidwell, Woodard; Instructors Sorensen, Turnipseed.

Courtesy Appointments

The following staff members are employed outside the Plant Science Department but work cooperatively with Department staff and carry an adjunct professor appointment in the department: (Biology/Microbiology) Chen, Reese; (Chemistry) D. Evenson; (Northern Grain Insect Research Laboratory-USDA/ARS) Buman, Dybbing, Ellsbury, Kieckhefer, Powell, Riedell, Sutter; (Central Soil Conservation Research Laboratory, Morris, MN-USDA/ARS) Benoit, Lindstrom, McGiffen, Olness, Westgate; (University of South Dakota) Hoffman; (P.P.I.) Fixen; (Biogenetics Inc.) Butler, Kahler (USDA/ARS) Moldenhauer (Soil & Water Cons. Soc.).

The primary goal of the department is to prepare people for leadership in business, government, and farming enterprises related to crop production, insect control, plant disease control, pest management, and soil management. In addition, you can prepare for graduate study leading to a career in research, teaching, or extension.

Graduates with training in plant science are sought by agri-business, private foundations, and federal and state agencies for employment in domestic and international agriculture. Plant Science, with its variety of disciplines, provides an excellent background for independent pursuits in farming or ranching.

The Department offers instruction leading to the Bachelor of Science Degree with a major in Agronomy. Three areas of emphasis are offered in the major: (1) Business, (2) Production, and (3) Science.

The choice of an area of emphasis need not be made until the sophomore or junior year. This enables you to become familiar with the broad field of plant science and, through consultation with faculty and advisers, to develop a program that can satisfy your needs.

The Department is equipped with modern classroom, laboratory, greenhouse, and field plot facilities. Numerous opportunities are available for part-time employment, scholarships, and work-study programs. The Agronomy and Conservation Club offers opportunities for fieldwork, leadership, and career planning. The Department has three nationally recognized judging teams in crops, soils, and weeds.

Graduate study opportunities may lead to the Bachelor of Science or Doctor of Philosophy degrees.

Agronomy Major

Provides broad training in plant science and in crop production technology. This major is recommended for students interested in either agricultural production or the agri-business areas of crops and soils. Individuals can prepare for careers in farming or ranching; for work with private industry producing agricultural products, such as pesticides and fertilizers; for processing grain or hybrid seed; and for work with government agencies, such as the Cooperative Extension Service, Farmers Home Administration, and Soil Conservation Service.

Curriculum in Agriculture, Agronomy Major

Leading to the Bachelor of Science Degree

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop Production, PS 103</td>
<td>3</td>
</tr>
<tr>
<td>Intro Biology, Bio 151</td>
<td>3</td>
</tr>
<tr>
<td>Botany, Bot 200 or Intro Biology, Bio 153</td>
<td>3</td>
</tr>
<tr>
<td>Fr Comp, Engl 101</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100</td>
<td>1</td>
</tr>
<tr>
<td>Intro to Sociology, Soc 100</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Emphasis and Elective Courses***</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits: 16
Sophomore Year

F S

Soils, PS 113 ..................................................... 3 or 5
Elementary Org Chem, Chem 120 ....................... 4
Macroeconomics Principles, Econ 201 ................. 4
Computers in Ag, MA 273 or CSc 112 ............... 4

Humansities Electives* .................................................. 3
Emphasis and Elective Courses** .................... 6-7

Junior Year

F S

Soil Fertility & Fertilizers, PS 323 .................. 4
Principles of Plant Pathology, PS 223 ............... 4
General Microbiology, Mirc 231 ..................... 4
Geology, PS 243 ................................................. 4
Advanced Comp, Engl 300 ............................... 4
Internship, PS 495 .............................................. 4

Emphasis and Elective Courses** .................... 10

Senior Year

F S

Undergraduate Seminar, PS 490 ....................... 1
Plant Physiology, Bot 427 .................................. 1
Statistical Methods I, Stat 341 ........................... 1
Entomology, PS 305 or 307 .................................. 1
Social Science Elective* ..................................... 1
Water Quality in Agriculture, PS 375 ............... 1

Emphasis and Elective Courses** .................... 8

Business Emphasis Credits

Math 112, or 113, or 120 ................................. 3 or 5
Gen Chemistry, Chem 110 or 112 ..................... 4
Intro Physics, Phys 101 or 111 ......................... 4
Technical Comm., Engl 303 or Pub Methods, MCom 313, or Writing in Sci, Engl 307 .............. 3 or 2
Weed Science, PS 343 ....................................... 3
Prin of Actg., Actg 210 ........................................ 3
Ag. Marketing, Econ 354, or Livestock Evaluation and Marketing, AS 285 .................. 3 or 4
Business Administration, BAdm 360 ................. 3
Business Electives (see following list) ................ 9
Plant Science Electives (at least one course from each of 3 areas on list***) ........... 10

Unrestricted Electives ........................................ 7-11

*See approved list, page 27
**See selected emphasis

Business Electives

Prin. of Accounting II ...................... Actg 211-3
Cost Accounting ........................................ Actg 320-3
Farm & Ranch Management ..................... AgEc 271-4
Agricultural Law .................................. AgEc 352-3
Rural Real Estate Appraisal ....................... AgEc/PS 373-3
Production Economics ............................ AgEc 421-3
Grain & Livestock Marketing ................. AgEc 454-3
Ag Finance ............................................ AgEc 478-3
Ag Policy ............................................. AgEc 479-3
Livestock Evaluation & Marketing ............. AS 285-4
Business Finance ................................ BAdm 310-3
Business Law I ...................................... BAdm 350-3
Business Law II .................................... BAdm 351-3
Personal Finance ................................... BAdm 380-3
Microeconomics Principles ..................... Econ 202-3
Money and Banking ................................. Econ 330-3
Marketing Management ......................... Econ 452-3

Production Emphasis Credits

Math 112, or 113, or 120 ................................. 3 or 5

AGRONOMY MINOR: PS 103, 113, 223, 490, plus 6 additional credits of Plant Science courses.

ENTOMOLOGY MINOR: PS 223, 305, 307, 490, Zool 357, plus 2 additional credits of Plant Science courses.

PLANT PATHOLOGY MINOR: PS 223, 333 or 334, 453, 490, or Micr 310, plus 5 additional credits from the following courses: Bio 371, Bot 427, Micr 231, 412, PS 333, and 334.

SOILS MINOR: PS 113, 243, 323, 490, plus 6 additional credits from the following courses: PS 310, 362, 373, 375, 412, or Micr 412.

Students who plan to teach in secondary schools should consult the Dean of the College of Education and Counseling regarding 34 hours in Education required for certification.

Undergraduate Courses

103 Crop Production 3(2,2) FS
Practices and principles; crop distribution; growth processes; response to environment. Grain and forage crops, including their distribution, use, improvement, growth, harvesting, and marketing.

113 Soils 3(2,2) FS
Development and classification of soils; physical, biological, and chemical properties; management aspects, including water, fertility, and erosion; soils in the environment. P, Chem 110 or equivalent recommended.
223 Principles of Plant Pathology 3(2,2) F

243 Geology 3(3,0) FS
Geologic processes, including rock weathering, work of wind, ground water, streams, glaciers, lakes, oceans, volcanism, mountain formation, origin of fossil fuels, and rocks.

295 Horticultural Insects 3(2,2) F
Major problems of insect and related invertebrate damage of horticultural plants and a current review of effective control measures to include biological, natural, chemical, cultural, and legal controls.

303 Seed Technology 2(1,2) F
Seed testing and judging. Grain market grading and quality determination. Seed anatomy, physiology, dormancy, and aging processes. Identification and classification of crop and weed seeds. P, 103 or Ho 111.

305 General Entomology 3(2,2) F
Provides an understanding of how insects influence man's existence and well-being. Describes the current knowledge of the various procedures that may be employed to control insects.

307 Insect Pest Management 3(2,2) S
Covers the major pest insects of the Northern Great Plains with emphasis on field biology, recognition, field scouting, and economic thresholds. Pest management strategies of insects affecting row crops, small grains, hayland and rangeland will be included. Pesticide application methods and safety are included.

308 Grain Grading 2(1,2) S

310 Soil Geography & Land Use Interpretation 3(2,2)F (even years)
Relationship of soil characteristics and soil classification to land use interpretations. Laboratory exercises involve field and laboratory procedures used in soil survey investigations. Field trip. P, 113 or consent. Cross listed with Geog 310.

312 Grain & Seed Production & Processing 2(2,0) S (even years)
Distribution, adaptation, and culture of grain crops. Production and harvesting of seed crops. Seed processing, cleaning procedures, machinery, conditioning drying, storage, and marketing; production of certified and hybrid seed crops. P, 103 or Ho 111.

313 Forage Crops & Pasture Management 3(2,2) F
Grasses and legumes; their establishment, management, and use for hay, pasture, and silage. P, 103.

320 Crop Judging 1 or 2 (0,3)F
Seed and plant identification of crops and weeds, seed analysis and grain grading. Students are expected to enroll in the spring semester for judging and in the fall to compete in regional and national contests. May be repeated for a maximum of 3 credits. P, 103 required, and 303 recommended.

321 Soil Judging 1(0,3) FS
Practical experience in evaluating the physical and chemical properties of soils important in soil judging and in making land use decisions. Laboratory work includes interpreting soil interpretations and soil morphology. Participation in regional and intercollegiate soil judging contests. May be repeated for a maximum of 3 credits. P, 113 required, 310 recommended.

323 Soil Fertility & Fertilizers 3(3,0) S
Soil fertility management and its effects on the growth of crops, including evaluation, uptake and utilization of specific ions by plants, use of fertilizer elements to alter soil fertility, importance of crop rotations, selection of site, and the problem of improving productivity, and chemical composition of fertilizers and their characteristics. P, 113 and Chem 110.

333 Diseases of Field Crops 3(2,2) S (odd years)
Extensive survey of diseases affecting major food, fiber, and oilseed crops of the world. Emphasis is on diagnosis and disease management strategies. P, 223.

334 Diseases of Horticultural Crops 3(2,2) F (even years)
Diagnosis and control of horticultural crop diseases. Emphasis is placed on diagnostic skills. Crops covered include shade trees, fruit crops, vegetables, bedding plants, tropicals, and turf. P, 223 or consent of instructor.

343 Weed Science 3(2,2) F

362 Environmental Soil Management 3(2,2) S
Management systems designed to maintain soil productivity and environmental quality are examined. Soil problems important in production systems and environmental management including compaction, erosion, and nonpoint pollution are analyzed based on underlying environmental and agronomic principles. Computer simulation models are used and applied to soil problems. P, 113.

373 Rural Real Estate Appraisal 3(2,2) F
Principles and practices of rural real estate appraisal. Principles of soils valuation and their application for farmland appraisal. Cost, market data, and income approaches to farmland and building appraisal. Introduction to tax, loan and other specialized rural appraisal procedures. Half-day field trips to area farms are required. P, AgEc 271 and PS 113. Cross listed with AgEc 373.

375 Water Quality in Agriculture 3(3,0) S

412 Soil Chemistry 2(2,0,8) (odd years)
Chemical reactions and properties of clay minerals, organic matter, major and minor nutrient elements, and salts which affect soil formation and agricultural use.

433 World Crop & Soil Resources 3(3,0)F (even years)
Survey of the grain, root, sugar, beverage, oil, rubber, vegetable, and fiber crops grown in the world. Factors influencing crop production and soil formation on a global scale. P, 103 or 113 or consent. Cross listed with Geog 433.

