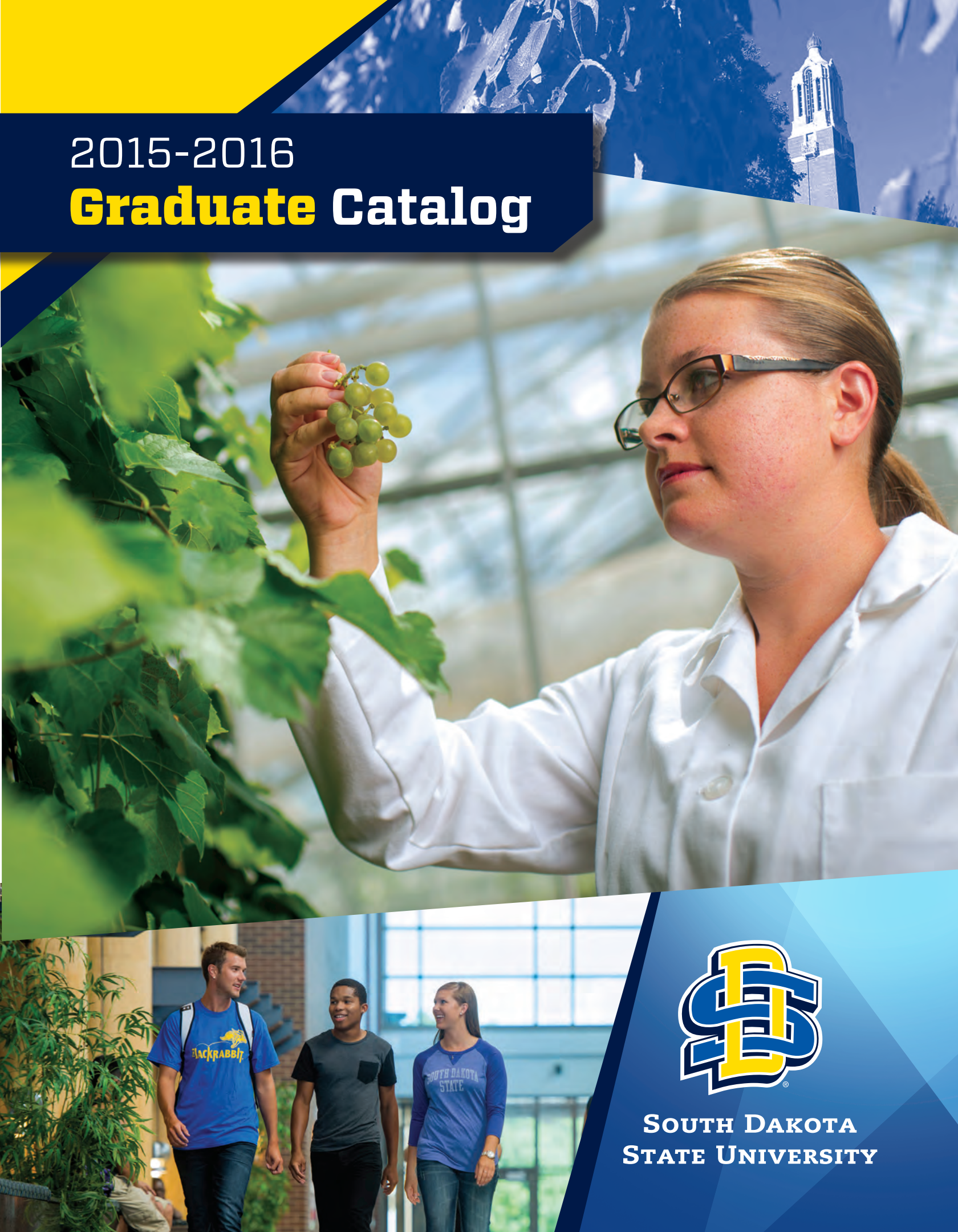

2015-2016 Graduate Catalog

South Dakota State University

South Dakota State University

Graduate Catalog

2015-2016

The information contained in this catalog is the most accurate available at the time of publication, but changes may become effective before the next catalog is published. It is ultimately the student's responsibility to stay abreast of current regulations, curricula, and the status of specific programs being offered. Further, the university reserves the right, as approved by the Board of Regents, to modify requirements, curricula offerings, and charges, and to add, alter, or delete courses and programs through appropriate procedures. While reasonable efforts will be made to publicize such changes, a student is encouraged to seek current information from appropriate offices.

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SDSU in Review **7**

General Information *8*

Accreditation *8*

General Information

An act of the Territorial Legislature approved in 1881 provided for the establishment of what is now South Dakota State University. As a Land-Grant institution, the University subscribes to the philosophy of education, research, and extension as its three-fold mission. The Graduate School is a separate administrative unit composed of selected scholars within the University engaged in work to further the land-grant mission. The institution granted its first Master of Science degree in 1891, its first Master of Education degree and Doctor of Philosophy degree in 1958. All graduate work was supervised by a committee until 1957, when the Graduate School was established.

A **Graduate Council** of twelve (12) elected members from the Graduate Faculty assists the Graduate Dean. The council includes the Graduate Dean (chair); and two (2) members, and alternates from each of the six (6) colleges: Agriculture and Biological Sciences, Arts and Sciences, Education and Human Sciences, Engineering, Nursing, and Pharmacy. The Dean of the Library serves as an ex-officio voting member.

The **Graduate Faculty** is composed of the University President, Provost and Vice President for Academic Affairs, college deans, and heads of departments in which graduate courses are offered. Tenure-track faculty with a terminal degree are eligible for graduate faculty status and will be admitted to the Graduate Faculty at the request of the appropriate Department Head and Dean (using the appropriate request form), in accordance with the policies of the Graduate School. Faculty who are not tenure-track and/or do not have a terminal degree will follow the nomination process for associate graduate faculty status and must be approved by the Graduate Council. All matters of policy and standards are acted on by the Graduate Faculty. In addition, Graduate Faculty are authorized to serve on graduate student committees, advise graduate students, and teach graduate-level courses.

The **Graduate School** provides 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. The Graduate School promotes scholarly pursuits and scientific research for the advancement of knowledge within a climate of freedom of inquiry. For material on undergraduate programs and for general information concerning South Dakota State University, refer to the General Catalog (Undergraduate Catalog) or at www.sdstate.edu.

This catalog is printed to provide information about the graduate programs of South Dakota State University. Every effort has been made to provide as complete and accurate information as possible; however, it should be noted that changes may occur at any time and that the catalog does not represent a contractual agreement. The university reserves the right, as approved by the Board of Regents, to modify requirements, curricula offerings, and charges, and to add, alter, or delete courses and programs through appropriate procedures. While reasonable efforts will be made to publicize such changes, a student is encouraged to seek current information from appropriate offices.

Students are allowed to fulfill the degree requirements in effect at the time of initial enrollment as a degree-seeking student, provided the student completes the degree requirements within the stated time frame through continuous enrollment. If a student needs to re-apply into the degree program, the guidelines in effect at the time of re-application must then be followed. It is the student's responsibility to become familiar with and complete the requirements for the degree being sought.

Accreditation

Listed below are the specific accreditation boards involving SDSU Graduate Programs:

The University holds institutional membership in a number of educational associations: the Association of Public and Land-grant Universities (APLU) (1307 New York Avenue, Suite 400, Washington, D.C. 20005-4222; Phone: 202-478-4701) promotes the aims expressed in the Morrill Act of 1862, and in the subsequent acts of Congress relating to Land-Grant Colleges.

Accredited by The Higher Learning Commission (HLC) of the North Central Association of Colleges and Schools (230 South LaSalle Street, Suite 7-500, Chicago, IL, 60604; Phone: 800-621-7440). Its purpose is to maintain high standards of instructional work and educational programs.

Mass Communication: The curriculum in Mass Communication is accredited by the Accrediting Council on Education in Journalism and Mass Communication (Stauffer-Flint Hall, 1435 Jayhawk Blvd, Lawrence, KS 66045-7575; Phone: 785-864-3973).

Athletic Training: The Athletic Training Program is accredited by the Commission on Accreditation of Athletic Training Education (6850 Austin Center Blvd, Suite 100, Austin, TX 78731-3184; Phone: 512-733-9700).

Counseling and Human Resource Development: The Counseling and Human Resource Development program is accredited by the Council for Accreditation of Counseling and Related Educational Programs (1001 North Fairfax Street, Suite 510 Alexandria, Virginia 22314; Phone: 703-535-5990). The specialization in Rehabilitation and Mental Health Counseling has been accredited by the Council on Rehabilitation Education (CORE) (1699 E. Woodfield Road, Suite 300 Schaumburg, IL 60173; Phone: 847-944-1345).

Teacher Education: The preparation of teachers and other professional school personnel at both the undergraduate and graduate levels is accredited by the Council for the Accreditation of Educator Preparation (CAEP) (1140 19th St NW, Suite 400, Washington, D.C. 20036; caepnet.org) and the South Dakota Department of Education (800 Governors Drive, Pierre, SD 57501, Phone: 605-773-3134).

Nursing: The Master of Science and Doctor of Nursing Practice programs in the College of Nursing are accredited by the Commission on Collegiate Nursing Education (One Dupont Circle, NW, Suite 530, Washington, D.C. 20036-1120; Phone: 202-887-6791).

Pharmacy: The curriculum in Pharmacy is accredited by the Accreditation Council for Pharmacy Education (135 S LaSalle Street, Suite 4100, Chicago, IL 60603-4810; Phone: 312-664-3575).

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Admission to Graduate School

For pursuit of an advanced degree, students must be admitted to the Graduate School before enrolling in graduate courses. A completed application must be filed with the Graduate School by April 15 for consideration for fall admission and by August 15 (international) or October 15 (domestic) for consideration for spring admission. **Students should check with their specific program of interest as some programs have earlier deadlines.** Students not pursuing an advanced degree but wishing to enroll in graduate coursework should apply as a non-degree seeking student by completing an application prior to the start of the semester.

Applicants who meet the Graduate School requirements are not necessarily admitted to the degree program. All qualified applications are reviewed by university and program personnel to determine if admission will be granted.

Application for Admission

Application Form

A completed on-line application must be submitted and accompanied by a non-refundable application fee of $35.00. (http://app.applyyourself.com/?id=sdstate-g)

Official Transcripts

Applicants must provide official academic transcripts from all post-secondary institutions where a degree was earned, or will be earned, and where graduate level coursework was completed. As a courtesy to the applicant, the Graduate School will retrieve all required South Dakota regental transcripts.