453 Mycology 4(2,4)F (even years)

483 Irrigation — Crop & Soil Practices 3(3,0) S (even years)
Problems of irrigated agriculture. Soil salinity and salt-affected soils, water quality, management of irrigated crops; cropping systems; water, fertility requirements of irrigated agriculture, water movement, storage, and release in soils. P, 113 and Math 112.

490 Undergraduate Seminar 1-4 FSSu
Topics in Plant Science which takes place outside the formal classroom with private study, and reading. Cross listed with Plant Science 1-12 FSSu.

543-643 & HO 511-611 Plant Breeding 3(3,0) S
Plant breeding applied to field crops and horticultural varieties with particular emphasis on the relationship of genetics and allied subjects. Cross listed with Ho 511-611. P, 103, Bio 371 or consent.
Political Science (PolS)
College of Arts and Science
Professor Burns, Head; Professors Cheever, Tolle; Associate Professor Schwab.

Political science courses are designed to achieve the following objectives: convey the values and traditions of our democratic governmental institutions and processes and encourage students to assert their talents in preserving and nurturing those values and traditions through participation in the body politic; promote global awareness and understanding; engender critical thinking and a high proficiency in communication skills; serve the other social sciences as a cognate field; provide the student majoring in political science with foundation and advanced courses in the many subdisciplines of political science which, in turn, will contribute to the student's intellectual growth and occupational pursuits.

Those who choose to major in political science ordinarily will be preparing for a career in law or public service as an elected governmental official, civil servant, military officer or teacher. Many majors pursue successful careers in business and industry including farming and ranching. Academic advisers will assist in planning suited to objectives whether it be graduate school, law school, secondary teaching, government work, or related employment. Courses in history, economics, sociology, geography, and psychology are important for an understanding of the origins and operation of political institutions, and will constitute an integral part of the student's curriculum.

Political Science Major
Political science majors may work toward either a Bachelor of Arts or Bachelor of Science degree. All are required to take 33 hours in political science including PolS 100 or 101 and at least 21 upper division credits (300 level and above). PolS 210 is required for all majors who take the education block (see below). Finally, 6 hours in Political Science comparative government and/or international courses, either upper division or lower division, are required. You are encouraged to select at least one upper division course in each of the following fields within the major: American Government and Politics, Criminal Justice, Public Administration, Public Law, Comparative Government, and International Relations or Political Theory. Students must meet the University and Arts and Science College requirements.

Depending on career plans, you may want to consider taking courses in composition, business and economics, sociology, public relations, and computer science.

Teaching Emphasis
If you are preparing to teach secondary school, take education block prerequisite courses in the sophomore and junior years. You must consult with the Dean of the College of Education and Counseling prior to your junior year. Set aside one semester for the education block and off-campus teaching assignment during your senior year. Students in this option should select an appropriate minor or minors.

Pre-law Emphasis
Law schools require a bachelor's degree for entrance. Although a particular major is not specified, Political Science is a common choice because of its flexibility. Pre-law students are carefully counseled by the Political Science staff to insure the appropriate background for the study of law.

Public Administration Emphasis
Students interested in working in government at the local, state, or national level should plan to take several courses related to public administration and American politics. Students are encouraged to take the practicum or an internship with a government agency.

Criminal Justice Emphasis
Only Political Science and Sociology majors may minor in criminal justice on the SDSU campus. Consult advisers for minor requirements.

General Political Science Emphasis
You may choose to take a very flexible program in Political Science. Such a program might be designed to lead to graduate work in Political Science, or employment in business, journalism, planning, or the international area.

Double Major
You may combine a major in Political Science with nearly any other major. While students must ordinarily select courses with care in order to meet requirements in two fields, most can finish the double major in four years.

Curriculum in Arts and Science,
Political Science Major
Leading to the Bachelor of Arts Degree

In addition to the departmental requirements, you must meet all University and Arts and Science College requirements.

During the freshman year you will take English, foreign language, American Government, Fundamentals of Speech, natural science or mathematics and physical education. In addition, there may be openings for some electives. In the sophomore year the foreign language requirements will be completed and further 200 level courses in political science chosen. In addition, the introductory courses in such fields as history, sociology, geography, psychology and economics should be taken to prepare for advanced courses in those...
areas that are related to the student's interests. The junior and senior years are open for completion of humanities and English requirements and for development of the major, supporting social science courses, and other advanced courses (e.g., the education block).

Curriculum in Arts and Science, Political Science Major
Leading to the Bachelor of Science Degree

In addition to the departmental requirements, you must meet all University and Arts and Science College requirements.

In addition, a major will be required to take three additional credits in the humanities area (for a total of 12 credits in humanities). It is also strongly recommended that majors take courses in Statistics and Computer Programming.

During the freshman year the major will take English, Fundamentals of Speech, American Government, two semesters of biological or physical science, physical education and mathematics. In addition there will be openings for some electives. In the sophomore year the biological and physical science requirements will be completed and further 200 level courses in political science chosen. In addition, introductory courses in humanities and other social sciences (history, sociology, geography, psychology and economics) should be taken to prepare for advanced courses in those areas that are related to the student's interests. The junior and senior years are open for completion of humanities and English requirements and for development of the major, supporting social science courses, and other advanced courses (e.g., the education block).

Minors: 18 hours will constitute a minor. PoIS 100 or 101 is required in addition to 9 hours of upper division (over 300) credits. You may opt for a minor with a concentration in public law, public administration, or the international area by carefully choosing your courses.

Undergraduate Courses

100 American Government 3(3,0) FSSu
Origins, development and operation of American government at the national level. Concentration on political institutions. (Credit not allowed for both 100 and 101.)

101 American Government Honors 3(3,0) F
Small group discussion of principles of American government for students with superior high school background. By invitation (credit not allowed for both 100 and 101.)

102 American Political Issues 3(3,0) FS
Current major issues in American politics, governmental policies and various alternatives being considered in Congress.

165 Political Ideologies 3(3,0)
Ideas defending communism, fascism, and democracy, including variations such as democratic socialism, Christian democracy, capitalism, liberalism, New Left, neoconservatism, liberation theology. Practice of ideology. Concepts of comparative analysis.

210 State & Local Government 3(3,0) FS
Legal status, forms and functions, interrelationships, current trends and suggested reforms.

253 Current World Problems 3(3,0)
Political characteristics of major world regions, problems and interrelationships.

301 Political Parties 3(3,0)
U.S. political parties; functions, organization, techniques and significance of parties; varieties of state and local systems; and behavior of the electorate and interest groups.

305 Women & Politics 3(3,0)
Study of the role women play in the American political process as activists as well as voters in the late 20th century. Particular emphasis is placed on barriers women face in gaining access to political power in public and private institutions, and the impact legislation and court decisions have had on the role of women in American society. No prerequisites.

318 South Dakota Legislative Issues 1(1,0) S
Study of the South Dakota legislative process and the issues being considered by the South Dakota legislature. Course involves class trip to Pierre to observe the legislature in action.

320 Public Administration 3(3,0) FS
U.S. public administration; basic elements of administration: personnel, budgeting, planning, organization and management; and importance of federal executives in shaping public policy. P, 100 (or 101) or consent.

330 Constitutional Law 3(3,0) F

332 Administrative Law 3(3,0)
Meaning and historical development of administrative law, legislative and judicial controls, the administrative process and remedies against improper administrative acts.

341 European Democratic Governments 3(3,0)
Comparative study of selected governments of West Europe, especially Britain, France, Germany and Italy; decision-making institutions; political culture; political parties.

343 The U.S.S.R. 3(3,0)
Study of government, politics, and some aspects of society in Russia and the region; emphasis on current politics.

345 Canada 3(3,0)
Political institutions and patterns; The Constitution and federalism; Quebec and Canada; U.S. — Canadian relations.

347 Latin American Politics 3(3,0)
Comparative analysis of mainly larger Latin American countries. Political institutions, social movements and patterns of change, political culture, civil-military relations, development strategies.

351 International Politics 3(3,0)
How nations/states behave and why they behave as they do in their relations with each other.

401 The American Presidency 3(3,0)
The Presidency in the American political system, its powers and limitations, and the role individual presidents have played in its development in the 20th century. P, 100 (or 101) or consent.

402 The Legislative Process 3(3,0)
Congress and state legislatures: functions, organization, leadership, procedures, and participants. Influence of chief executives, bureaucracies, interest groups, and political parties. P, 100 (or 101) or 210 or consent.

428 Personnel & Budgetary Administration 3(3,0)
Contemporary personnel and budgetary systems in the public sector. Role of the civil servant in government and society, and the political and technological factors which influence the budget. P, 100 or 101.

446 China & Asian Politics 3(3,0)
Historical factors and events contributing to present governmental structures, ideologies, and political issues in the area. Emphasis on China and Japan.

448 Politics of Middle East & Africa 3(3,0) S
Politics, government and international relations of Israel and selected Arab and African nation-states.

461 Political Philosophy 3(3,0)
Types of political theory in historical development. Basis on which those theories rest and the explanatory power of the various thought structures. Includes Plato, Aristotle, Machiavelli, and Hobbes. (Cross listed with Phil 423.)

462 Modern Political Theory 3(3,0)
Same approach as 461. Major political theorists after Hobbes including Locke, Rousseau, Mill, Marx, Nietzsche, and others. (Cross listed with Phil 424.)

483 Directed Studies 1-9
See description under Undergraduate Course Specials in the Alternatives and Options for the College of Arts and Science.

490 Seminar in Political Science 1-2-3(1-2-3,0)
Selected Political Science fields. May be repeated until 6 credits are earned.
493 Undergraduate Course Specials 1-5
See description under Undergraduate Course Specials in the Alternatives and Options for the College of Arts and Science.

495 Internship in Political Science 1-12 FSSu
Approximately one credit for each week spent in internship projects off-campus. Written reports and/or a final oral examination will be required. Application for permission to register must be made prior to registration. Non-Political Science majors must show appropriate background. Credits do not count toward meeting the minimum requirements in the major. May be repeated until 12 credits are earned. Graded E or F.

Graduate Courses
Consent required of those students not majoring or minoring in Political Science.

560-660 Topics in Political Science 1-4
An intensive examination of significant political themes, issues, or problems. Topics will include, but are not limited to, the following: Republics and Self-Government; The Constitution and Civil Liberties; Parties, Elections and Campaigns; Presidential-Congressional Relationships.

592-692 Special Problems 1-2-3(1-2-3,0) FSSu
Individual guided research culminating in formal research paper. May be repeated until 6 credits are earned.

Printing (Prtg)
(See Journalism and Mass Communication)

Psychology (Psyc)
College of Arts and Science

Professor Branum, Head; Professors Burke, Hillner; Assistant Professors Norris, Rentz.

The Department offers preprofessional and applied curricula in the Psychology major and also offers a Psychological Services major. Each curriculum requires certain core courses but they differ otherwise according to the goals of the student.

Psychology Major, Preprofessional Curriculum (BA or BS)
Those who intend to become qualified psychologists should elect the preprofessional curriculum, designed to prepare for training at the graduate level. This requires a strong foundation in techniques of analyzing behavior, historical findings and theoretical approaches, as well as a basic understanding of supporting fields. The curriculum for this major is as follows: 102, Introduction to Psychology, 4 cr. (transfers into the Psychology major may substitute 101, General Psychology, 3 cr.; 490, Seminar, 1 cr; Psychology electives appropriate to the area of interest, 25 (or 26) cr.; for a total of 30 credits in Psychology.

For college and university requirements see the appropriate sections of the catalog.

Psychological Services Major (BA or BS)
Persons interested in working as diagnostic and therapeutic aides in clinical facilities should elect the Psychological Services major. This includes familiarization with standard tests and techniques of therapy, as well as a supervised senior practicum at a treatment facility. The curriculum for this major is as follows:

102, Introduction to Psychology, 4 cr. (transfers into the major may substitute 101, General Psychology, 3 cr.; 302, Psychological Investigations, 3 cr.; 303, Experiments in Psychology, 3 cr.; 305, Simple Learning and Conditioning, 3 cr.; 311, Psychological Psychology, 3 cr.; 321, Child Psychology, 3 cr.; 356, Psychological Assessment, 3 cr.; 357, Psychological Therapies, 3 cr.; 358, Behavior Modification, 3 cr.; 362, Theories of Personality, 3 cr.; 441, Social Psychology, 3 cr.; 451, Psychology of Abnormal Behavior, 3 cr.; 490, Psychology Seminar, 1 cr.; 497, Practicum for Psychological Services, 12 cr.

Although not a formal requirement, students will benefit by taking 305 before 306 and 362 before 357.

For other college and university requirements see the appropriate sections of the catalog.

Teaching Option
Students considering teaching secondary school should notify the Department Teaching Coordinator and the College of Education and Counseling before their junior year. Coursework should include the preprofessional psychology curriculum along with 321, Child Psychology and 441, Social Psychology. As a prerequisite for student teaching, SeEd 412 should be taken no later than spring semester of the junior year. One semester of the senior year will be set aside for the education block and off-campus teaching.

Minor
The minor in Psychology consists of the following courses: 101 or 102, 202, 409, and 6 or 7 credits of 300-400 level courses for a total requirement of 16 credits.

Undergraduate Courses
101 General Psychology 3(3,0) FSSu
Concepts of development, learning, motivation, emotion, frustration, personality, and other basic behavioral processes. Prerequisite for all courses in psychology except 102.

102 Introduction to Psychology 4(4,0) F
Fundamentals of behavior, including maturation, physiological processes, sensation and perception, learning, motivation, emotion and frustration, personality, abnormal processes, and methods of investigation. P major or minor in psychology or consent of instructor. Prerequisite for all courses in psychology taken by majors except transfers who have taken Psy 101. Note: credit will not be given for both Psy 101 and 102.

202 Advanced General Psychology 3(3,0) FSSu
Contemporary research related to psychological concepts expounded in Psy 101 and 102. P, 101 or 102.

301 Sensation and Perception 3(3,0)S
Examination of processes of sensation and perception including sensory mechanisms, cognitive analysis of sensory information, and attentional, motivational and conditioning effects on perception. P, 101 or 102.

302 Psychological Investigations 3(3,0) F

Psychology 193
303 Experiments in Psychology 3(3,0) S
Review of representative past research in experimental psychology and execution of class laboratory projects. P, 302 or consent.

305 Simple Learning & Conditioning 3(3,0) F
Traditional conditioning experimentation and phenomena, primarily as revealed through animal research. Principles of reinforcement and factors which influence the conditioning process are discussed in detail. P, 101 or 102.

306 Human Learning & Cognitive Behavior 3(3,0) S
Traditional human learning experimentation and human cognitive behavior such as perceptual-motor skills, verbal learning and behavior, transfer of training, concept formation, memory, natural language behavior, information processing, etc. P, 101 or 102.

311 Physiological Psychology 3(3,0) F
Role of physiological mechanisms in behavior. Nervous, biochemical and muscular systems that control or modify human and animal adjustment. P, 101 or 102.

321 Child Psychology 3(3,0) SSu
Physical, social, emotional and intellectual aspects of child development. May be counted as an education elective. P, 101 or 102.

331 Business & Industrial Psychology 3(3,0) F
Application of psychological principles to such problems as employee selection, supervision, job satisfaction, work efficiency and human engineering. P, 101 or 102.

356 Psychological Assessment 3(2,0) F
Diagnosis and classification by interview and observation techniques, and by intellectual achievement and aptitude, temperament and personality tests. Familiarization at the level of the professional assistant. P, 101 or 102.

357 Psychological Therapies 3(2,0) S
Traditional and contemporary methods of psychotherapy. Interviewing techniques and the professional assistant’s role. P, 101 or 102.

358 Behavior Modification 3(3,0) S
Principles of learning applied to human behavior modification. P, 101 or 102.

362 Theories of Personality 3(3,0) S
Major personality theories, including psychoanalytic, stimulus-response and constitutional formulations. P, 101 or 102.

366 Psychological Gender Issues 3(3,0) S
This course surveys the current theoretical and research issues in the development of gender and explores the impact of gender on the lives of women and men. Topics include societal and biological influences on psychological development, achievement motivation, sex roles, stereotyping, socialization, sexuality, and personality. P, 101 or 102.

409 History & Systems of Psychology 3(3,0) S
Origins and channels of psychological thought, from the British empiricists through major contemporary developments. P, 101 or 102.

441 Social Psychology 3(3,0) F
Basic principles, concepts and methods utilized in analyzing individual and group interactions. P, 101 or 102.

451 Abnormal Behavior 3(3,0) SSu
Causative factors, symptoms and treatment of major forms of abnormal behavior, including neurosis, psychosis and the psychophysiological disorders. P, 101 or 102.

490 Psychology Seminar 1(1,0) F
Current employment trends and developments within the profession. Required of all majors. P, senior standing or consent.

492 Problems in Psychology 1-3 SSu
Independent investigations. May be repeated for a total of 6 credits. P, 101 or 102, consent of a supervising staff member.

493 Undergraduate Course Specials 1-5
See description under Undergraduate Course Specials in the Alternatives and Options for the College of Arts and Science.

494-495-496 Cooperative Education/Internship/Field Experience (Topical) 3-12 SSu
See description in the Alternatives and Options for the College of Arts and Science. Will not count toward minimum credit requirements in the major.

497 Practicum for Psychological Services 12(0,12) FSSu
Supervised training and experience at an institution for behavior disorders or mental deficiency. Primarily for majors in the Psychological Services curriculum. P, minimum GPA of 2.2, consent of program coordinator and approval of institutional supervisor. Will not count toward minimum credit requirements in the major.

Graduate Courses

560-660 Topics in Psychology (Topical) 1-4
An intensive examination of significant psychological issues, themes, or problems. May be repeated as topic changes for a total of 8 credits. P, 101 or 102.

792 Special Problems in Psychology 1-4 FSSu
P, 101 or 102

Range Science (Rang)

(See Animal Science and Range Science)

Religion (Rel)

(See Philosophy and Religion)

Reserve Officer Training Program

(See Aerospace Studies, Military Science)

Restaurant Management

(See Nutrition and Food Science)

Rural Sociology (Soc) (Anth)

College of Agriculture and Biological Sciences
Professor Satterlee, Head; Professors Faltemier, Hess, Kayongo-Male, Mendelsohn, R. Wagner; Professors Emeriti Dimit, Sauer; Associate Professors Grant, Stover; Assistant Professors Arwood, M. Wagner; Instructor Awdal.

The courses offered by the department have been organized with three definite objectives in mind: a sequence for those who may wish to earn an undergraduate major or minor in sociology; basic service courses that will be of interest and practical help to students in any college; and courses to fulfill requirements of a Master’s degree or Doctor of Philosophy degree in Sociology. (Students interested in Graduate Program - see University Graduate Catalog and department graduate guide.)

An undergraduate may select from any of the following options as an area of concentration.
## Options

**Introduction:** The department advising program is designed to provide the major with several options based upon career interest. Each major is assigned to an adviser based on choice of option. Upon determination of career interest you may select a specialized option. Majors will be furnished with a department undergraduate handbook outlining specific requirements and recommended courses in each option.

1. **General Sociology Option.** Most incoming freshmen and transfer student majors will be assigned to this option. After taking courses in specialized areas, and working with General Sociology Option Advisers, students may select any of the following options. Those desiring to gain a broad orientation to all areas of Sociology with anticipation of other career interests or graduate school may remain in this option.

2. **Teaching Option.** Preparies for entrance into junior or senior high level teaching. These students in consultation with departmental Teaching Option Adviser and the College of Education and Counseling plan their program to accomplish other teaching minors to maximize employment opportunities. One semester is set aside for a teaching-block and off campus teaching assignment.

3. **Social Work Option.** The department cooperates with the Department of Social Behavior at USD, to offer an accredited degree in Social Work for those seeking a specialized career in public or private social welfare. Students need to work closely with the Coordinator of Social Work. They need to select this option early in their sophomore year to complete all requirements. The final portion of the program is completed at USD. Students seeking more general social service type careers should select the Human Services Option.

4. **Human Services Option.** Designed for those interested in “working with people” in a variety of social service type agencies. Students are encouraged to take social work, criminal justice, and child development type courses and complete an internship placement in a social service agency. This option differs from the Social Work Option in that students are working toward a BA or BS degree in Sociology; whereas those in the Social Work Option are seeking a BA or BS in Social Work.

5. **Criminal Justice Option.** Students seeking careers in preparation, parole, court services, pre-law, private security, or general law enforcement should select this option. Those selecting this option will be working toward a BA or BS in Sociology with a minor in Criminal Justice. Both are offered by the Department of Sociology. Students will be expected to work closely with their adviser within the department to fulfill the necessary requirements of the program. (See CJJus for Minor requirements.)

6. **Personnel Services Option.** Those students seeking careers in business, related to human resources in public and private agencies and businesses, are encouraged to select this option. Academic programs are individually tailored with the Personnel Option Coordinator in areas such as employee relations, conflict management, labor relations, aptitude testing, and Affirmative Action. Supportive coursework in economics, guidance, accounting and psychology are incorporated in this option.

## Curriculum in Arts and Science, Sociology Major

### Leading to the Bachelor of Arts Degree

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr Comp, Engl 101</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Comp, Engl 300</td>
<td>3</td>
</tr>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100 (two semesters)</td>
<td>2</td>
</tr>
<tr>
<td>Foreign Languages (8-14 hours determined by proficiency test)</td>
<td>14</td>
</tr>
<tr>
<td>Humanities (from approved list)</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics Course (from approved list)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Natural Science (From approved list. At least 6 credits of sequential courses are required.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Science Electives (outside major dept. see approved list)</td>
<td>8</td>
</tr>
<tr>
<td>International Studies (from approved list)</td>
<td>6</td>
</tr>
<tr>
<td>Major in Sociology</td>
<td>32</td>
</tr>
<tr>
<td>Include Soc 100, 309, 310, 401, and 20 additional electives in Sociology or Anthropology to include one of the following: Soc 150, 240, 250, 340, or any Anth course.</td>
<td>42</td>
</tr>
</tbody>
</table>

#### General Electives

Majors need to consult with their adviser for recommended electives to best fit their option (General Sociology, Teaching, Social Work, Human Services, Criminal Justice, Personnel Services) within the major.

### Total Hours

**128**

Students should plan their schedules to take lower level courses (100-900) in their Freshman and Sophomore years and upper level (200-400) during their Junior and Senior years. Students anticipating graduate school should enroll in Stat 341, Philosophy of Science (Phil 331), and Technical Communications (Engl 303) as a part of their general electives.

Students must accomplish a total of 40 hours of upper level courses (300 or above).

**Minor**

Include Soc 100, and 14 additional (Soc or Anth) credits. Six credits must be numbered 300 or above. (Recommend that students declare minor prior to junior year. Register with department.)