Applicants who have completed a degree outside the United States must provide a professional transcript evaluation from an evaluation service accredited by the National Association of Credential Evaluation Services. Examples of acceptable services include, but are not limited to, Educational Perspectives and World Education Services (WES). Evaluations must include transcript authenticity, Grade Point Average (GPA) calculation, and U.S. degree equivalency and be sent directly from the evaluation service. Applications will not be processed until the evaluation is received from the service. If an evaluation is required, this then replaces the requirement for official transcripts. Submitted transcripts become the property of South Dakota State University and will not be returned. The Graduate School mailing address is as follows:

Graduate School
South Dakota State University
130 Administration Building/Box 2201
Administration Lane
Brookings, SD USA 57007

Baccalaureate Degree

Admission to the Graduate School requires that the applicant have a baccalaureate degree, or equivalent, from an institution of higher learning. The baccalaureate-granting institution must be one of recognized standing (including U.S. institutions accredited by agencies recognized by the U.S. Department of Education) whose requirements are substantially the same as those of South Dakota State University program(s) in which the advanced degree will be taken.

If applicants are enrolled in U.S. institutions, and if the application is submitted before the Bachelor's degree is complete, an incomplete transcript must be filed. However, a transcript indicating the Bachelor's degree has been awarded must be received no later than the end of the first semester of graduate work.

Program Requirements

Individual programs may have additional admission requirements. Applicants should inquire about such requirements from the program of interest. Additional admission requirements for each program are provided under Academic Programs.

Graduate Record Examination (GRE)

The Graduate Record Examination is not a Graduate School requirement; however some programs may require test scores to be submitted. Please review the admission requirements for the program of interest. For the location of testing centers and more information regarding the GRE, please contact the Educational Testing Service (www.ets.org/gre).

Immunization Requirements

All university students (domestic and international) must provide documentation proving two (2) properly administered measles (rubeola), mumps, rubella (MMR) immunizations OR immune titers for measles, mumps and rubella. Exemptions to this requirement are considered. Furthermore, all international students are required to submit to a tuberculosis skin test upon arrival. For more information contact: Student Health Clinic and Counseling Services, Box 2818, Wellness Center, South Dakota State University, Brookings, SD USA 57007, Telephone : 605.688.4157, Fax: 605.688.6450 or the Office of International Affairs & Outreach , Briggs Library (SBL) Suite 119, Box: 2115, Brookings, SD USA 57007, Telephone: 605-688-4122.

International Students must also submit the following:

TOEFL/IELTS Scores

A score of 525 paper-based or 71 Internet-based or higher is required by the Graduate School for the Test of English as a Foreign Language (TOEFL) (www.ets.org/toefl). A minimum score of 5.5 is required for the International English Language Testing System (IELTS) (www.ielts.org/). Some programs may require higher test scores for admission and are listed within each program section in this Catalog. Also, programs may require additional testing upon arrival.

Financial Support

Evidence of available financial support for at least one year must be submitted to the Office of International Affairs & Outreach, Briggs Library (SBL) Suite 119, Box: 2115, Brookings, SD USA 57007, Telephone 605.688.4122. Applicant must also show evidence that the financial support will be continued throughout their program, at least two years for master's degrees or four years for doctoral degrees. For any financial assistance from this institution, the applicant must contact the program.

Documentation

Documents for entry into the U.S. will be issued by the Office of International Affairs and Outreach (www.sdstate.edu/international-affairs/index.cfm) after academic admission and financial certification are complete. Students applying for a visa cannot be admitted conditionally into any graduate program. For inquiries please contact: Office of International Affairs & Outreach, Briggs Library (SBL) Suite 119, Box: 2115, Brookings, SD USA 57007, Telephone: 605.688.4122.

Application Processing

When all required admissions documents are received, the Graduate School reviews the documents to insure the minimum requirements are met. If minimum requirements are not met, the application is denied and the applicant so informed. If the minimum requirements are met, the application and supporting documentation are forwarded to the program for review. The program makes a recommendation of acceptance or rejection to the Dean of the Graduate School who, in turn, acts on the recommendation and notifies all concerned parties of the decision in the form of a letter of acceptance or a letter of denial.

Admission Status

Admission

An applicant may be admitted without condition if a Bachelor's degree, or equivalent, has been earned, all undergraduate prerequisites for major and minor (if required) fields of study have been satisfactorily completed, and the applicant has an average of 3.0 or higher on a 4-point grading system (A = 4, B = 3, C = 2, D = l) or maintained a 3.0 during the last two academic years of undergraduate work. Admission to all degree programs is competitive and limited by the availability of personnel, facilities, and funding.

Conditional Admission

Conditional admission may be granted for students enrolled in an accredited U.S. college or university, if the applicant:

- meets the requirements for admission for the last three semesters but has not completed the last semester of undergraduate study. Admission is conditional until the Bachelor's degree is granted, OR
- lacks prerequisite undergraduate courses specified by the major program. Admission is conditional until these courses have been completed to the satisfaction of the program, OR
- has a grade point average between 2.75 and 3.0 cumulative for the junior and senior years.

A student admitted conditionally must satisfy any conditions within the first semester of enrollment in the graduate program before receiving unconditional status. Performance required to receive unconditional status will be provided to the student in the letter of acceptance. Failure of a student to fulfill the stated conditions may result in dismissal from the program.

Non-Degree Seeking Student

Students who are not pursuing a degree may register as non-degree seeking student. There is no application fee to apply with the Graduate School as a non-degree seeking student, though the student is responsible for tuition and fees. Special Students may not receive graduate assistantships, financial aid, or enroll for thesis/dissertation credits. The Dean of the Graduate School will act as an advisor for these students unless otherwise noted. A Special Student may apply for admission into a graduate program using the normal procedures outlined in this document. No more than ten credits acquired under Special Student status may be applied toward a degree.

Readmission

Students formerly enrolled as graduate students at South Dakota State University and who have not maintained continuous enrollment (excluding summer semesters) must apply for readmission to their program. Graduate School policies in effect for the term of readmission will apply. Official transcripts must be furnished for graduate work taken at other institutions since last enrolled at South Dakota State University. Programs may require the student to update supporting documents for the application. Readmitted students are encouraged to contact their graduate advisor prior to registration. Students who are readmitted may be required to change their Advisory Committee, file a new plan of study or resubmit other matriculation documents.

Residency Requirements

South Dakota State University is required to establish residency status of all applicants. Please review the residency requirements (www.sdstate.edu/admissions/financing/undergrad/residency/index.cfm) prior to completing an application. A full description of qualifications is available in the Residency Application (www.sdstate.edu/admissions/financing/undergrad/cost/residency/upload/Residency-Application.doc).

SDSU

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This section outlines academic policies as well as general information related to academics at South Dakota State University. For additional information, the South Dakota State University Policy and Procedure Manual may be viewed online at: http://www.sdstate.edu/policies. That website is the definitive source for the most current South Dakota State University policies. Policies duplicated on other websites or in print may not be the most current version. All policies documented on the site are official and supersede policies located elsewhere. South Dakota State University is governed by state and federal law, administrative regulations, and policies of the South Dakota Board of Regents (SDBOR) and the State of South Dakota. South Dakota Board of Regents policies may be viewed online at: https://www.sdbor.edu/policy/policymanual.htm.

Academic Integrity & Academic Appeals

(SDSU Policy 2:4, SDSU Policy 3:1, and BOR Policy 3:4)

South Dakota State University has taken a strong and clear stand regarding academic dishonesty. Academic integrity embodies ethical principles to act responsibly and take responsibility for one's actions. Integrity and honor function as forms of a "social contract" where individuals have a duty to follow the rules and norms of academia as well as a duty to ensure their peers also follow such rules and norms. Undergraduate and graduate students at the University are expected to maintain the highest standards of academic conduct; if violated, the University takes a strong and clear stand regarding academic dishonesty. The consequence of academic dishonesty ranges from disciplinary probation to expulsion. For additional information on the academic dishonesty and academic appeals process and procedure reference SDSU Policy 2:4, SDSU Policy 3:1 and BOR Policy 3:4.

Academic Performance & Progression

Credit Load

Full time students are required to take a minimum of 9 credits. Half-time students are required to take a minimum of 5 credits. Three-fourths time students are required to take a minimum of 7 credits. Students may take a maximum of 12 credits per semester. Domestic students must be enrolled at least half-time (5 credits) to receive Federal Aid. Loan deferment may also require full or part-time status. Eligibility varies with financial aid programs and students should contact their lender for requirements.

Graduate Assistants

All graduate assistants must register for a minimum of one (1) credit (including summer) in order to receive an assistantship.

Credits needed for full-time student status for graduate assistants:

	Spring/Fall	Summer
25% time assistantship	7	5
49% time assistantship	5	3

For financial aid questions contact the Financial Aid Office at sdsu.finaid@sdstate.edu or visit their website at: http://www.sdstate.edu/admissions/financing/index.cfm.

Graduate Assistantships are designed to provide financial support and intellectual guidance in support of the student's education. The primary goal of an assistantship is to facilitate progress toward the graduate degree. Assistantships are not the form of compensation for the time graduate students spend on their thesis or dissertation research. Students on research assistantships are expected to work on their own research over and above the time for which they are compensated. Graduate Research Assistants must complete a work log documenting compensable hours.

For specific criteria, guidelines, and more information regarding Graduate Assistantships visit:
http://www.sdstate.edu/academic/provost/toolkit/personnelmgmt/graduateassist/index.cfm.

International Graduate Student Credit Requirements

Fall/Spring Semester - International graduate students are required to pursue a full time course of study to maintain non-immigrant status in accordance with the U.S. Code of Federal Regulations. International students without an assistantship must register for nine (9) credit hours per semester to pursue a full course of study. Students with an assistantship would need to enroll in the appropriate number of credits corresponding with the percentage of their assistantship. Students who fail to maintain a full course of study will be considered out of status and may be terminated. The exceptions to a full course of study are limited but very important. Students must seek the approval of the International Student Affairs office for authorization to drop below nine (9) credits per semester. See the International Student Handbook for more information (http://www.sdstate.edu/international-affairs/students/current/upload/2014-2105-Handbook.pdf).