### Curriculum in Arts and Science, Sociology Major

### Leading to the Bachelor of Science Degree

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr Comp, Engl 101</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Comp, Engl 300</td>
<td>3</td>
</tr>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifetime Activities, PE 100 (two semesters)</td>
<td>2</td>
</tr>
<tr>
<td>Humanities (from approved list)</td>
<td>9</td>
</tr>
<tr>
<td>Mathematics Course (from approved list)</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science (from approved list. Select 6 credits of sequential courses)</td>
<td>32</td>
</tr>
<tr>
<td>Biological Science Electives</td>
<td>6</td>
</tr>
<tr>
<td>Social Science Electives (outside major dept. See approved list)</td>
<td>6</td>
</tr>
<tr>
<td>International Studies (from approved list)</td>
<td>6</td>
</tr>
<tr>
<td>Major in Sociology</td>
<td>32</td>
</tr>
<tr>
<td>Include Soc 100, 309, 310, 401, and 20 additional electives in Sociology or Anthropology to include one of the following: Soc 150, 240, 250, 340, or any Anth course.</td>
<td>47</td>
</tr>
</tbody>
</table>

#### General Electives

Majors need to consult with their adviser for recommended electives to best fit their option (General Sociology, Teaching, Social Work, Human Services, Criminal Justice, Personnel Services) within the major.

### Total Hours

**128**

Students should plan their schedules to take lower level courses (100-900) in their Freshman and Sophomore years and upper level (200-400) during their Junior and Senior years. Students anticipating graduate school should enroll in Stat 341, Philosophy of Science (Phil 331), and Technical Communications (Engl 303) as a part of their general electives.

Students must accomplish a total of 40 hours of upper level courses (300 and above).

**Minor**

Include Soc 100, and 14 additional (Soc or Anth) credits. Six credits must be numbered 300 or above. (Recommend that students declare minor prior to junior year. Register with department.)

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**Rural Sociology 195**
Curriculum in Agriculture, Rural Sociology Major
Leading to the Bachelor of Science Degree

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr Comp, EngI 101</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Composition, EngI 300</td>
<td>3</td>
</tr>
<tr>
<td>Fund of Speech, SpCm 101</td>
<td>3</td>
</tr>
<tr>
<td>Macroeconomics Principles, Econ 201</td>
<td>3</td>
</tr>
<tr>
<td>Fitness &amp; Lifestyle Activities, PE 100 (two semesters)</td>
<td>2</td>
</tr>
<tr>
<td>General Chemistry, Chem 110 or 112</td>
<td>4</td>
</tr>
<tr>
<td>Algebra, Math 112 or 113</td>
<td>3-5</td>
</tr>
<tr>
<td>Intro Physics, Phys 101, 111 or 112</td>
<td>4</td>
</tr>
<tr>
<td>Communication Elective (To be selected from Engl 303)</td>
<td>2</td>
</tr>
<tr>
<td>Group A Agriculture Courses (See catalog listing)</td>
<td>12</td>
</tr>
<tr>
<td>Humanities Electives (See catalog listing)</td>
<td>6</td>
</tr>
<tr>
<td>Intro Biology, Bio 151-153</td>
<td>6</td>
</tr>
<tr>
<td>Major in Sociology</td>
<td>32</td>
</tr>
<tr>
<td>Same as in Arts and Science</td>
<td></td>
</tr>
<tr>
<td>General electives. Majors need to consult their adviser for recommended electives to best fit career aspirations.</td>
<td>39</td>
</tr>
<tr>
<td>Total Hours</td>
<td>128</td>
</tr>
</tbody>
</table>

Students should plan their schedules to take lower level courses (100-200) in their freshman and sophomore years and upper level (300-400) during their junior and senior years. Students anticipating graduate school should enroll for Stat 341, Philosophy of Science (Phil 331), and Technical Communications (Engl 303) as part of their general electives.

Minor in Sociology
Same as in Arts and Science
17

The Courses in Rural Sociology are listed under three sections: Anthropology (Anth), Sociology (Soc), and Criminal Justice (CJus).

Anthropology (Anth)

Undergraduate Courses
200 General Anthropology 3(3,0) F
Physical anthropology, archaeology and linguistics, analysis of concepts of society and culture. Emphasis on nonliterate peoples of the world.

320 Cultural Anthropology 3(3,0) S
Meaning of culture, its significance for humans, its diverse forms among peoples, past and present.

410 North American Ethnology 3(3,0) (On Demand)

421 Indians of North America 3(3,0) FSSu
Provides prospective teachers and those interested in Indian people with a basic knowledge of Indian heritage and culture. Emphasis on the Dakota Indians. (Fills Teacher Ed. requirement.)

494-495-496 Cooperative Education/Internship/Field Experience in Anthropology 1-12 FSSu
Planned and supervised professional experience related to Anthropology which takes place outside the formal classroom with business, industry, private/public agencies. Credit will not count toward meeting minimum requirements of the major or minor. May be repeated until 12 credits are earned. Graded P or F; P, major, consent of department program coordinator.

Graduate Courses
590-690 Special Problems 1-3 FSSu
P, open to undergraduate and graduate students with sufficient background and consent of instructor.

597-697 Topics in Anthropology 1-3(1-3,0) (On Demand)
Selected topics pertaining to theory and methods in cultural, physical anthropology and archaeology. P, undergraduate/graduate and consent of instructor.

703 Seminar 1-4 FSSu (On demand) P, graduate and consent of instructor.

Sociology (Soc)

Undergraduate Courses
100 Introduction to Sociology 3(3,0) FSSu
Comprehensive study of society, with analysis of group life, and other forces shaping human behavior.

150 Social Problems 3(3,0) FS
Present day problems in American society, such as racism, sexism, ageism, alcoholism, drug addiction, physical and mental health, war and environmental issues — their significance and current policies and action.

233 Introduction to Leadership 1(1,0) (On demand)
Learn basic skills and theory necessary to be an effective leader. Areas such as time and conflict management, communication skills, motivation, self-analysis are stressed.

240 Sociology of Rural America 3(3,0) FS
Rural society, rural communities, population composition and trends, social processes; social participation in rural organizations and agencies; and changing relationship between country and city in contemporary society.

250 Marriage 2(2,0) FS
Courtship and marriage period given special emphasis. Mate selection problems, adjustments in marriage, reproduction, child-parent relations, divorce, and later years of marriage.

270 Introduction to Social Work 3(3,0) FS
History of social work methods, social services to children, family, aged, public welfare clients, mentally ill, and the criminal justice system.

292 Special Problems 1-3 FS
Individualized instruction of an independent nature. P, major or minor, freshman or sophomore, and consent. (Limit of 6 hours of Special Problems toward major.)

301 Intermediate Sociology 3(3,0) FS

309 Research Methods I 3(3,0) FS
Method for data manipulation and presentation; discussion of principles for selection of analysis techniques; index and scale construction; tabular presentation and interpretation; and oral and written report development.

310 Research Methods II 3(3,0) FS
The research process; selection and formulation of research problems; concepts, propositions and scientific theories; elementary research design; data collection procedures and computer applications. Course research projects when possible. P, Soc 100, 309.

320 Domestic Violence 3(3,0) S
A seminar focusing on the problems associated with violent behaviors in American households. Special attention will be devoted to the structural, cultural and social-psychological factors contributing to the abuse and battering of family members. In addition, the use of force as a problem solving mechanism will be examined.

330 Self and Society 3(3,0) F
Focus of attention on the nature of social interaction and the dynamic social activities taking place. Includes examination of self-concept, self-attitudes as well as the perception and interpretation of others. P, 100.

340 Urban Sociology 3(3,0) S
Patterns of urban growth, demographic and ecological processes, institutions, folkways, dynamics of social class, and social problems of modern city and urban fringe areas.

350 Ethnic and Racial Groups 3(3,0) F
Intergroup relations. Particular focus on ethnic and racial groups in the U.S. and Upper Midwest. Cross-Cultural Comparisons.

351 Criminology 3(3,0) S

353 Sociology of Work 3(3,0) F
Focus on human behavior in work environments. Topics include social organization of work; managing human resources; management — labor relations; role of pay and benefits; problems of personnel adjustment; and work related social tensions and conflict.

196 Rural Sociology
354 Victimology 3(3,0)S
An up-to-date examination of the victim-offender relationship, including characteristics of those victimized; forms of victimization; the role of the victim in contributing to their own injuries and losses; and, state and federal programs designed to ameliorate physical, emotional and economic suffering.

362 Population Problems 3(3,0) S
Theories of population: factors involved in birth rate, death rate, and migrations. Social consequences of population change; problems of population composition and population policy.

370 Social Policy 3(3,0) F
Development of social welfare legislation; current trends and issues in, and implementation and administration of social policy in a variety of practice areas.

382 The Family 3(3,0) S
Development of the family as a social institution with emphasis on comparative family systems and the contemporary American family from the standpoint of social class, ethnic background and family crises.

383 Sociology of Sex Roles 3(3,0)
Female and male roles in relation to one another in a changing world are the focus of this course. The nature of sex roles, their origin, and their variations over time and across cultures are examined.

401 Sociological Theory 3(3,0) FS
Introduction to the classics in social theory, various schools of social thought, and modern developments in the discipline. Introduction to the major ideas of the classical and modern theorists, the social environment in which they wrote, and the implications of their contributions. P, Soc 100 and 301 or consent.

451 Juvenile Delinquency 3(3,0) F
Causes of delinquency; patterns of delinquent behavior; Juvenile and alternative solutions currently in operation throughout the US which attempt to reduce the incidence of juvenile delinquency.

452 Sociology of Corrections 3(3,0)F
An examination of the history of adult and juvenile treatment and punishment. Emphasis is upon contemporary community based treatment as well as traditional prison-based incarceration. The process of sentencing, particularly the role of the PSI is covered. Special attention is devoted to internship and career possibilities in the corrections arena.

453 Industrial Sociology 3(3,0) S
An investigation of industrial societies with attention given to social trends creating industrialization, the development of organizations, the evolution of work-roles, international relations between industrial and non-industrial nations, and the future of industrial societies.

460 Advanced Criminology 3(3,0)F
A variable topics course concentrating on the most current trends and issues in the field of criminology. The class is a lecture-discussion seminar format. Topics regularly covered in past seminars have been: terrorism, middle and upper level drug use and dealing, computer crime, organized crime, crime in corporate America, and ethnic-group criminal activities.

471 Social Work Skills & Methods I 3(3,0) S
Basic concepts and methods common to all social service practice; focus on developing interpersonal skills. (P, 270, to be taken prior to internship).

480 Sociology of Law 3(3,0)S
This course focuses on the relationship between law and society. Topics focus on the organization of law in society, law and social control, law as a method of conflict resolution, law as a mechanism of social change, law as a profession, and methods of inquiry in research. The course will also look at alternative dispute resolution techniques, for example mediation. Comparative, and cross-cultural materials will be used throughout the class to emphasize diversity in law. P, Soc 351, junior standing or higher, or permission of instructor.

490 Seminar 1-3(1,0) FSSU (on demand)
Focus will vary in areas of sociology, anthropology, teaching and research, and by option. Can be repeated. P, Soc 100.

492 Special Problems 1-3 FSSU
P, major or minor and junior or senior standing and prior consent of instructor. (Limit of 6 hours of Special Problems toward major.)

493 Topics in Sociology 1-3 FS (on demand)
Selected topics of current interest in Sociology. Subject areas vary from semester to semester based on general interest appeal.

494-495 Cooperative Education/Internship/Field Experience 1-12 FSSU
Planned and supervised professional experience related to Sociology which takes place outside the formal classroom with business, industry, private/public agencies. Credit will not count toward meeting minimum requirements of the major or minor. May be repeated until 12 credits are earned. Graded P or F, P, major, consent of department program coordinator.