Summer Semester - Full time enrollment is required when the summer session is an international student's first semester. According to the United States Citizenship and Immigration Services (USCIS), international students who begin their studies during a summer session must be enrolled full time in order to maintain their F1/J1 status. It is a violation of USCIS regulations to permit an international student to begin a program and only register for 1 credit the first semester they are here. Graduate Programs that intend to admit international students for the summer session/term must ensure that students will be able to enroll in enough credits to maintain their full time status. Students without an assistantship would need to register for 9 credits. Students with an assistantship would need to enroll in the appropriate number of credits corresponding with the percentage of their assistantship. International students are allowed to register for less than a full time course load during all subsequent Summer Terms. This policy only pertains to international students who are beginning their programs during a summer term.

Registration and Status

To maintain active status, students must be registered each semester of the academic year (excluding summer). All graduate assistants must register for a minimum of one (1) credit (including summer) in order to receive an assistantship.

Students who are not registered each semester (excluding summer) will be moved to inactive status and may be required to reapply before continuing their graduate studies. Students with a justifiable reason for not enrolling (health/medical, military, other extenuating circumstances) may submit a leave of absence form (http://www.sdstate.edu/graduate/forms/upload/Leave-of-Absence.pdf) to be approved by their department and the Graduate School. Upon approval, students are allotted up to four (4) semesters (excluding summer) leave. Students returning from an approved absence of no more than 4 semesters must complete a reactivation request form (http://www.sdstate.edu/graduate/forms/upload/Request-for-Reactivation.pdf). Students returning after four (4) semesters will need to reapply to their program.

Continual Registration for Dissertation, Thesis, Research/Design Paper - All graduate students who have completed the dissertation/thesis/research-design paper credits specified on their plan of study are required to do one of the following each semester during the academic year and Summer term until the degree is awarded:

- Students who have completed the required number of dissertation/thesis/research-design paper credits on the plan of study, but are still involved in research work as part of the degree requirement, must continue to register for one credit for each succeeding semester, including summer.
- Students who miss the deadline for graduation in a given semester, but successfully complete their final oral exam and all other requirements prior to the start of the next semester, do not have to enroll in that semester in order to graduate.

Registration is the student's responsibility and must be completed and payment made by the appropriate deadline each semester. Failure to register may delay award of the degree and thereby require additional registrations.

Academic Performance Not Directly Related to Course Work

Pending review of the Graduate Council, the Graduate Dean may dismiss students for violations of professional integrity, upon recommendation by the department/program. Departments may have policies accepted in their disciplines that determine continuation in programs on factors other than grades. These include any violation of ethical standards such as plagiarism or professional standards as determined by the department.

Affirmative Action/Equal Employment Opportunity Policy/Title IX

(SDSU Policy 4:3, SDSU Policy 4:4, SDSU Policy 4:5, and SDSU Policy 4:6)

South Dakota State University has a well-established commitment to maintaining a campus environment free from discrimination and harassment, as articulated by federal and state law, and University policy.

Non-Discrimination Policy

It is the policy of SDSU not to discriminate on the basis of sex, race, color, creed, national origin, ancestry, citizenship, gender, gender identification, transgender, sexual orientation, religion, age, disability, genetic information, veteran's status or any other status that may become protected under law against discrimination

As part of this policy, SDSU has designated a Title IX/EEO Coordinator to assist individuals with any concerns about discrimination or harassment in education programs or activities.

Harassment, including Sexual Harassment Policy

Harassment is a particularly harmful and illegal form of discrimination that breaks down trust within the SDSU community and impedes the ability of students, employees, and others to participate in an environment that allows them to achieve their fullest potential. Furthermore, harassment is a violation of the expectation that every individual at SDSU deserves to be treated fairly, with respect for his/her dignity as a person.

Prevention of Sexual Assault, Domestic Violence, Dating Violence, and Stalking Policy

State and federal laws and policies strictly prohibit sexual assault, domestic violence, dating violence, and stalking, often treating such actions as criminal offenses. Such misconduct is not permitted or tolerated at the University. SDSU Policy 4:5 and its procedures set forth standards regarding reports of sexual assault, domestic violence, dating violence, and stalking and the consequences of engaging in such misconduct at the University.

Non-Retaliation/Privacy

Complainants, respondents, witnesses, and other persons who have assisted, testified, or participated in any manner in any phase of a harassment or discrimination investigation will be protected against retaliation. SDSU's policy and applicable Board of Regents, state and federal regulations prohibit retaliation, coercion, interference and/or intimidation, or any other adverse action taken as a direct result of a complaint being brought forth.

All concerns are responded to and/or investigated in a highly sensitive manner. The privacy of the parties involved is protected. The process is neutral, impartial and fair.

What You Can Do To Address Harassment or Discrimination

- If safe, approach the person you feel has discriminated against or has harassed you and communicate your concern directly, in person or in writing. Ask them to stop the concerning behavior or comments immediately.
- Report harassment or discrimination to the Title IX/EEO Coordinator (605-688-4128).

Reporting Complaints

Concerns should be reported directly to the Title IX/EEO Coordinator:

Michelle Johnson, Ed.D.
Title IX/EEO Coordinator & Affirmative Action Officer
Human Resources, Administration 100
Brookings, SD 57007
Phone: (605) 688-4128
Email 1: Michelle.Johnson@sdstate.edu
Email 2: Equal.Opportunity@sdstate.edu

SDSU has adopted a Compliance Hotline that offers two additional ways to report concerns, including the option to report anonymously, if you choose:

Toll-Free Reporting: 1-844-880-0004
Web Reporting: https://www.lighthouse-services.com/sdstate

If a student or employee confides in you their concern, please encourage them to report the issue or you are required to report on their behalf. The University has a legal obligation to respond to issues, big and small, so SDSU requests that all concerns be brought forth. The University has many resources and wants to support faculty, staff and students.

The complaint process is subject to the South Dakota Board of Regents policies, and will follow the institutional policies listed below:

Policy 4:3 Equal Opportunity, Non-Discrimination, and Affirmative Action
Policy 4:4 Harassment including Sexual Harassment
Policy 4:5 Prevention of Sexual Assault, Domestic Violence, and Stalking
Policy 4:6 Human Rights Complaints

These polices can be found at http://www.sdstate.edu/policies/.

What happens if a violation of the policy occurs?

The University will not tolerate discrimination, harassment or retaliation that violates SDBOR or University policy. Where such violations are investigated and found to have indeed occurred, the University will take steps to end it immediately. An individual found to have engaged in discrimination, harassment or retaliation will be subject to appropriate discipline, depending on the severity of the misconduct. Sanctions for employees include formal reprimands, suspensions without pay, reductions in responsibilities, and termination. Sanctions for students include disciplinary probation, suspension, and expulsion. SDSU will provide the victim with remedies to alleviate the negative effects of the harassment or discrimination. Such remedies may be regarding academic, residential, employment and transportation accommodations.

For More Information

For more information on the policies established to promote equal opportunity and eliminate discrimination and harassment at SDSU visit: http://www.sdstate.edu/hr/equal-opportunity/index.cfm.

Attendance Policy

(SDSU Policy 2:5)

Teaching and learning is a reciprocal process involving faculty and students. Faculty members have an obligation of holding classes on a regular basis and students have an expectation to attend and participate in classes on a regular basis. Faculty members determine the specific attendance policy for courses under their direct supervision and instruction. Attendance procedures must be stated in written form, in the course syllabus, and distributed or posted electronically to students at the beginning of each course. If attendance is required and will impact grading, this expectation shall be included in the syllabus.

Any exceptions to the faculty member's written attendance policy due to verified medical reasons, death of a family member or significant other, or verified extenuating circumstances judged acceptable by the instructor or the Office of Academic Affairs, will be honored. Absences for vacations, breaks, or personal interviews do not constitute a valid reason for absence.

Faculty and administration will honor officially approved absences where individuals are absent in the interest of officially representing the University. Appropriate sanctioned activities include: Collegiate club sports and competitions; Conferences and workshops recognized by the University not related to academics; Commitments on behalf of the University (Students' Association, Band, Choir, etc.); Intercollegiate athletics; and Professional activities recognized by the University related to academics (professional conference attendance, etc.)

Students with official excused absences: Students with excused absences will be given appropriate make up work or instructor-determined equivalent opportunities for obtaining grades as students who were in attendance. Students with official excused absences are not to be penalized in course progress or evaluation. However, should excused absences be excessive, the faculty member may recommend withdrawal from the course(s) or award an incomplete grade.

Attendance policies apply in the online classroom. Faculty members determine the specific attendance policy for courses under their direct supervision and instruction. Attendance procedures must be stated in written form and made available to students on the first day of the course. Common strategies for demonstrating "attendance" in an online course include login requirements per week, an identified number of discussion postings per week, consistent contact with peers and instructor, and/or other assignments as determined by the instructor. Also, students are expected to login to their class on the first day of the semester.

No student-athlete may be absent from more than ten (10) class sessions (including required laboratory sessions) of a given course in a semester. Athletic excused absences will not be approved during final examination period with the exception of required conference or NCAA activities. In the interest of safety for student-athletes and staff, missed class-time resulting from travel delays associated with inclement weather will be excused.

If a student has an accident, falls ill, or suffers some other emergency over which they have no control, the student needs to gather whatever documentation is available (e.g., copies of repair or towing bills, accident reports, or statements from health care provider) to show the instructor. Such exceptions must be communicated and negotiated between the student and faculty member prior to the absence whenever possible.

Requests for excused absences due to approved university-sponsored/recognized trips must be submitted one week prior to the trip or event. Students must present the completed approved trip absence card to the faculty member prior to the trip or event to have an official excused absence. Faculty members are not required to honor incomplete or late cards. Absences for trips or activities will not be approved during finals week.

Arrangements regarding attendance should be negotiated with faculty members. If this is not possible, the students should go first to the department head, and if necessary, next to the dean. The student may contact the Office of Academic Affairs if conflict cannot be resolved at these levels.

Courses/Credits

Add/Drop Procedure

- Dropping or adding courses should be discussed with one's academic advisor. Courses can be dropped on WebAdvisor or in the Registrar's Office.
- The drop/add period is the time period during which students may adjust their academic schedule for the term without financial or academic consequences. The last day of the drop/add period for a course is designated as the census date for that course and is the official date for enrollment reporting. The end of the drop and add period for standard and non-standard courses offered in a semester shall be the date the first 10 percent of the term ends or the day following the first class meeting, whichever is later. When calculating 10% of the term, breaks of five or more days are not included when counting the total number of days but

Saturdays, Sundays, and holidays are. Student registrations can only be added to courses after the end of the drop and add period by approval of the chief academic officer (or designee) of the university.

- **Students should not discontinue enrollment in a class without processing discontinuance via the official drop procedure. An "F" will be recorded for an unofficial drop.**

Grades for Dropped Courses

Graduate students who drop a course shall receive a grade of "W" if that action occurs any time between the day after the census day for that course and the day that corresponds with the completion of 70 percent of the class days for that course.

Grades for Withdrawals from the Regental System (see "Withdrawals" for additional information)

Students who completely withdraw from the Regental system from the first day of a class(es) until the census date of the class(es) will have a pseudo course of WD 101 (Undergraduate) or WD 801 (graduate) with a "W" grade entered on their Transcript. Undergraduate and graduate students who withdraw from the System shall receive a grade of "W" if that action occurs anytime between the day after the census day for that course and the day that corresponds with the completion of 70 percent of the class days for that course.

A notation of the date of withdrawal will be included on the student's transcript if he/she withdraws from the system. (Refer to BOR Policy 5:7.2)

Last Day to Drop

For standard classes, the last day to receive a grade of "W" is determined by calculating 70 percent of the class meeting days in the term, counting from the first day of classes in the term and rounding up if the calculation produces a fractional value greater than or equal to 0.5.

For any non-standard course, the last day to receive a grade of "W" is based on the number of class meeting days for the course, using the method described above.

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.

Students may not drop a course or withdraw from the System after the time period specified above. (Refer to BOR Policy 5:7.2)

If extenuating circumstances (i.e., illness) have prevented class participation, a petition for an individual drop may be filed.

Auditing a Course

Registration as an auditor in a course may be permitted. No credit is given. The audit fee is the established tuition and fee rate. **Registration for audit may be accomplished only after registration day by presenting an Audit/Satisfactory/Unsatisfactory form to the Registrar's Office, Enrollment Services Center.**

Auditing courses by graduate students will be a matter of record (recorded on their academic transcript). An AU grade is given for Audit. This grade does not calculate into the semester or cumulative grade point average. Audit courses are counted as part of the 19 hour rule for overloads. **Audit courses are not counted in calculating undergraduate or graduate full-time student status.**

Cancellation of Courses

In general, entry level graduate courses (500 or 600 level courses) will not be offered to fewer than seven (7) students and graduate only (700 or 800 level courses) will not be offered to fewer than four (4) students 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 academic college concerned.

Repeated Courses

(BOR Policy 2:8:3D)

All courses taken appear on the student's academic record, but when a course is repeated, only the most recent grade is calculated into the cumulative GPA. This policy applies to both undergraduate and graduate coursework. Relative to number of repeats allowed:

- A student may enroll in a graduate course (for which credit is granted only once) no more than two times without permission of the Dean of the Graduate School.
- A student will be allowed unlimited enrollments in a graduate course for which credit toward graduation may be received more than once. An institution may limit the number of credit hours for courses that may be taken more than once that apply toward the requirements for a major.

Please notify the Registrar's Office, Enrollment Services Center, when a course, whether failed or passed, is repeated.

Transfer of Credits

Graduate credits earned at other institutions may be applied toward an advanced degree if they were awarded a grade of at least "B" (3.0), if they are approved by the advisor or advisory committee and the Dean of the Graduate School, and if they are not part of a conferred degree. Transfer credit is limited to graduate credit as defined by the institution issuing the transcript. In order to be accepted by the Graduate School, the offering institution must accept the credits toward their graduate program without restriction. Dual-numbered courses offered primarily for upper-level undergraduate credit are (generally) not transferable as graduate credit. Requests for transfer of credits are usually made at the time a plan of study is approved and must be supported by an official transcript filed with the Graduate School. A minimum of sixty (60) percent of all credits in the program must be earned at SDSU unless the program is part of an approved joint or cooperative degree. Credits earned at another institution as a part of an approved joint or cooperative degree program will not count as transfer credits for the purposes of this policy.

Undergraduate Students Taking Graduate Courses

(BOR Policy 2:8:3C)

Undergraduate students who have completed a minimum of 90 credit hours may enroll in a limited number of 500 level courses. The Vice President for Academic Affairs may grant an exception for enrollment in a 600 level course. The student shall pay graduate tuition and the courses shall be recorded on a graduate transcript. These graduate courses may apply to an undergraduate degree.

Withdrawal

Those finding it necessary to withdraw from the University are urged to consult with a faculty advisor to work out the best plan possible and then contact the Registrar's Office, Enrollment Services Center 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 70% of instruction has been completed (Contact the Registrar's office for date information). After that date, if extenuating circumstances (i.e., illness) have prevented class participation, a petition for withdrawal may be filed through the Office of Academic Affairs.

A student is considered withdrawn during a term if classes have begun and:

- The student has registered for at least one course and the student has initiated withdrawal from all state-support and self-support courses at all Regental universities in which the student was actively enrolled at the time of withdrawal, including courses in progress as well as those that have not yet begun, or;
- The Regental home university has completed withdrawal procedures for administrative reasons including, without limitation, non-payment of tuition and fees or disciplinary sanctions.
- Students enrolled in two or more Regental universities pursuant to financial aid consortia will be eligible for refunds as set forth herein only if they withdraw, drop out or are expelled from all classes at all Regental universities for which they have enrolled.

Students who withdraw or are expelled from the Regental system within the drop/add period receive a 100 percent refund of tuition and per credit hour fees. Students who withdraw or are expelled from the Regental system after the date the first 10 percent of the term ends for the period of enrollment for which they are assessed may be entitled to a prorated refund.

Workshops

While any number of credits may be earned in workshops, a maximum of two such credits may be applied toward an advanced degree. Workshop notation on transcripts will be used for application of this limitation.

Family Education Rights and Privacy Act of 1974

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 the SDSU Student Policies Manual and the Records and Registration website.

Final Examinations

(SDSU Policy 2:1)

Among the tasks of instruction is that of evaluation of a student's performance. Each course has its own particular parameters, and the evaluation procedure in any one course is not necessarily the same as that in another course. However, the most commonly used evaluation technique is that of written examinations or papers periodically due during the course, and a final examination at the end of the course. The final examination procedure has become so universal and accepted that a final examination period is set aside at the end of the semester in most colleges and universities. The Carnegie credit hour is calculated by contact hours with 15 contacts hours equating to 1 credit hour. Finals week is considered an integral part of the 17-week academic semester and critical to the credit hour calculation.

It is the policy of South Dakota State University to adhere to the following:

- The final examination schedule will be published in the fall or spring course schedules. Courses offered for 2 or more credits will have an examination time determined by the final examination schedule published in the schedule book.
- Multiple section final examinations will be scheduled at 7:00 a.m. as published in the schedule book through a request process from the instructor to the Registrar's office.
- Final exams for evening courses (any course that begins at 5:00 p.m. or later) must be scheduled at the regularly scheduled time (of the course) during finals week.
- Courses of 1 credit or laboratory only will have the final examination or alternative learning experience during the last week of regular classes before final examination week.
- Every course except as noted in #2, #3, and #4 above is required to follow the final examination schedule.
- Five days are to be scheduled for final examinations at the end of each semester, fall and spring. Due to the variety of summer sessions and other accelerated course formats, the final day of the term will be reserved for the final examination.
- A block of 2 hours will be available for administering individual final examinations. Within the final examination time period, instructors may reduce the time limit of an examination by prior announcement.
- Final examinations are an integral part of the instructional program and should be given in all courses except in some cases such as laboratory, studio, capstone courses, seminars, colloquia and other independent learning credits, where a final examination may not be appropriate. Any instructor wishing to waive the right to a final examination must do so by submitting a request as outlined under Procedures. The right to waive the final examination does not, however, preclude the requirement to hold class during final examination week for an alternative learning experience. The discipline is responsible for defining appropriate alternative learning experiences.
- Take home final examinations are permissible but the course must still meet during final examination week for alternative learning experience.
- Online and hybrid courses must be held to the same standard for final examinations and can only be administered during final examination week.
- If a final examination is used, it should not be given early. The published final examination schedule must be followed and the final examination in a course should be given as scheduled and not at other times, even if the faculty member and all students in a course agree to such a change. This is true even if the final examination is an alternative learning experience. It is understood that some culminating learning assessment may be administered during the last week of classes. This does not preclude the requirement however, for these classes to meet during finals week.
- The week of classes preceding the scheduled final examination period should be used primarily for continued instruction and may include the introduction of new material. No final examinations are to be given during the seven days preceding the start of the examination period (excluding 1 credit courses). However, laboratory practicums, seminar presentations, etc. may be scheduled in that week.

- Individual students may petition in writing for a variance from these policies, provided the instructor is satisfied that the exception is based on good and sufficient reasons, and that such an exception for an early or late examination will not prejudice the interests of other students in the course. Reasons for individual students missing a scheduled examination will be handled by the department. Each department will decide what will, or will not, be an acceptable excuse and deal with individual hardship cases. Note that the SDSU Attendance Policy should be consulted for excused absences. In the event of a department approved excuse, the instructor will decide the procedure necessary to complete the course requirement. Instructors must have the consent of the department head in excusing the student.
- When students have more than three final examinations on the same day, they are entitled to arrange an alternative examination time for an examination or examinations scheduled on that day. Such arrangements must be made no later than the end of the 12th week of the semester. Students are expected to provide evidence to the Registrar's Office that they have more than three examinations to qualify for exceptions.
- This policy applies to all undergraduate and graduate students, including seniors. Graduating seniors are not exempted from final examinations.

Each instructor, department head and dean is responsible for enforcing the above policies. The SDSU Attendance Policy will be used to establish acceptable excuses for missing and retaking a final examination.

Any instructor wishing to request a waiver from administering a final examination must do so by submitting a request to the department head for approval. The department head will then forward such requests to the college dean. A course need only be approved once; however, if substantive modifications are made to a course, it should be resubmitted for approval.

Grades

Graduate Academic Standards/Grades

Cumulative 3.0 (B) Average -The student must maintain a 3.0 (B) cumulative grade point average for courses in the graduate plan of study. No credit is given toward a graduate degree for any grade below "C" in 500, 600, 700 or 800 level courses. Grades for transfer courses are not used in calculating these grade point averages. The grade earned the last time the course was taken will be used to determine the grade point average for the plan of study.

Dissertation/Thesis/Research or Design Paper Credits - Graduate students usually register for dissertation/thesis/research or design paper credit during several semesters. A grade of satisfactory (S), unsatisfactory (U), or (NP) normal progress may be assigned during the semester of registration, based on progress made. Credits receiving "U" will not be credited toward the plan of study.

Seminars - A letter grade or a grade of Satisfactory (S) or Unsatisfactory (U) may be assigned at the discretion of the instructor.