Graduate Courses
(see department for schedule of offerings)

501-601 Social Deviance 3(3,0)
This course will examine the nature of negatively evaluated behaviors and the process by which customs, rules and normative structure of society are constructed. A primary goal of the course is the development of a coherent interpretation of contemporary theories and empirical investigations of social deviance. P, undergraduate or graduate and consent of instructor.

515-615 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. The time period covers primarily 18th Century writers who set the stage for the classical theorists. P, undergraduate or graduate and consent of instructor.

520-620 Social Organization 3(3,0)
Elements of social organization. Analysis of social groups and complex social organizations. Examination of conditions and factors related to the integration and disintegration of social organizations. P, undergraduate or graduate and consent of instructor.

521-621 Social Stratification 3(3,0)
Theories of social stratification. Relationship between social class and education, occupational choice, political preference, religious affiliation and social mobility. P, undergraduate or graduate and consent of instructor.

530-630 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, undergraduate or graduate and consent of instructor.

533-633 Leadership & Group Organization 3(3,0)
Emergence of leadership patterns. Emphasis on group dynamics, small groups, and leadership in management. P, undergraduate or graduate and consent of instructor.

540-640 Rural Community Planning 3(3,0)
Changes occurring in rural areas and their effects upon rural communities. Basic concepts, procedures, and processes for planning in a rural environment. Some alternative approaches to rural planning. National and International perspectives. P, undergraduate or graduate and consent of instructor.

709 Evaluation Research 3(3,0)

710 Research Methods 3(3,0) S

711 Qualitative Research Methods 3(3,0) F

712 Sociological Theory I 3(3,0) F

713 Sociological Theory II 3(3,0) S

714 Theory Construction 3(3,0)

716 Symbolic Interaction 3(3,0)

720 Profession of Sociology 3(3,0) S

760 Advanced Demography 3(3,0)

762 Demographic Resources and Materials 3(3,0)

764 Modern Demographic Theory 3(3,0)

766 World Population Issues 3(3,0)

780 Special Problems 1-3(1,0) FSSU

781 Internship in Planning 1-6 FSSU (Pass/Fail)

790 Thesis, M.S. as arranged 1-5 (Pass/Fail)

791 Thesis (Sustaining) 1(1,0) FSSU

792 Seminars 1-4 (On demand) FSSU

793 Research Paper in Sociology 1-3 (As arranged) (Pass/Fail)

890 Dissertation, Ph.D. as arranged (Pass/Fail)

891 Dissertation (Sustaining) (1,0) FSSU

Rural Sociology 197
**Textiles, Clothing and Interior Design (TC/ID)**

**College of Home Economics**

Professor Evers, Head; Professors Emeriti Lund, Semeniuk, Stoflet, Sivers; Assistant Professors Lyons, Manikowske, Rodgers, Swedlund; Instructor Scholten.

The department offers instruction leading to a Bachelor of Science degree with majors in Interior Design (ID) and in Textiles and Clothing (TC) plus a Retailing option in Textiles and Clothing.

Some courses are offered alternate years while others are offered once a year. Work experience is recommended before the Professional Practicum. To enroll in the Professional Practicum (TC 497 and ID 497) a student must have 90 semester credits and a 2.2 GPA. A double major in both majors requires careful and early planning. Consult your adviser for assistance and current information.

**Interior Design (ID)**

The curriculum in interior design prepares students to enter the profession of residential/commercial design through course work in technical, material, historical, cultural and aesthetic aspects of design with studios emphasizing the design problem-solving process.

**Interior Design Curriculum Requirements**

**A. Interior Design**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID 221 Introduction to Interior Design, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>ID 222 Lab in Interior Design and Housing, 1 cr.</td>
<td></td>
</tr>
<tr>
<td>ID 310 Interior Design Fabrics, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>ID 315 Interior Design Materials, 2 cr.</td>
<td></td>
</tr>
<tr>
<td>ID 316 Interior Design Technology, 2 cr.</td>
<td></td>
</tr>
<tr>
<td>ID 317 Interior Design Practices, 2 cr.</td>
<td></td>
</tr>
<tr>
<td>ID 320 Lighting Design, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>ID 322/323 Intermediate Interior Design I and II, 3 cr. each</td>
<td></td>
</tr>
<tr>
<td>ID 331 Family Housing, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>ID 373, Retailing, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>ID 422/423 Adv. Int. Design I and II, 3 cr. each</td>
<td></td>
</tr>
<tr>
<td>ID 424-425 Hist. of Interiors, I and II, 3 cr. each</td>
<td></td>
</tr>
<tr>
<td>ID 487 Pre-pract. in Int. Des. and Housing, 1 cr.</td>
<td></td>
</tr>
<tr>
<td>ID 497 Professional Practicum, 7 cr.</td>
<td></td>
</tr>
<tr>
<td>HE 201 Professional Foundations, 2 cr.</td>
<td></td>
</tr>
<tr>
<td>HE 301 Families and Their Ecological Systems, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>HE 401 Professional Perspectives, 2 cr.</td>
<td></td>
</tr>
<tr>
<td><strong>B. Home Economics Core</strong></td>
<td></td>
</tr>
<tr>
<td>HE 100 Freshman Composition, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>HE 201 Professional Foundations, 2 cr.</td>
<td></td>
</tr>
<tr>
<td>HE 301 Families and Their Ecological Systems, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>HE 401 Professional Perspectives, 2 cr.</td>
<td></td>
</tr>
<tr>
<td><strong>C. Communications</strong></td>
<td></td>
</tr>
<tr>
<td>Engl 101 Freshman Composition, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>Engl 300 Advanced Composition, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>Engl 301 Fundamentals of Speech, 3 cr.</td>
<td></td>
</tr>
<tr>
<td><strong>D. Humanities and Fine Arts</strong></td>
<td></td>
</tr>
<tr>
<td>Arts 122, Design I, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>Hist 121 or 122, 3 cr. (recommended)</td>
<td></td>
</tr>
<tr>
<td><strong>E. Mathematics</strong></td>
<td></td>
</tr>
<tr>
<td>Math 112, 3 cr.</td>
<td></td>
</tr>
<tr>
<td><strong>F. Natural Science</strong></td>
<td></td>
</tr>
<tr>
<td>Chem 110 or 112 (recommended)</td>
<td></td>
</tr>
<tr>
<td><strong>G. Social Science</strong></td>
<td></td>
</tr>
<tr>
<td>Econ 201, Macroeconomics Principles, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>Psych 101, General Psychology, 3 cr.</td>
<td></td>
</tr>
<tr>
<td><strong>H. Physical Education</strong></td>
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</tr>
<tr>
<td>PE 100 Fitness &amp; Lifetime Activities, 2 cr.</td>
<td></td>
</tr>
<tr>
<td><strong>I. Visual Arts (see also D. Humanities)</strong></td>
<td></td>
</tr>
<tr>
<td>Art History elective, 3 cr.</td>
<td></td>
</tr>
<tr>
<td>Art Studio or Design electives, 6 cr.</td>
<td></td>
</tr>
<tr>
<td><strong>J. Other requirements</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Credits**

**198 Textiles, Clothing and Interior Design**
Minor in Interior Design

Seventeen credit hours are required for a minor in Interior Design. Plan your minor with an I.D. adviser early in your program.

Requirements for an Interior Design Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID 211 Design in the American Home</td>
<td>2</td>
<td>Introduction to the behavioral, functional, aesthetic and material aspects of interiors and settings of daily life. Processes of analysis and problem-solving to create appropriate interiors and places.</td>
</tr>
<tr>
<td>ID 221 Introduction to Interior Design</td>
<td>3</td>
<td>Problems, procedures and skills in solving basic interior design and setting problems.</td>
</tr>
<tr>
<td>ID 331 Family Housing</td>
<td>3</td>
<td>Problems for independent study selected according to special interests and needs. Arranged by contract with instructor.</td>
</tr>
<tr>
<td>Interior Design Electives</td>
<td>9</td>
<td>Cross-cultural study of world housing and furnishings practices. Relating socio-cultural, aesthetic, technological and physical characteristics of the region to family living patterns.</td>
</tr>
</tbody>
</table>

Graduate Courses (ID)

573-673 Travel Studies 1-5 Su

1-3 Study of businesses, museums and other relevant places through site tours and presentations in selected locations. Includes pre-travel orientation and post-travel written report. P, consent. |

592-692 Special Problems 1-3

Problems for independent study selected according to special interests and needs. Arranged by contract with the instructor. |

Textiles and Clothing (TC)

Courses in textiles and clothing provide knowledge applicable to the production, distribution and use of clothing and household fabrics by businesses, individuals, and families. The scientific and cultural aspects of textiles and clothing are examined, with emphasis on aesthetic, economic, historical, sociological, and psychological factors.

Fashion Institute of Technology

The Textiles, Clothing and Interior Design Department is affiliated with the Fashion Institute of Technology (FIT) in New York City. Upper division status and a minimum of 2.5 GPA (on 4.0 scale) is required for FIT consideration. Students should have work experience in retailing prior to their senior year.
may enroll in a 1-2 semester “visiting scholar” program at FIT. The emphasis can be in Apparel Design, Retailing or several others. FIT courses transfer into SDSU and substitute for program requirements if approved prior to taking them. Upon graduation from SDSU the student receives the degree certificate from FIT. Planning should begin in sophomore year. See TCID Department Head for further information.

Minor in Textiles and Clothing
Sixteen credit hours are required for a minor in Textiles and Clothing. Plan your minor with a TC adviser early in your program.

Requirements for a Minor in Textiles and Clothing

<table>
<thead>
<tr>
<th>Credits</th>
<th>Requirements for a Minor in Textiles and Clothing</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Textiles, TC 242 or Clothing as a Human Resource,</td>
</tr>
<tr>
<td></td>
<td>TC 171................................................................... 3-2</td>
</tr>
<tr>
<td></td>
<td>Fashion Economics, TC 363........................................ 3</td>
</tr>
<tr>
<td></td>
<td>Textiles and Clothing Electives                      10-11</td>
</tr>
</tbody>
</table>

Textiles and Clothing Curriculum Requirements

<table>
<thead>
<tr>
<th>Credits</th>
<th>Textiles and Clothing Curriculum Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>51</td>
<td>A. Textiles and Clothing and Interior Design ........ 171 Clothing as a Human Resource, 2 cr.</td>
</tr>
<tr>
<td></td>
<td>TC 112 Clothing Construction Principles, 2 cr.</td>
</tr>
<tr>
<td></td>
<td>TC 171 Clothing as a Human Resource, 2 cr.</td>
</tr>
<tr>
<td></td>
<td>ID 221 Introduction to Interior Design, 3 cr.</td>
</tr>
<tr>
<td></td>
<td>ID 222 Lab in Interior Design and Housing, 1 cr.</td>
</tr>
<tr>
<td></td>
<td>TC 235 Apparel Manufacturing, 3 cr.</td>
</tr>
<tr>
<td></td>
<td>TC 242 Textiles, 3 cr.</td>
</tr>
<tr>
<td></td>
<td>TC 296 Field Experience, 2-3 cr.</td>
</tr>
<tr>
<td></td>
<td>ID 310 Interior Design Fabrics, 3 cr.</td>
</tr>
<tr>
<td></td>
<td>TC 315 Apparel Design, 3 cr.</td>
</tr>
<tr>
<td></td>
<td>TC 350 Dress &amp; Adornment in World Cultures, 3 cr.</td>
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<tr>
<td></td>
<td>TC 352 Hist. of Costume in West. Civ., 3 cr.</td>
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<tr>
<td></td>
<td>TC 453 Socio-Psychological Aspects of Clothing, 3 cr.</td>
</tr>
<tr>
<td></td>
<td>TC/ID Electives, 11 cr.</td>
</tr>
<tr>
<td></td>
<td>Electives - courses with prefixes of TC, ID, CAHE, HE, HDCF, NFS (plus FIT), 8-9 cr.</td>
</tr>
<tr>
<td>7</td>
<td>B. Home Economics Core.................................................. 7</td>
</tr>
<tr>
<td></td>
<td>HE 201 Professional Foundations, 2 cr.</td>
</tr>
<tr>
<td></td>
<td>HE 301 Families and Their Ecological Systems, 3 cr.</td>
</tr>
<tr>
<td></td>
<td>HE 401 Professional Perspectives, 2 cr.</td>
</tr>
<tr>
<td>9</td>
<td>C. Communication*.................................................................. 9</td>
</tr>
<tr>
<td></td>
<td>Engl 101 Freshman Composition, 3 cr.</td>
</tr>
<tr>
<td></td>
<td>Engl 300 Advanced Composition, 3 cr.</td>
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<tr>
<td></td>
<td>SpCm 101 Fundamentals of Speech, 3 cr.</td>
</tr>
<tr>
<td>3</td>
<td>D. Mathematics*.................................................................. 3</td>
</tr>
<tr>
<td></td>
<td>Math 112, 3 cr.</td>
</tr>
<tr>
<td>8-13</td>
<td>E. Natural Science*......................................................... 8-13</td>
</tr>
<tr>
<td></td>
<td>Chem 110 or 112 (recommended)</td>
</tr>
<tr>
<td>9-14</td>
<td>F. Social Science*............................................................. 9-14</td>
</tr>
<tr>
<td></td>
<td>Psyc 101, General Psychology, 3 cr.</td>
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<tr>
<td></td>
<td>Soc 100, Introduction to Sociology, 3 cr.</td>
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<tr>
<td></td>
<td>Econ 201, Macroeconomics Prin., 3 cr. (recommended)</td>
</tr>
<tr>
<td>6-11</td>
<td>G. Humanities and Fine Arts*............................................ 6-11</td>
</tr>
<tr>
<td></td>
<td>ArtS 122 Design I, 3 cr.</td>
</tr>
<tr>
<td></td>
<td>Hist 121 (recommended) or 122, 3 cr.</td>
</tr>
<tr>
<td>2</td>
<td>H. Physical Education*...................................................... 2</td>
</tr>
<tr>
<td></td>
<td>PE 100 Fitness &amp; Lifetime Activities, 2 cr.</td>
</tr>
<tr>
<td>12</td>
<td>I. Concentration of hours all selected from one of.... 12 of the following areas: Economics/Business Administration/Accounting/ Computer Science Visual Arts Mass Communication Foreign Language J. Visual Arts.............................................. 6</td>
</tr>
<tr>
<td></td>
<td>Art History Elective, 3 cr.</td>
</tr>
</tbody>
</table>

*For specific courses in the university general education core see Graduation Requirements in this catalog. C, D, E, F, G, and H combined should total 42 credits.

Undergraduate Courses (TC)

112 Clothing Construction Principles 2(0,4)
Principles for selection and use of sewing equipment and construction techniques. Sloper production.

171 Clothing as a Human Resource 2(2,0)
Social, psychological and cultural factors affecting dress; aesthetic aspects of clothing and personal appearance, selection and coordination of wardrobe.
298 Apparel Manufacturing 3(3,0)
Investigation of the taxonomy of various apparel categories, covering merchandising, design, and production considerations. A look at volume apparel manufacturing as well as methods used by the haute couture.

294 Textiles 3(2,2) FS
An investigation of fiber, yarn, fabric construction, finishes and coloration methods in relation to specific end use and consumer satisfaction. Textile standards and legislation is reviewed. Pr. sophomore standing.

292 Special Problems 1-3
Problems for independent study selected according to special interests and needs. Arranged by contract with instructor.

293 Current Topics 1-3
Discussion of current literature and issues. Investigation of topics for which there is a current need but are not part of any class. P. consent.

296 Field Experience 2-3
Career exploration. Working under supervision of professionals and faculty in organizations which hire textiles and clothing graduates. Pr. sophomore standing (or 55 hours completed), 2.2 GPA, ID 221, approval of instructor.

312 Advanced Construction I 2(2,4) alternate years
Advanced problems in clothing construction. Topics of emphasis will vary among pattern-making, tailoring, and dressmaking techniques. P. 112 and 311.

315 Apparel Design 3(3,4)
Study of past and present fashion designers. Working sketches are emphasized. Functional, structural, and applied design are included. Pr. Art 512.

335 Introduction to the Sewing Trade 3(2,0) alternate years

350 Dress and Adornment in World Cultures 3(3,0) alternate years
Cross-cultural study of world dress and adornment practices. Relating the clothing characteristics of selected cultures to their technical and material bases, to manufacture and trade, and to other major social phenomena.

352 History of Costume in Western Civilization 3(3,0) S
Development of costumes from ancient times; social significance, symbolic meanings, and functions are investigated. Costume collection in College of Home Economics serves as resource material.

363 Fashion Economics 3(3,0) S
Social and economic factors that influence fashion demand. History and development of the international fashion industry. Activities involved in the production, distribution and marketing of fashion goods. Pr. Econ 201.

373 & ID 373 Retailing 3(3,0)
Principles of retailing as applied to textiles, apparel and furnishings retailing. Study of customer demand, buying, inventory control and promotion. Field trip to market center is required.

412 Advanced Construction II 3(0,6) alternate years

422 Advanced Textiles 3(2,3) alternate years

453 Socio-Psychological Aspects of Clothing 3(3,0) S
Examination of clothing behavior from sociological, psychological and cultural perspectives.

473 Merchandise Planning and Control 3(3,0) S
Analysis of practicum experience; executive leadership for retail personnel, merchandise planning and management. Case study approach. Pr. TC 497 - 5 credits.

487 Pre-practicum in Textiles and Clothing 1(1,0) F
Discussion of professional practices and issues. Experience in goal setting, reporting and evaluation. Organization and preparation of professional documents. Pr. TC 373 or concurrently.

498 Special Problems 1-3
Problems for the independent study selected according to students' special interests and needs. Arranged by contract with instructor.

499 Current Topics 1-3
Discussion of current literature and issues. Investigation of topics for which there is a current need but are not part of any class. P. consent.

587 Professional Practicum 1-12 F
Planned and supervised work experience in a cooperating retail firm. Provides opportunity for integration of course work in the occupational setting. Pr. TC 373, 487, 90 sem. cr. and consent of the department. Minimum GPA 2.2.

Graduate Courses (TC)
573-673 Travel Studies 1-5
Study of businesses, museums, and other relevant places through site tours and presentations in selected locations. Includes pre-travel orientation and post-travel written report. Pr. consent of department.

592-692 Special Problems 1-3
Problems for independent study selected according to special interests and needs. Arranged by contract with instructor.

593-693 Current Topics 1-3
Discussion of current literature and issues. Investigation of topics for which there is a current need but are not part of any class. P. consent.

743 Current Topics 1-3 cr.

744 New Developments in Textiles 3(3,0) on demand

770 Seminar in Textiles, Clothing & Interior Design 1-2

773 Costumes and Textiles Through the Ages 3(3,0) on demand

792 Special Problems 1-3

1Field trips required in these classes may require pre-paid charges to defray transportation costs.

Veterinary Science (Vet)
College of Agriculture and Biological Sciences

Associate Professor Thomson, Acting Head; Professors Benfield, Evenson, Francis, Johnson, Nelson, Swanson; Associate Professors Hildreth, Zeman; Assistant Professors Hurley, Miskimins, Neiger, Nietfield, Thiex, Yaeger; Instructors Leslie-Steen, Nelson, Stotz.

The Veterinary Science Department provides advising services for students in the pre-veterinary medicine curriculum and offers courses in the biomedical sciences for undergraduate and graduate majors in related sciences. The department also offers several graduate research assistantship positions in microbiology, virology, and molecular biology for students majoring in other departments. Graduate training is supported by active research programs in diseases of food-producing animals.

South Dakota does not have a professional College of Veterinary Medicine. A pre-veterinary medicine curriculum is offered which allows students to obtain prerequisites for application to Colleges of Veterinary Medicine in other states. Students may meet requirements in two or three years of pre-veterinary study. However, many students complete a major for the Bachelor of Science Degree before entering the professional curriculum of Veterinary Medicine.

Entrance into the professional curriculum in a College of Veterinary Medicine rests with the individual applicant, and is based upon many factors including their academic record and experience. The applicant should be aware of the difficulties involved in being accepted to a College of Veterinary Medicine. Keen competition should be anticipated.
Visual Arts Curricula

Leading to the degrees Bachelor of Arts or Bachelor of Science

The Art major must:
I. Meet University Requirements and Arts and Science College Requirements.
II. Take Visual Arts courses in Art Studio, Graphic Design, or Art Education that include:
   A. Visual Arts Core: Basic Studio Courses. (See details following.)
   B. Art History Courses. (12 hours—ArtH 211 and 212 plus two elective courses). (See details following.)
   C. Visual Arts Curricula: Required Courses and Electives in Area of Concentration — Visual Arts (Art Studio), Graphic Design, or Art Education. (See details following.)
III. Present works for faculty evaluation before the senior year.
IV. Have an exhibition of creative work or present a portfolio during the senior year; either must involve a faculty review.
V. Complete requirements plus electives that total a minimum of 128 credit hours (I. and II. above; see details following).

NOTE: The Department of Visual Arts reserves the right to retain selected examples of student work from any course.

A. The Visual Arts Core: basic studio courses should be completed during the freshman and sophomore years.

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ArtS 112 Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>ArtS 122 Design Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ArtS 123 Three Dimensional Design</td>
<td>3</td>
</tr>
<tr>
<td>ArtS 113 Drawing II</td>
<td>3</td>
</tr>
<tr>
<td>ArtS 222 Color Theory</td>
<td>3</td>
</tr>
<tr>
<td>ArtS 211 Figure Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ArtD 255 Intro to Computer Graphics</td>
<td>3</td>
</tr>
</tbody>
</table>

NOTE: Art Ed. and Art Studio majors take 113, whereas Graphic Designers take 255.

Art Electives (see Requirements under C.) should be taken only after some of the Visual Arts Core is completed.

B. The Art History Courses: should be taken during the sophomore and junior years.

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ArtH 211 Survey of World Art and Architecture</td>
<td>3</td>
</tr>
<tr>
<td>ArtH 212 Western Traditions</td>
<td>3</td>
</tr>
<tr>
<td>Art History Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

C. The Curricula: recommend beginning in sophomore year.

1. Graphic Design (30 hours):
   - ArtD 255 Graphic Design I | 3 |
   - ArtD 350 Graphic Design II | 3 |
Art Minor

A minor in Visual Arts requires 24 semester hours, including at least two courses in art history.

Undergraduate Courses

Art Design (ArtD)

251 Graphic Design I 3(0,6)
Introduction to visual communications and graphic design theory. Discussion of design ethics and the relationship of the designer to society. No prerequisite required.

255 Introduction to Computer Graphics 3
History and basic principles of computer graphics for the Visual Artist/Designer. A non-programming introduction to drawing, painting and typography software with an emphasis on the production of computer-generated letter forms in graphic design. P, ArtD 251 and permission of instructor.

350 Graphic Design II 3(0,6)
The exploration of typographic form and theory for graphic designers. Emphasis on historical and contemporary typographic usage and an introduction to computer-generated letter forms in graphic design. P, ArtD 251 or consent of instructor.