Incomplete Grades - When a graduate student is given an Incomplete grade (I) for any course in the student's plan of study, the instructor may indicate in writing to the student what additional work must be completed and may establish a date at which such work must be completed. If the work is not completed in either the manner or time prescribed, the instructor may change the Incomplete grade to whatever grade is justified as an evaluation of the student's work or may allow the grade to remain Incomplete. Incomplete grades given without this procedure will remain as Incomplete on the student's record unless changed because of completion of the remaining work in the course. Incomplete coursework must be completed within one calendar year; extensions may be granted by the Graduate Dean.

Repeated Courses - All courses taken appear on the student's academic record, but when a course is repeated, only the most recent grade is calculated into the cumulative GPA. Students should notify the Registrar's Office, when a course, whether failed or passed, is repeated.

Academic Performance - Graduate students whose plan of study cumulative grade point average drops to less than 3.0 will receive an Academic Warning. If a plan of study is not in place, all courses will be counted, and the cumulative GPA will be used. Should a student receiving an Academic Warning fail to achieve a GPA of at least 3.0 in his/her plan of study the following semester, the student will be placed on Academic Probation, and a hold will be placed on his/her registration for the subsequent semester. This hold can be removed only after the student and his/her advisor submit a letter to the Dean of the Graduate School indicating how the GPA will be brought up to 3.0 or better. The student must then meet with their advisor to review this work improvement plan. In the semester following the hold, the student must have a GPA of 3.0 or better. If not, students may be subject to dismissal from their program or the University. Students must also maintain academic standards as determined by their program.

Grading

(BOR Policy 2.10)

Graduate Grades will be assigned to the Graduate Academic Level and to all courses and sections with course numbers of 500 or greater. Plus and minus grades are not used.

A	Exceptional	4.00 grade points per semester hour
B	Above Average	3.00 grade points per semester hour
C	Average	2.00 grade points per semester hour
D	Lowest Passing Grade	1.00 grade points per semester hour
F	Failure	0.00 grade points per semester hour
S	Satisfactory	Does not calculate into any GPA
U	Unsatisfactory	Does not calculate into any GPA
W	Withdrawal	Does not calculate into any GPA, no credit granted
AU	Audit	Does not calculate into any GPA, no credit granted
I	Incomplete	Does not calculate into any GPA
IP	In Progress	Does not calculate into any GPA
NG	No Grade	0 credit tracking course
NP	Normal Progress	Does not calculate into any GPA
NR	Grade not Reported by Instructor	Does not calculate into any GPA
EX	Credit by Exam	Does not calculate into any GPA
CR	Credit	Does not calculate into any GPA
TR	Note for NSE/MEDT	Does not calculate into any GPA, no credit granted
LR	Lab grade linked to Recitation Grade	0 credit course

An **audit (AU)** grade may be granted only when the student has elected the AU option on or prior to the census date of the term.

A **credit (CR)** grade may be granted only for non-course credit that is not related to an examination or to equating transfer grades to the BOR grading system. This grade is not used for any Regental university course.

An **examination for credit (EX)** grade may be granted only for non-course credit validation obtained through a validation process. This grade is not used for any Regental university course.

An **Incomplete (I)** grade may be granted at the graduate level only when all of the following conditions apply:

- A student has encountered extenuating circumstances that do not permit him/her to complete the course.
- The student must be earning a passing grade at the time the Incomplete is necessitated. Anticipated course failure is not a justification for an Incomplete.
- The student does not have to repeat the course to meet the requirements.
- The instructor must agree to grant an Incomplete grade.
- The instructor and student must agree on a plan to complete the coursework.
- The coursework must be completed within one calendar year; extensions may be granted by the Graduate Dean.
- If the student completes the course within the specified time, the grades that may be assigned are A, B, C, D, F, S, or U.
- If the student does not complete the course within the specified time, the Incomplete grade remains on the transcript.

An **In Progress (IP)** grade may be granted only when all of the following conditions apply:

- The requirements for the course (for every student enrolled in the course) extend beyond the current term.
- The extension beyond the current term must be defined before the class begins.
- The instructor must request permission to award IP grades for a course from his/her Department Head and Dean, and then approval must be obtained from the Vice President for Academic Affairs.
- A definite date for completion of the course must be established in the course syllabus.

A grade of **NG** will be used only with those course sections that are designated as Tracking/Program Sustaining (Q) and those that are assigned the code for Master's Research Problems/Projects Sustaining, Thesis Sustaining, or Dissertation Sustaining (U).

A **Normal Progress (NP)** grade may be granted by an instructor when the instructor determines that a graduate student is making normal progress in a graduate Thesis/Dissertation course. If a graduate student does not enroll for a period of one calendar year, the NP grade may change to I (Incomplete) upon approval by the Graduate Dean. The NP grade calculates into attempted credits but does not calculate into completed credits or grade point averages.

A **Satisfactory/Unsatisfactory (S/U)** grade may be granted only when the entire course requires the S/U grade or the student has elected the S/U option on or prior to the census date of the term.

With the exception of an "I" that has not been completed within the specified time, any grade reported to the Registrar may be changed by recommendation of the instructor and college dean with approval of the Vice President for Academic Affairs.

Any graduating senior or graduating graduate student who receives an Incomplete or In Progress grade in the final semester in a course required for graduation, or who has not removed an outstanding Incomplete or In Progress from a previous semester in a course required for graduation by the date grades are due for the semester, will not be permitted to graduate that semester. He or she will be required to apply for graduation in a subsequent semester. Emergency situations require the filing of a petition by the student to his/her Academic Dean for approval prior to the final grading deadline for the final semester.

Grades of **I (Incomplete)**, **NP (Normal Progress)**, **IP (In Progress)** and **NR (Not Reported)** awarded to thesis/dissertation coursework will be changed to **S (Satisfactory)** upon completion of all other degree requirements. The change of grade will be conducted without specific consent of the instructor. Completion of course work with the 798 or 898 suffix awarded a **U (Unsatisfactory)** must be changed by standard processes.

Once a student has graduated and the degree has been recorded, the record is considered officially closed and grades can no longer be changed.

Graduate Study by University Staff

Faculty who already hold a terminal degree required for promotion and tenure may work on an additional degree at South Dakota State University, by special approval of the Vice President for Academic Affairs. All faculty may take graduate courses for credit with the required approvals and authorization. The online graduate school application must be completed. An Authorization For Educational Benefits form, obtained from the Human Resources Department, should be completed and returned to Human Resources before registration. Staff members below the rank of Assistant Professor who intend to work toward a degree at this institution must follow the regular process for admission to the Graduate School.

Full-time members of the research, instructional, or extension staffs may enroll for a maximum of twelve (12) credits during the calendar year, with a maximum of seven (7) in any one (1) semester and two (2) during the Summer Session. Staff must pay the application fee.

Graduation

Graduation Application - The student must file a graduation application by the date specified by the Graduate School for the term in which completion of the advanced degree is expected. Failure to file this application will result in a delay in graduation. Students who submit an application but fail to graduate will be assessed a $50 charge and a registration hold will be placed on their account. The hold will be removed once the charge is paid.

Commencement Attendance - All students are encouraged to participate in the Spring Commencement ceremony; however, attendance is optional. Master's students who have not completed all degree requirements for graduation may participate in commencement; however, they will need to submit a request to participate form with advisor's signature approximately 6 weeks prior to commencement. Doctoral students must complete all degree requirements, except for coursework of the final semester and deposition of the dissertation. Degree requirements include completion of a final oral exam. Requirements must be completed no later than April 15 (3 weeks prior to the end of the semester). Graduate students will have two opportunities to participate in commencement: 1) the next regularly scheduled ceremony following completion of the degree or 2) the second regularly scheduled ceremony following completion of the degree. Students will only be allowed to attend no more than one commencement ceremony per completed degree. Attendance at commencement or inclusion in the commencement program does not, in itself, constitute completing or receiving a graduate degree.

Diplomas are mailed approximately three months after the degree is awarded.

For more information regarding graduation and commencement guidelines visit: http://www.sdstate.edu/graduate/current/important-dates.cfm.

Postdoctoral Study

Postdoctoral students or eminent scholars who desire temporary privileges of the research facilities, staff counsel, library or seminars at the institution and who are not candidates for a degree, must obtain approval of the Department Head, Dean and/or Director concerned.

Student Code of Conduct

(SDSU Policy 3:1)

South Dakota State University has established standards for expected and acceptable behavior for members of its campus community. Students are expected to be familiar with these standards and related policies so that they know their responsibilities (what they may be held accountable for) and to protect their rights (what they may hold others accountable for).

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. Students are expected to exercise this freedom with responsibility.

The Student Conduct Code is the basic guideline reflecting university-student relations. The Code defines student behavior, expectations and related university conduct and judicial procedures. Refer to SDSU Policy 3:1 (www.sdstate.edu/studentcode) for the Student Conduct Code policies and procedure.

Student E-Mail

E-mail messages sent by SDSU to students through university-assigned, jacks e-mail addresses will constitute an official means of communication even if students also possess an sdstate account. It is the student's responsibility and obligation to access official university e-mail messages in a timely manner. As other email accounts may be blocked by the SDSU firewall, SDSU is only able to monitor student e-mails coming from university-assigned e-mail accounts.

Student Responsibility

Before a degree is granted, the student must meet all the requirements of the Advisory Committee, the Graduate Program, and the Graduate School. Students should note that graduate studies represent advanced work and research in a discipline or interdisciplinary area and should be more than a compilation of course work. Students are responsible for conforming to all published academic policies and degree requirements. They are likewise responsible for the regulations concerning the degree they plan to obtain and any special requirements within the program or academic unit. In addition, it is the student's responsibility to conform to the University's policies regarding the standard of work necessary to maintain enrollment in the Graduate School. The University makes every effort to provide accurate advising information. However, it is the student's responsibility to make certain that he/she has fulfilled all graduation requirements.

Students with Disabilities

South Dakota State University (SDSU) reaffirms that it is committed to a policy of non-discrimination on the basis of physical or mental disability/impairment in the offering of all benefits, services, educational and employment opportunities. The Coordinator for Disability Services has been designated the SDSU "Responsible Employee" to coordinate institutional compliance with the non-discrimination requirements of the Americans with Disabilities Act (ADA) of 1990. In that capacity, the Coordinator is committed to ensuring that SDSU provides an inclusive learning environment.

The Coordinator will also be responsible for the effective integration of ADA procedures, and Section 504 of the Rehabilitation Act of 1973. The Coordinator serves as the personal contact for students seeking information concerning the provisions of the ADA and their respective duties and rights provided therein. The phone number for the Office of Disability Services is 605-688- 4504; E-mail: sdsu.disability@sdstate.edu.