351 Graphic Design III 3(0,6)
The study of design systems, typography as visual communications, and the continuation of computer graphics. Emphasis on problem-solving. P, ArtD 350 or consent of instructor.

450 Graphic Design IV 3(0,6)
Professional practices and portfolio for the graphic designer. P, ArtD 351, senior in graphic design, or consent of the instructor.

455 Photography for Graphic Design 3(0,6)
Exploration of photographic processes as a means of graphic communication. P, ArtD 350 or ArtD 351, or consent of the instructor.

465 Advertising Design 3(0,6)
A studio course in Advertising Design with an emphasis on concept development, graphic design, research, organization, and presentation. (For advertising majors—cross listed as MCom 471.) P, ArtD 351 for Visual Arts majors or MCom 371 Copy and Layout for Journalism majors.

Art Education (ArtE)

415 Methods of Teaching Art in Public Schools 3(1,4)
P, art major and junior standing.

590-690 Special Problems in Visual Arts 1-3

Art History (ArtH)

100 Art & Design Appreciation 3(3,0)FS
Introduction to traditional and new visual media in art and design with a stress on practical knowledge. Primarily for non-art majors. No prerequisite.

211 Survey of World Art and Architecture 3(3,0)FS
Principal periods in the history of major world civilizations up to the 15th century A.D. and selected native arts and cultures. Emphasis on international studies and cultural diversity. No prerequisite.

212 Western Traditions in Art and Architecture 3(3,0)S
Principal artistic styles in western culture: Renaissance to present. Emphasis on international studies and cultural diversity. No prerequisite.

300 Modern Art and Architecture Survey 3(3,0)
Survey of Modern Art and Architecture from its beginnings in the 19th century. Emphasis on international studies and cultural diversity. P, junior or senior standing. Recommend ArtH 100 or ArtH 212.

310 History of U.S. Art and Architecture 3(3,0)
From colonial to present. No prerequisites.

350 Oriental Art and Architecture 3(3,0)
Survey stressing the art historical monuments of India, China, and Japan. P, ArtH 211, or consent.

420 Seminar, Selected Topics in Art or Design 1(1,0)
Selected topics in Art History, Theory, or Criticism. Topics vary, may be repeated once. *P, junior or senior standing. Recommend ArtH 100 or ArtH 212.

490 Seminar in History or Criticism 3(3,0)
Reading and discussion of criticism and aesthetics in visual art and design. Essays of various critical stances and problems in writing about visual arts. P, junior or senior standing. Recommend ArtH 100 or 212.

Art Studio (ArtS)

112 Drawing I 3(0,6)FS
Development of visual perception in representational and expressive drawing in various media, stressing visual thinking through observation, analysis and expression. No prerequisites.

113 Drawing II 3(0,6)
Continuation of Drawing I with additional emphasis on developing conceptual and critical abilities related to the expression of visual ideas. P, ArtS 112, or consent of the instructor.
122 Design Fundamentals 3(0,6) FS
Basic studio introduction to the discipline and approaches of the creative design process through a wide variety of media and techniques. The elements and principles of two-dimensional composition will be explored through studio projects, discussion, and critiques. No prerequisites.

123 Three Dimensional Design 3(0,6) FS
History, theory, aesthetics and materials of the three dimensional design language. Organization of mass, plane, texture, color, space in visual problem-solving experiences. No prerequisite required.

211 Figure Drawing 3(0,6)
A continuation of Drawing I with an emphasis on developing the visual intellectual and technical aspects by drawing the human figure. *P, ArtS 112 or consent of the instructor.

222 Color Theory 3(0,6)
Survey of color theories from Goethe to Albers. Studio problems explore and evaluate the physical and psychological properties of color and color relationships as they pertain to individual visual expression. P, ArtS 122; recommend ArtS 112 or consent of the instructor.

231 Painting IA & IB 3(0,6) FS
Combine studio experience in drawing and painting with demonstrations and discussion on style, technique, color and composition as they relate to the expression of visual ideas. *P, ArtS 112, or consent of the instructor.

241 Sculpture IA & IB 3(0,6) S
Introduction to theory of sculpture through various historical and current teaching methods: construction, modeling, carving, casting. *P, ArtS 123 or consent of the instructor.

253 Ceramics I 3(0,6) F
The study of the ceramic heritage from various cultures in relation to contemporary day objects. Projects expose students to hand-building, throwing, glazing and firing. *P, ArtS 123 or ArtS 122 recommended.

270 Textile Design 3(0,6) On sufficient demand.
Exploration of the cultural, historic and aesthetic backgrounds of surface design techniques. Design and execution of these theories on fabric. *P, ArtS 122 or consent of the instructor.

275 Weaving I 3(0,6)
Exploration of the cultural, historic, and aesthetic backgrounds of weaving. Design and execution of various weave patterns.

281 Printmaking IA & IB 3(0,6)
Creative use of basic printmaking techniques and processes in relief, intaglio and serigraphy to develop conceptual abilities for the solution of individual problems in visual communication. *P, ArtS 112 or consent of the instructor.

300 Experimental Arts 3(0,6) On sufficient demand.
Alternative art-making, utilizing contemporary aesthetics. P, junior or senior standing.

332 Painting IIA & IIB 3(0,6) FS
Continuation of Painting I. Emphasis on composition and expression. *P, ArtS 231, or consent of the instructor.

342 Sculpture IIA & IIB 3(0,6) S

352 Ceramics II 3(0,6) F
Continuation of Ceramics I. Emphasis on individual concepts developed through handbuilding and throwing techniques. Also more advanced glazing, firing techniques, and kiln maintenance. *P, ArtS 253.

370 Weaving II 3(0,6)
Continuation of Weaving I. Advanced weaving. *P, ArtS 275 or consent of instructor.

382 Printmaking IIA & IIB 3(0,6)

430 Watercolor 3(0,6)
Creative experience in developing and evaluating visual ideas expressed through the watercolor medium. Discussion and utilization of master artists' watercolor approaches and techniques. *P, ArtS 112 or consent of the instructor.

491 Directed Studies Program 1-9 (0,3-18)
See Arts and Science College Directed Studies Program. P, permission of Department Head and the instructor. Limited to no more than 3 semester hours under any single instructor. May be continued with more than one instructor (or under different sponsor).

492 Problems in Visual Arts 3(0,6)
Independent study in art area arranged in consultation with the instructor. Limited to seniors with a 3.0 average in art and a working background in the art problem they wish to undertake.

493 Undergraduate Course Special 1-5(0,6)
See Undergraduate Course Special Program. P, permission of the Department Head.

494-495-496 Cooperative Education/Internship/Field Experience 1-12 FSSu
See Cooperative Education/Internship/Field Experience program. You may elect to initiate and complete a major problem off campus. All Visual Arts majors may gain experiential work experience in co-op jobs with selected employers and/or artists (students may be engaged as studio apprentices). Graphic Design majors may only take three credit hours. These work experiences are to be held concurrently with the regular study periods and may be arranged through the Department's Cooperative Education Coordinator. P, junior standing, consent of Department Head and adviser.

497 Living and Studying Abroad Program 1-15 (1-15, 3-30)
See Arts and Science Living and Studying Abroad Program. P, permission of Department Head.

*Denotes course may be repeated once.

Wildlife and Fisheries Sciences (WL)
College of Agriculture and Biological Sciences
Professor Scalet, Head; Professors Berry, Fluke, Linder (Emeritus); Associate Professors Higgins, Uresk (Adjunct), Willis; Assistant Professors Brundige (Adjunct), Duffy, Hamilton (Adjunct), Hubbard, Jenks, Keenlyne (Adjunct), Rumble (Adjunct).

The curriculum offers professional education in fisheries, wildlife, and related biological and environmental areas. It covers a broad spectrum of physical and biological sciences as well as social sciences, humanities, and other courses essential to understanding the relationship of man to his environment.

This curriculum prepares students for a variety of positions with state and federal agencies such as state conservation organizations, U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. National Park Service, U.S. Soil Conservation Service, Army Corps of Engineers, etc. Private industry employs biologists as biological consultants on environmental problems. Advanced degree work also prepares students for positions in Colleges and Universities. Other employment opportunities are available dependent on elective selection.

Students can also, with our curriculum, meet the academic requirements for certification by both the American Fisheries Society and The Wildlife Society.

The Department offers the Bachelor of Science, Master of Science, and Doctor of Philosophy degrees. A student who plans on a career in research should complete an advanced degree.

Research funded through the South Dakota Cooperative Fish and Wildlife Research Unit, South Dakota Agricultural Experiment Station, and outside granting agencies offers opportunities for financial assistance to qualified students working towards graduate degrees.

204 Wildlife and Fisheries Sciences
Curriculum in Biological Science
Wildlife and Fisheries Sciences Major
Leading to the Bachelor of Science Degree

Credit

Freshman Year

Fund of Speech, SpCm 101........................................... 3
Fr Comp, Engl 101.................................................. 3
Humanities Elective.................................................... 3
Intro to Sociology, Soc 100........................................ 3
Biology, Bio 151-153................................................ 6
Algebra, Math 112 and Trigonometry, Math 120............. 6
or Algebra & Trigonometry, Math 113......................... 5
General Chemistry, Chem 112...................................... 4
Fitness & Lifetime Activities, PE 100............................ 2
Intro to Wildlife and Fish, WL 220....................... 2

Sophomore Year

Principles of Ecology, Bio 211..................................... 3
Elementary Organic Chemistry, Chem 120.................. 4
Economics Principles, Econ 201 or 202...................... 4
Elementary Physics, Phys 111-113............................. 8
Calculus, Math 222 or 123........................................... 5
Chemistry Elective (Chem 232, 361, or 380). .......... 4
Humanities Elective.................................................... 3
Undergraduate Seminar, WL 490.............................. 1/2

Junior Year

Advanced Comp, Engl 300......................................... 3
Mammalogy, Zool 355............................................. 3
Ichthyology, WL 367................................................... 3
General Microbiology, Micr 231............................... 3
Principles of Fisheries Management, WL 412.................. 3
Communications Elective......................................... 2 or 3
Computer Science Elective...................................... 2, 3 or 4
Social Science Elective............................................. 3
Botany Elective (Bot 201, 301, 305, 415)................... 3 or 4

Senior Year

Principles of Wildlife Management, WL 411.............. 4
Genetics, Bio 371..................................................... 3
Physiology Elective (Bot 427, Bio 343, or Zool 325).... 3 or 4
Statistical Methods, Stat 341.................................... 3
Ornithology, WL 365................................................... 4
Botany Elective (Bot 201, 301, 305, 415)................... 3 or 4
Undergraduate Seminar, WL 490.............................. 1/2
Remaining hours of the 128 hour requirement are electives.

Graduate Courses

511-611 Limnology 4(2,6) S (even years)

513-613 Advanced Fisheries Management 3(2,3) F (even years)
Principles and techniques of selected practices for reservoir, pond, and stream fisheries management. P, WL 367, 412, or consent.

515-615 Upland Game Ecology and Management 3(2,3) S (odd years)
Upland game birds and mammals as components of ecosystems. Effects of farming; industry; social change; technology; and federal, state, and private programs on game and non-game species. Techniques for individual species management. P, WL 411 or consent.

517-617 Big Game Ecology and Management 3(2,3) S (even years)
Big game life histories and distributions. Relationships of nutrition, reproduction, interspecific competition, and predation to management of big game habitat and harvest. Techniques for research and management of big game. P, WL 411 or consent.