Study Abroad & U.S. Department of State Travel Warnings

(SDSU Policy 2:11)

Study Abroad and U.S. Department of State Travel Warnings policy addresses the procedures to be followed when the U.S. Department of State issues a Travel Warning for a country in which University undergraduate or graduate students are studying or are planning to study. Refer to SDSU Policy 2:11 (http://www.sdstate.edu/policies/section-2.cfm) for the Study Abroad and U.S. Department of State Travel Warnings policy and procedure.

Textbook Policy

(SDSU Policy 2:10)

The SDSU Textbook policy and related procedures set forth the requirements for selecting and ordering textbooks and course materials and for making all materials available to students in a timely manner. Refer to SDSU Policy 2:10 (http://www.sdstate.edu/policies/section-2.cfm) for the Textbook policy and procedure.

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Tuition & Fees

Tuition and fee rates are set according to the policies of the South Dakota Board of Regents and are subject to change without prior notice. For current information see the website: http://www.sdstate.edu/graduate/prospective/tuition.cfm or https://sdbor.edu/students/tuitionfees.htm.

Residency Requirements

In order to establish residency for tuition purposes you must live in South Dakota for twelve (12) consecutive months immediately preceding the first scheduled day of classes of the semester. Attendance at the college or university controlled by the Board of Regents does not count in determining the twelve (12) month period of residence.

Residency qualifications for tuition purposes may be obtained by contacting the Admissions Office at 605-688-4121.

Billing & Payment of Student Accounts

All tuition, fees, housing, food service and miscellaneous charges to student accounts will be on an electronic billing (eBilling) system and can be viewed on SDePay, a secured website via the Internet. Payment of the student account can also be made electronically (ePayment) through SDePay. Students can authorize parents, spouse and other individuals to view the eBill and make ePayment on their student account.

By the day after census date, each student makes a full payment of charges based on the number of registered credits, residency status, and campus housing. Late fees will be assessed starting on the day after the established payment due date. SDSU encourages students to mail payments before the due date. Payment of tuition and fees can be made by cash, check or electronic bank transfer directly to the University Cashier's Office SAD 136 PO Box 2201, Brookings, SD 57007-2098.

Payment of tuition and fees using a debit or credit card can only be made through SDePay, electronic billing and payment system. American Express, Visa, MasterCard and Discover cards are accepted by SDePay. A 2.75 percent service fee is assessed by and payable to NelNet, host provider of SDePay. Authorized payers may view and pay the students' account by going to the South Dakota Public Universities Authorized Payer login at SDePay (https://quikpayasp.com/sdbor/campus/studentaccounts/authorized.do). Students may link to SDePay through their secure account on WebAdvisor (http://webadvisor.sdstate.edu/).

Late Charges

A fee is charged if tuition and fees are not paid during the regular established payment periods. Failure to satisfy financial obligations when due may result in a student's administrative withdrawal from 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, room and board, financial aid, but not obligations due to student organizations. All accounts that the University is unable to collect will be submitted for collection and forwarded to a credit reporting bureau. The University will recover from the debtor all collection fees and attorney's fees that result from collection of an account.

Fees for Auditing Courses

Regular tuition and fees, per credit, will be charged for auditing a course. Registration as an auditor is by petition. Auditing courses will be a matter of record (recorded on the academic transcript). Grades will be designated by the instructor as Audit Pass (AUP) or Audit Fail (AUF). Audit courses are not counted in calculating undergraduate or graduate full-time student status.

Thesis & Dissertation Fees

Students are responsible for following all deposition protocols and paying all archiving fees associated with a thesis or dissertation. For more information go online to www.sdstate.edu/graduate/current/submission-instructions.cfm.

Refunds

SDSU processes student withdrawals in compliance with federal and Board of Regents policies. A petition process does exist for students or parents who feel that individual circumstances warrant exception from the published refund policy. Contact the Registrar, Enrollment Services Center, for information. (See SD BOR Policy 5:7)

Tuition & Fees Refund Policy

The end of the drop/add period for standard (those that conform to the regular semester schedule) and non-standard courses offered in a semester is the date the first 10 percent of the term ends or the day following the first class meeting, whichever is later.

Refunds for Dropped Courses

A student receives a 100 percent refund of tuition and per-credit-hour fees for courses dropped within the drop/add period. No refund shall be provided for courses dropped after that time, except by administrative action. Any course meeting within a standard semester but for less time than the standard semester shall be treated as a non-standard semester course for refund purposes. Courses offered during summer school session and correspondence courses are considered non-standard courses.

Students who withdraw, drop out, or are expelled within the drop/add period receive a 100 percent refund of tuition and per-credit-hour fees. Students who withdraw, drop out, or are expelled after the drop/add period for which they are assessed may be entitled to a pro-rated refund as set forth herein.

Refunds for Withdrawals

Students who withdraw from the University may be entitled to a refund of tuition and fees and institutional charges calculated through 60 percent of an enrollment period. The refund shall be determined by computing the percentage of an enrollment period remaining after the date of withdrawal multiplied times the tuition and fees originally assessed the student. At no time will refunds be awarded after the 60 percent point of the enrollment period.

Cancelled Registration

If a student's registration is cancelled, no tuition and fee payment is due. If payments have been made, a student is eligible for a full refund.

Extensions & Waivers

The University president, or a designee, may extend or waive the time periods in the following circumstances:

- The death of the student;
- The student's disabling condition or severe illness;
- The death, disability, or severe illness of immediate family members causing severe financial hardship to the student;
- Other extenuating circumstances beyond the student's control.

Refunds for Residence Hall Fees

Students with a room contract who withdraw from the Regental system will receive a proportional refund at the time of withdrawal up to the 60 percent point after which no refund is available

Refunds for Food Service Fees

Students with a food service contract who withdraw from the Regental system will receive a proportional refund at the time of withdrawal up to the 60 percent point, after which no refund is available. The balance of flex plan dollars will be refunded at 100 percent.

Military Service - Withdrawal without Penalty

Academic Credit

Students required to withdraw from the Regental system before completing a semester may receive credit or refund privileges if they are regularly enrolled and belong to a military unit called for duty or are drafted and not eligible for deferment and the discontinuance of class attendance is on the last practicable day before reporting for duty as determined by the student's home university. Eligible students who are required to report for military duty not earlier than four (4) calendar weeks prior to the date a semester ends as stated in the official catalog of the home university, or after completion of at least seventy-five per cent (75%) of the enrollment period in a non-standard semester course, may, when authorized by the instructor, be given full credit for all courses for which they have an average of "C" or better. Eligible students who receive credit, or an incomplete, in progress, or normal progress grade for any course for which they are enrolled shall not be entitled to any refund of tuition or fees paid. Eligible students who do not receive an incomplete, in progress, or normal progress grade or credit for a course in which they are enrolled shall be entitled to a full refund of tuition and academic fees.

Options for Final Grades and Refunds		
	Weeks Remaining in Standard Semester	
	More Than 4 Weeks	Less Than 4 Weeks
Course Grade	*Refund*	*Student Options*
A	Refund	A or Refund
B	Refund	B or Refund
C	Refund	C or Refund
D	Refund	Refund
F	Refund	Refund
S	Refund	S or Refund
U	Refund	Refund
I, IP, NP	Refund	I, IP, NP or Refund
Note: Course Grade is as determined by the instructor, either the grade to date or the final grade earned to date.		

Refunds for Room and Board

Refunds for room and board shall be pro-rata refunds for the entire semester. Board flex plans will be refunded at 100% of the unused value.

Refunds for Books

Refunds for books for military personnel called up for active duty is as follows:

- New books with no markings or writing – 100% of purchase price
- New books with highlighting or writing – 75% of purchase price
- Books purchased used – 100% of used price

Books must be returned within the semester. Normal campus refund policies apply to books that are not returned prior to the end of the semester.

Federal Financial Aid Recipients

The U.S. Department of Education requires institutions to use the Return of Title IV Funds policy for students withdrawing from school and who are receiving Federal Title IV student financial aid. Title IV funds refers to the federal financial aid programs authorized under the Higher Education Act of 1965 (as amended) and includes the following programs: Federal Stafford Direct Loan, Unsubsidized Stafford Direct Loans, Parent Loans for Undergraduate Students (PLUS), Federal Perkins Loans, Federal Pell Grants, and Federal Supplemental Grants. Also, the Federal Nursing Loans and Federal Health Professions Loans use the Return to Title IV Funds calculation.

A student's withdrawal date is 1) When the student began the withdrawal process or officially notified SDSU of intent to withdraw by contacting the SDSU Registrar's Office; or 2) The midpoint of the period for a student who leaves without notifying SDSU; or at SDSU's option, the student's last documented date of academically-related activity.

Return of Title IV Funds

When a student receiving federal financial Title IV financial aid withdraws from SDSU during the enrollment period, the amount of the Title IV funds (not including Federal Work Study) that the student earned during the enrollment period is calculated as of the student's withdrawal date. Title IV funds are earned at a fixed rate on a per day basis up to the 60 percent point in the enrollment period. Title IV funds are 100 percent earned if the withdrawal date is after the 60 percent point in that period.

If the date a student withdraws from SDSU is prior to or on the 60% point of the semester, SDSU is required to determine the portion of the aid disbursed that was "earned" by the student before the withdrawal date. The "unearned" Title IV funds must be returned to the respective federal aid programs. Unearned aid is the amount of disbursed Title IV aid that exceeds the amount of Title IV aid earned based on attendance in the enrollment period.

For students who fail to officially withdraw when they stop attending classes and are assigned an "F" grade for all courses for the semester, the Return to Title IV Funds policy requires SDSU to calculate the "earned" amount based on the 50 percent point of the semester. Unearned federal aid must be returned as described above. If a student was disbursed aid after the 50 percent point of the semester, the student is assumed ineligible for those funds and will be required to return those funds.

Responsibilities of SDSU include providing information on the Return of Title IV Funds policy and procedure to students. This information is available at www.sdstate.edu and from the SDSU Financial Aid Office. SDSU is also responsible to complete calculations of the Return of Title IV Funds for federal financial aid recipients who are withdrawing from SDSU and to return any Title IV funds to the respective Title IV funds account. The student is responsible to repay any Title IV funds that the student was determined to be ineligible for via the Return to Title IV funds calculation.

Financial Aid

Student financial assistance programs are administered through the student Financial Aid Office in the Enrollment Services Center. They may be contacted at 605-688-4695 or via e-mail at finaid@sdstate.edu for more information. Graduate assistantships, fellowships, and traineeships are administered by the department or program involved. Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (alternative loans). Please contact the SDSU Financial Aid Office, Box 511A, Enrollment Services Center, Brookings, SD 57007. Phone 605-688-4695, or E-mail: sdsu.finaid@sdstate.edu for specific applications, forms, and information. Additional information can be accessed online: http://www.sdstate.edu/admissions/financing/index.cfm.

Student Services

Detailed information on Student Life and Services is found in the Undergraduate Catalog. (http://catalog.sdstate.edu)

Academic Testing Center

Students needing testing information (GRE, TOEFL, etc.) may contact the Academic Testing Center located in the Old Foundation Building (920 9th Street, northwest entrance), Telephone 605-688-4217 or by E-mail: sdsu_assessment@sdstate.edu.

Bookstore

Located in the University Student Union SSU 146, the University Bookstore (www.sdstatebookstore.com) sells textbooks, merchandise and other supplies. Telephone: 605-688-6392.

Disability Services

The Office of Disability Services coordinates services for students with a wide range of disabilities. Services include coordinating testing accommodations, the acquisition of alternative format texts, classroom accommodations, referral to other service agencies, and coordinating additional services based on the individual needs of the student. For more information contact the Office of Disability Services at 605-688-4504 or go online to www.sdstate.edu/campus/disability/index.cfm.

English Language & Culture Institute

Develop academic English proficiency, explore American culture, and learn to communicate with confidence at South Dakota State University. The SDSU English Language & Culture Institute (ELCI) prepares students for the rigors of post-secondary academics, allowing them to communicate at high levels. The ELCI focuses on academic English, while enhancing students' cognitive abilities and real-world problem-solving skills in the English context. Students are challenged to think beyond simply building language skills to embrace the attitude of learning. The program offers student-centered teaching, critical thinking curriculum, focused instruction, progressive levels, and limited class sizes. For more information call 605-688-5076 or visit www.sdstate.edu/international-affairs/esl/.

Housing and Food Service

Prospective graduate students should inquire about rooms or apartments on-campus from the Department of Residential Life well in advance of registration. Information regarding off-campus housing is also available from the Department of Residential Life. Housing and Residential Life is located on the first floor of Caldwell Hall. Residential Life can be contacted at 605-688-5148 or for more information visit: www.sdstate.edu/reslife/. Students may select a dining services plan by visiting Card Services in the University Student Union Room 144 or purchase Resident Meal Plans.

International Affairs, Office of

The Office of International Affairs (OIA) is the comprehensive home for international student and scholar services, international undergraduate admission, study abroad planning, and community connections programs. All services and activities are intended to help enrich the experience of international students here at SDSU and to help expand global engagement for all students, faculty and staff.

Formerly the Office of International Programs, the department was initially established in 1988 and was focused on creating a number of international education and research exchange partnerships. Today, OIA has educational partners on six continents and has expanded its focus to include international student services.

Study abroad staff advise faculty in planning SDSU-based global educational options and advise students of their study abroad options.

International student and scholars staff provide guidance and administrative support to hundreds of international students from over 60 countries.

Staff members also support the International Relations Council and its events and outreach, as well as help connect the campus community with International students and global issues through its Connections programs.

OIA has a variety of partners and affiliates. For more information, refer to www.sdstate.edu/international-affairs.

Hilton M. Briggs Library

Library services and collections are housed in the Briggs Library, which is named for President Hilton M. Briggs, who served the University from 1958 to 1975. Library collections consist of more than 675,000 bound volumes, 640,000 government documents, 18,000 e-books, 38,000 online journals and other electronic resources.

Briggs Library users have access to book, journal, archives, map and government documents collections as well as wireless networking, laptop loans and more than 80 public computer workstations providing access to the Internet, to library databases, and to software such as MS Word, Excel, PowerPoint, statistical packages and more. Briggs Library contains group study/conference rooms for student use, informal lounge areas, and photocopiers and scanners. Special collections of congressional papers, archival, state and local history, and curriculum materials are available for students, faculty, and researchers. In addition, materials from thousands of other libraries worldwide are available through interlibrary loan. The Briggs Library building is also the home of International Affairs and Outreach, the Center for the enhancement of Teaching and Learning, and the Writing Center.

The faculty and staff of Briggs Library are proud of the services they offer to the SDSU community, as well as to distance students and faculty at Sioux Falls, Rapid City, Pierre and other locations throughout South Dakota and the U.S. Each year they teach hundreds of classes on information literacy and the use of library resources. They respond to thousands of information requests annually through personal contacts, via telephone at 605-688-5107, and by means of e-mail, online chat and texting. Look for the "Ask Us" link on the library homepage: www.sdstate.edu/library.

MyJacks Card

The student identification card, now known as the MyJacks Card, can be used as a prepaid debit card to access prepaid accounts. In addition to its use in for the student meal plans, the MyJacks Card provides a prepaid account called Hobo Dough. This account can be used for the bookstore, campus vending, laundry, photocopying and printing, and at selected off-campus businesses. Students may load funds at the Card Services office in the Student Union, the Briggs Library, Larson Commons, or Online. Upon graduation or leaving the University, these funds ($5.00 or more) will be returned in full upon request. No service charges are assessed for active accounts. However, accounts inactive for six (6) months or more are assessed a monthly service charge. If the service charge exceeds the account balance, the account is automatically closed. For complete information regarding your MyJacks Card visit www.myjackscard.com.

Student Affairs

The Division of Student Affairs provides services and activities that are designed to help students gain the greatest benefit from their University education. The following departments are included in Student Affairs: Admissions, New Student Orientation, Office of Enrollment Services (Financial Aid, Records and Registration, and Scholarships), Office of Student Conflict Prevention, Management, and Conduct Services, Residential Life, The Union, Office of Student Engagement (Student Organizations, Greek Life, Program Board, Career Center), Multicultural Center/Student Support Services (Disability Services, Upward Bound, TRIO Student Support Services, Veterans Resource Center, African American, Latino, and GLBT student support), University Dining Services, and Wellness (Intramurals and Club Sports, Recreation, and Student Health & Counseling). If you have questions or need information about any of these areas, contact the Vice President for Student Affairs office in SAD 312, phone 605-688-4493.

Wellness Center

The Wellness Center is dedicated to supporting academic success and personal development by promoting and encouraging healthy lifestyle for the members of the SDSU community. The Wellness Center houses state of the art fitness equipment, a variety of recreational and intramural programs, effective wellness education, and a student health clinic and counseling center. Services and programs provided are detailed below. Further information about the Wellness Center is available at 605-697-WELL(9355), E-mail: sdsu.wellnesscenter@sdstate.edu, or go online to www.sdstate.edu/wellness-center.

Fitness - We strive to provide current and diverse programming to enhance life-long health and well-being. Knowledgeable professionals serve the students, faculty, and community to assist them in making appropriate decisions about their fitness and nutritional desires. A varied menu of activities and programs are offered including: cardio and weight equipment; land, water and Spinning classes; walking/running track; pool; three gyms; a climbing pinnacle and bouldering wall. Staff can provide personal orientation, personal fitness evaluations, and can design a personal program to meet fitness goals. For further information regarding the Wellness Center, hours, and its services, call 605-688-6415 or go online to www.sdstate.edu/wellness-center.

Nutrition Counseling - We believe that nutrition is an important aspect of being healthy. The Wellness Center offers nutrition counseling with a registered dietitian for dietary lifestyle changes, college weight gain, specialized plans for specific health conditions, and eating disorders. Appointments can be made through the Student Health Clinic by calling 605-688-4157.

Intramural Sports - The Intramural Program provides the opportunity for all activity-fee-paying students, both undergraduate and graduate, to participate in organized and informal sports as regularly as their time and interests permit. SDSU faculty and staff, that are members of the SDSU Wellness Center, are also encouraged to join a student intramural team and/or start their own faculty/staff team and compete in the intramural program. Activities are organized on an individual, team, and club basis. Leagues are established for women, men, and mixed (co-rec) competition activities. There are multiple recreational sports including flag football, 3-on-3 basketball, volleyball, basketball, softball, and many more to choose from. Intramural registration is online at www.imleagues.com.

Sport Clubs - Sport clubs offer specialized participation ranging from a social setting on campus, to instructional programming, to competition with clubs from other universities within the region. There are multiple club sports opportunities including hockey, rugby, men's soccer, cricket, bowling, and ultimate Frisbee which compete regionally giving SDSU students additional recreation opportunities. For further information, contact the Intramural Staff at 605-688-6881.

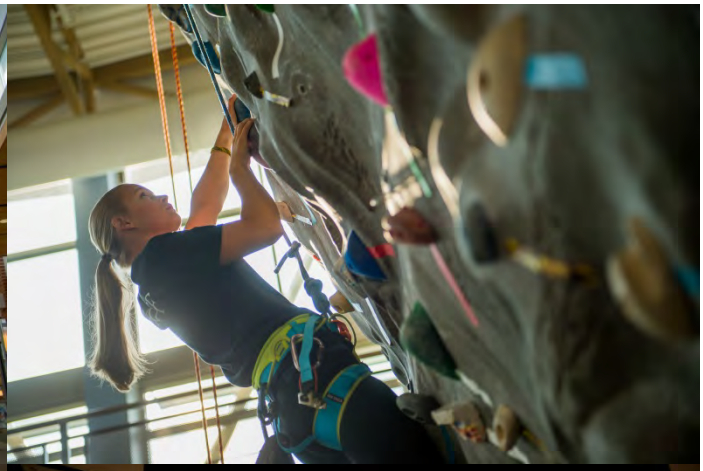
Student Health Clinic - The Health Clinic provides primary care for illnesses and injuries, laboratory diagnostics, reproductive health, physical examinations, immunizations, international travel health, and nutritional counseling to SDSU students. All SDSU students are eligible for services. Hours are Monday through Friday, 8 a.m.-5 p.m. when classes are in session. During summer and academic breaks limited appointments are available. For further information or to make an appointment call 605-688-4157. For more information, visit www.sdstate.edu/wellness-center/clinic.