Wildlife and Fisheries Sciences 205
519-619 Waterfowl Ecology and Management 3(2,3) F (odd years)
Analysis of ecological and socio-economic factors affecting waterfowl habitat and waterfowl populations. State and federal programs affecting wetland drainage and wetland preservation. Field inspection of waterfowl production habitat in the north-central states. P, WL 411 or consent.

521-621 Grassland Fire Ecology 3(2,3)F (even years)
The course is designed to describe the ecological effects of fire on grassland ecosystems. It also provides insight into the history of fires, the people who used them and why, the parts of a fire, how fires behave in relation to fuel and weather, and the conducting and safety of prescribed burns. P, consent.

590-690 Special Topics in Wildlife & Fisheries
1-3 credits as arranged FSSu
Students may secure small-group instruction in a variety of special topics including ecosystem analysis of grasslands, woodlands, small ponds, or reservoirs. Other special topics offered on occasion are animal damage control, endangered species, aquatic invertebrates, public relations for resource managers, and other topics. Contact department head concerning planned special topics. P, graduate or senior undergraduate and consent.

711 Aquatic Ecology 4(2,6)F (odd years)
712 Wetland Ecology and Management 3(2,3)S (even years)
713 Animal Population Dynamics 3(2,3)F (even years)
714 Fish Structure and Function 3(2,3)S (odd years)
715 Wildlife Research Design 3(2,3)S (odd years)
716 Aquaculture 3(2,3)S (even years)
790 Thesis in Wildlife 1-7 credits FSSu
791 Thesis Sustaining 1 FSSu
792 Graduate Seminar 1(1,0)FS
793 Research Problems 1-3 FSSu
BioS 890 Dissertation, Ph.D. 1-7 FSSu
BioS 891 Dissertation Sustaining 1 FSSu
BioS 892 Ph.D. Seminar 1 FS

Women's Studies
Professor Eleanor Schwab, Coordinator, Department of Political Science
An interdisciplinary program enabling you to select courses dealing directly or indirectly with women, including the development of feminism, women's changing roles in the family, religion, the labor force, and politics. Particularly useful for students expecting to work with women in social work, counseling, nursing, business, education. 17-18 hours are required for the minor. In consultation with the Women's Studies Coordinator, students may substitute courses listed as electives for some of the required courses.

Women's Studies Minor
Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>History of Women in America, Hist 360</td>
<td>3</td>
</tr>
<tr>
<td>Sociology of Sex Roles, Soc 383</td>
<td>3</td>
</tr>
<tr>
<td>Feminism and Theology, Rel 331</td>
<td>3</td>
</tr>
<tr>
<td>Dynamics of Family Development, HDCF 342</td>
<td>3</td>
</tr>
<tr>
<td>Women in American Culture, Hum 213</td>
<td>3</td>
</tr>
<tr>
<td>Women &amp; Politics, PolS 305</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender Issues in Counseling, CHRD 530-630</td>
<td>3</td>
</tr>
<tr>
<td>Marriage, Soc 250</td>
<td>2</td>
</tr>
<tr>
<td>Work, Time and Energy, CA 340</td>
<td>3</td>
</tr>
</tbody>
</table>

In addition, courses related to the roles of women in society are offered on a periodic basis in English, Foreign Language, Visual Arts (Art History), Child Development, and Psychology. These courses may substitute for some of the courses listed as required.

Zoology (Zool)
(See Biology and Microbiology)
UNIVERSITY STAFF

As of January 1992

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 university staff, the number following, if there is one, is 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 University.

GENERAL ADMINISTRATION


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Richard W. Powers, Vice President for Administration, 1986; B.A., Allegheny College, 1958; Ph.D., Indiana University, 1969.

Edward P. Hogan, Assistant Vice President for Academic Affairs, Professor of Geography, Graduate Faculty, 1967, 1991; B.S., St. Louis University, 1961; M.A., 1962; Ph.D., 1969.

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Stephen F. Erickson, Director of Physical Plant, 1989; B.S., University of Toledo, 1967; M.S., Ohio State University, 1969; M.S., University of Southern California, 1975.


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Michael P. Reger, Dean of Student Affairs, Assistant Professor, 1979, 1985; B.A., Western Illinois University, 1970; M.S., 1972; Ph.D., Ohio State University, 1983.


ACADEMIC DEANS

Mary Adams, Acting Dean of the College of Nursing, Professor of Nursing, 1990, 1991; B.A., University of South Dakota, 1946; B.S.N., John’s Hopkins University, 1949; M.A., Columbia University, 1954; Ph.D., University of Minnesota, 1962.

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Bernard E. Hietbrink, Dean of the College of Pharmacy, Professor of Pharmaceutical Sciences, Graduate Faculty, 1964, 1987; B.S., SDSU, 1958; Ph.D., University of Chicago, 1961.

Darrell Jensen, Dean of the College of Education & Counseling, Professor of Education Administration, Graduate Faculty, 1971, 1981; B.S., North-west Missouri State University, 1959; M.A., Drake University, 1965; Ph.D., University of Iowa, 1971.

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FACULTY, STAFF

The faculty and staff are listed alphabetically.

Ruth A. Aaberg, Instructor of Nursing, 1990; B.S.N., St. Olaf College, 1963; M.S.N., University of Minnesota, 1965.


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Ralph Alcock, Associate Professor and Head of Agricultural Engineering, Graduate Faculty, 1981, 1989; B.S., Chelsea College, 1966; M.Ag.E., West Scotland Agricultural College, 1967; G. Dip. Ed., West Australian Institute of Technology, 1978; M.S., Rutgers University, 1980; Ph.D., Reading University (England), 1988.


Herbert R. Allen, Professor Emeritus of Economics, Graduate Faculty, 1963, 1987; B.S., Iowa State University, 1950; M.S., 1952; Ph.D., SDSU, 1968.


Judy K. Blauweid, Adjunct Lecturer in Nursing, 1990.


Faustina Bohannon, Assistant Professor of Nutrition and Food Science, 1978, B.S., Rush University, 1976; M.S., Kansas State University, 1982, Ph.D., University of Illinois, 1984.

Robert A. Broschat, Associate Professor of Mathematics & Computer Science, 1991; B.S., SDSU, 1978; Ph.D., University of South Dakota, 1982; M.Ed., SDSU, 1979; Ph.D., University of Missouri, 1978.


Larry Browning, Assistant Professor of Physics, 1990; B.S., Syracuse University, 1975; M.S., Purdue University, 1980; Ph.D., 1984.

James D. Bruce, Associate Professor Emeritus of Engineering, 1960, 1974; B.S., Northern Illinois University, 1956; M.A., University of South Dakota, 1952, M.S., 1959; Ph.D., University of Missouri, 1968.


Gary C. Brundige, Adjunct Assistant Professor of Wildlife and Fisheries Sciences, 1983; B.S., University of Idaho, 1983; M.S., SDSU, 1985; Ph.D., Syracuse University, 1991.


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210 University Staff
Paula P. Carson, Instructor in Nursing, 1983; B.S.N., SDSU, 1975; M.S., University of Minnesota, 1983.


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Van C. Kelley, Assistant Professor of Agricultural Engineering, 1978; B.S., Texas A&M University, 1976; M.S., New Mexico State University, 1978.


Daniel C. Kemp, Professor of Mathematics, Graduate Faculty, 1976, 1986; B.A., Knox College, 1963; M.S., University of Arizona, 1967; Ph.D., Oklahoma State University, 1975.

Donald G. Kenefick, Professor of Plant Science and Chemistry, Graduate Faculty, 1959, 1971; B.S., University of Wisconsin, 1951; Ph.D., Michigan State University, 1959.


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Han J. Kim, Professor of Economics and Statistics, Graduate Faculty, 1967, 1979; B.A., University of California, 1960; M.A., University of Oregon, 1962; Ph.D., Oregon State University, 1969.

Raymond C. Kinch, Professor Emeritus of Plant Science, 1947, 1975; B.S., University of Nebraska, 1935; M.S., 1936.

Ross P. Kindermann, Associate Professor of Mathematics, Graduate Faculty, 1988, 1990; B.A., Dartmouth College, 1972; M.S., University of Illinois, 1974; Ph.D., 1978.


John C. Marshall, Coordinator of West River Graduate Center/Associate Professor of Education, Graduate Faculty, 1988; B.S.E., University of Kansas, 1962; M.S.Ed., 1963; Ed.D., 1966.


Janna M. Mausolf, Advisor, Student Union, 1989; B.S., Morningside College, 1987; M.S., Western Illinois University, 1989.

William J. McBreene, Associate Professor and Head of Research and Special Programs in Nursing, Graduate Faculty, 1980, 1989; B.S.N., M.T. Mary Mart College, 1976; M.S., University of Nebraska Medical Center, 1978; Ph.D., University of Texas, 1989.

J. Walter McCarty, Associate Professor Emeritus of Animal Science, Graduate Faculty, 1948, 1986; B.S., SDSU, 1947; M.S., University of Minnesota, 1948.

William C. McCone, Associate Professor Emeritus of Animal Science, Graduate Faculty, 1947, 1956; B.S., SDSU, 1943; M.S., 1950.


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Gregory Reeves, Range Management Extension Assistant, Research Associate in Animal and Range Sciences, 1989; B.S., Kansas State University, 1983; M.S., Texas Technical University, 1987.


Teri Reid, Adjunct Faculty Member in Nursing, 1978; B.S.N., Loretto Heights College, 1972; M.S., University of Wisconsin, 1976.


Charles P. Renuard, Assistant Professor of Mechanical Engineering, 1982, 1983; B.S., SDSU, 1982; M.S., 1983; Ph.D., University of Nebraska, 1988.


James A. Rice, Associate Professor of Chemistry, Graduate Faculty, 1988, 1991; B.A., St. John's University, 1978; M.S., Colorado School of Mines, 1982; Ph.D., 1987.


Jay R. Richardson, Professor of HDCFS, Graduate Faculty, 1963, 1970; B.S., Brigham Young University, 1957; M.S., 1958; Ed.D., Pennsylvania State University, 1966.

Marilyn W. Richardson, Associate Professor of HPER, 1963, 1979; B.A., Brigham Young University, 1965; M.A., Pennsylvania State University, 1963.

Mary Jane Richardson, Director/Dietary Manager Program, 1985; B.S., SDSU, 1975.


Dianne H. Ricker, Associate Professor of Plant Science, Graduate Faculty, 1986, 1991; B.S., Iowa State University, 1972; M.A., 1976; M.S., Auburn University, 1984; Ph.D., 1986.

Walter E. Riedell, Adjunct Assistant Professor of Plant Science and Biology/Microbiology, Graduate Faculty, 1987, 1989; B.S., Northern Illinois University, 1967; M.S., University of Minnesota, 1984; Ph.D., Southern Illinois University, 1984.

Robert Rietz, Adjunct Faculty Member in Nursing, 1983; B.A., University of South Dakota, 1968; Ph.D., University of Tennessee, 1973; M.D., Creighton University, 1979; E.N.T., University of Nebraska, 1983.

Donna L. Ritter, Associate Professor of Nursing, 1968; Diploma, Mercy Hospital School of Nursing, 1960; B.S., Montana State University, 1966; M.N., 1968.

Charles B. Roberts, Adjunct Professor of Cardiac Rehabilitation, 1976; M.D., St. Louis University, 1949.

Richard L. Roberts, Assistant Professor of Education, 1991; B.M.E., Northern Texas State University, 1979; S.T.M., Dallas Theological Seminary, 1986; Ph.D., North Texas State University, 1991.


Thomas N. Roe, Assistant Professor of Mathematics, 1983; B.S., SDSU, 1972; M.S., University of Wyoming, 1975.
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