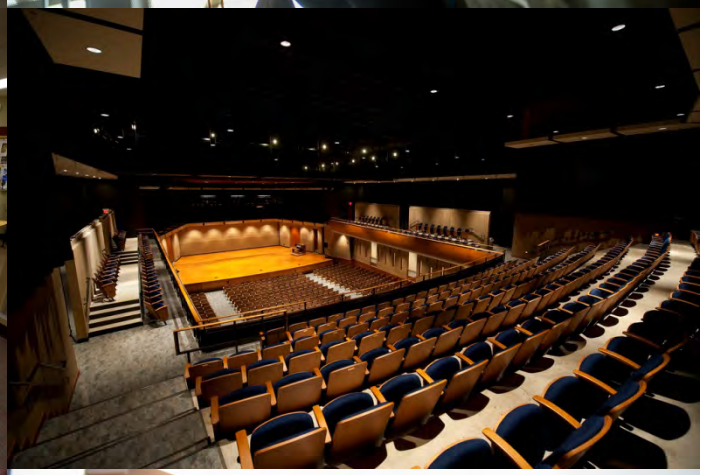
Jackrabbit Pharmacy -The Pharmacy serves all eligible SDSU students, faculty/staff, their family members, and Family Planning patients. The SDSU Jackrabbit Pharmacy accepts prescriptions from doctors outside of the student health clinic. We offer competitively priced over-the-counter and prescription medications along with discounted birth control. For more information, call 605-688-5410 or visit www.sdstate.edu/wellness-center/pharmacy.

Brookings Family Planning - The family planning services provide education, counseling, medical, and birth control services along with pregnancy testing and sexually transmitted Infections (STI) screenings. Cost of services is based on family income and size. Anyone (student or non-student) is eligible to receive these services. For more information or to make an appointment, call 605-688-6622 or visit www.sdstate.edu/wellness-center/family.

Counseling Services - Counseling Services provide individual and group counseling to students with emotional, behavioral, and/or academic concerns to promote retention and success at SDSU. Common issues include mood disorders, substance use/abuse, relationship concerns, and personal and professional growth. All SDSU students are eligible for services. Counselors are available for emergencies after hours during the school year by contacting UPD at 605-688-5117, who will then contact the counselor on-call. For further information, call 605-688-6146 or visit www.sdstate.edu/wellness-center/counseling.

Drug and Alcohol Abuse Prevention Programs - SDSU, through the Department of Student Health and Counseling Services, provides alcohol and drug abuse information and prevention programs to the campus community. Alcohol and drug abuse assessment is available on an individual basis. Counseling and medical services are available to students and referrals to other agencies are available to everyone on campus. For further information, call 605-688-6146 or 605-688-4157.





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College of Agriculture & Biological Sciences

Animal Science

Department Head: Professor Joseph Cassady
Graduate Coordinator: Professor Joseph Cassady

For additional information contact:

Mailing address:	SDSU Box 2170 Animal Science Complex – SAS 101	Phone: 605-688-5165 Fax: 605-688-6170
Website:	http://www.sdstate.edu/ars/	
E-mail:	Cheryl.Beste@sdstate.edu	

Graduate Faculty

Amanda Blair, Associate Professor
Rebecca C. Bott, Associate Professor
Derek Brake, Assistant Professor
Joseph Cassady, Department Head and Professor
Jeffrey A. Clapper, Professor
Robert Cushman, Adjunct Professor
Harvey Freetly, Adjunct Professor
Thomas Geary, Adjunct Professor
Michael Gonda, Associate Professor
Elaine Grings, Assistant Professor
Jeffrey Held, Professor
Crystal L. Levesque, Assistant Professor
Donald M. Marshall, Associate Dean and Professor
Kenneth C. Olson, Professor
George A. Perry, Professor
Robbi H. Pritchard, Distinguished Professor
Benoit St-Pierre, Assistant Professor
Robert C. Thaler, Professor
Keith R. Underwood, Associate Professor
Julie A. Walker, Associate Professor
Tofuko Woyengo, Assistant Professor
Cody L. Wright, Professor
Stacy Zuelly, Assistant Professor

Programs

Master's Degree

- Animal Science (M.S.)

Doctoral Degree

- Animal Science (Ph.D.)

Certificate

- Animal Science Certificate

Biological Sciences

Ph.D. Coordinator: Professor Donald M. Marshall
M.S. Coordinator: Professor Donald M. Marshall

For additional information contact:

Mailing address:	SDSU Box 2207 Academic Programs Office, SAG 156	Phone: 605-688-5133 Fax: 605-688-5582
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Graduate Faculty

Agricultural and Biosystems Engineering
Animal Science
Biology and Microbiology
Dairy Science
Natural Resource Management
Veterinary & Biomedical Sciences

Programs

Master's Degree

- Biological Sciences (M.S.)
  * Veterinary Microbiology Emphasis
  * Veterinary Pathology Emphasis
  - Biological Sciences (M.S.) - Biology Specialization
  - Biological Sciences (M.S.) - Dairy Science Specialization
  - Biological Sciences (M.S.) - Food Science Specialization
  - Biological Sciences (M.S.) - Microbiology Specialization

Doctoral Degree

- Biological Sciences (Ph.D.)
  - Biological Sciences (Ph.D.) - Agricultural and Biosystems Engineering Specialization
  - Biological Sciences (Ph.D.) - Biology Specialization
  - Biological Sciences (Ph.D.) - Dairy Science Specialization
  - Biological Sciences (Ph.D.) - Food Science Specialization
  - Biological Sciences (Ph.D.) - Microbiology Specialization
  - Biological Sciences (Ph.D.) - Molecular Biology Specialization
  - Biological Sciences (Ph.D.) - Plant Molecular Biology Specialization
  - Biological Sciences (Ph.D.) - Plant Science Specialization
  - Biological Sciences (Ph.D.) - Veterinary Microbiology Specialization
  - Biological Sciences (Ph.D.) - Veterinary Pathobiology Specialization

Biology and Microbiology

Department Head: Professor Volker Brozel
Graduate Coordinator: Professor Radhey Kaushik

For additional information contact:

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Graduate Faculty

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Bruce Bleakley, Professor
Volker Brozel, Department Head and Professor
Heike Bucking, Associate Professor
Charles D. Dieter, Professor
William Ray Gibbons, Professor
Susan A. Gibson, Professor
Michael Hildreth, Professor
Carol A. Johnston, Professor
Radhey Kaushik, Professor
Gary E. Larson, Professor
Feng Li, Professor
Wanlong Li, Associate Professor
Madhav Nepal, Assistant Professor
Scott Pedersen, Professor
R. Neil Reese, Professor
Jai Rohila, Assistant Professor
John J. Ruffolo, Professor Emeriti
Nels Troelstrup, Professor
Carol Wake, Professor
Xiuqing Wang, Professor
Thomas P. West, Professor
Yajun Wu, Associate Professor
Lan Xu, Associate Professor
Yang Yen, Professor

Programs

Master's Degree

- Biological Sciences (M.S.) - Biology Specialization
- Biological Sciences (M.S.) - Microbiology Specialization

Doctoral Degree

- Biological Sciences (Ph.D.) - Biology Specialization
- Biological Sciences (Ph.D.) - Microbiology Specialization
- Biological Sciences (Ph.D.) - Molecular Biology Specialization

Dairy Science

Department Head: Professor Vikram Mistry
Graduate Coordinator: Professor Vikram Mistry

For additional information contact:

Mailing address:	SDSU Box 2104 Alfred Dairy Science Hall — SDS 136	Phone: 605-688-4116 Fax: 605-688-6276
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Graduate Faculty

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Jill L. Anderson, Assistant Professor
David P. Casper, Assistant Professor
Joan Hegerfeld-Baker, Assistant Professor
Padmanaban Krishnan, Professor
Lloyd E. Metzger, Professor, and Alfred Chair in Dairy Education
Vikram V. Mistry, Department Head and Professor
Hasmukh A. Patel, Assistant Professor
Chunyang Wang, Professor

Programs

Master's Degree

- Biological Sciences (M.S.) - Dairy Science Specialization
- Biological Sciences (M.S.) - Food Science Specialization

Doctoral Degree

- Biological Sciences (Ph.D.) - Dairy Science Specialization
- Biological Sciences (Ph.D.) - Food Science Specialization

Economics

Department Head: Professor Eluned Jones
Graduate Coordinator: Professor Joseph M. Santos

For additional information contact:

Mailing address:	SDSU Box 504 Scobey Hall — SSB 138	Phone: 605-688-4141 Fax: 605-688-6386
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Matthew A. Diersen, Professor
Scott Fausti, Professor
Curtis Gustafson, Associate Professor
Larry Janssen, Professor
Eluned Jones, Department Head and Professor
Nicole Klein, Professor
George Langelett, Professor
Michael D Miller, Assistant Professor
Jamie O'Brien, Professor
Bashir Qasmi, Associate Professor
Joseph M. Santos, Professor
Gary Taylor, Associate Professor
Evert Van der Sluis, Professor
Zhiguang Wang, Assistant Professor
Jason Zimmerman, Professor

Programs

Master's Degree

- Economics (M.S.)

Natural Resource Management

Department Head: Professor Michele Dudash
Graduate Coordinator: Distinguished Professor Jonathan Jenks
Grassland Management Certificate Coordinator: Professor Alexander (Sandy) Smart

For additional information contact:

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Michael Brown, Distinguished Professor
Steven Chipps, Adjunct Professor
Charles Dieter, Professor
Roger Gates, Professor
Larry Gigliotti, Adjunct Assistant Professor
Brian Graeb, Associate Professor
Troy Grovenburg, Assistant Professor
Jonathan Jenks, Distinguished Professor
Kent Jensen, Associate Professor
Patricia Johnson, Professor

W. Carter Johnson, Distinguished Professor
Carol Johnston, Professor
Gary Larson, Professor
Lora Perkins, Assistant Professor
Alexander (Sandy) Smart, Professor
Joshua Stafford, Adjunct Associate Professor
Nels Troelstrup, Interim Department Head and Professor
Melissa Wuellner, Assistant Professor
Lan Xu, Associate Professor

Programs

Master's Degree

- Biological Sciences (M.S.)
- Wildlife and Fisheries Sciences (M.S.) - Fisheries Sciences
- Wildlife and Fisheries Sciences (M.S.) - Wildlife Sciences

Doctoral Degree

- Biological Sciences (Ph.D.)
- Wildlife and Fisheries Sciences (Ph.D.)

Certificate

- Grassland Management Certificate

Plant Science

Department Head: Professor David Wright
Graduate Coordinator: Professor Howard J. Woodard

For additional information contact:

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	Berg Agricultural Hall — SAG 244	Fax: 605-688-4602
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Dwayne Beck, Professor
Randy Anderson, Adjunct Professor
William Berzonsky, Adjunct
Arvid Boe, Professor
Rhoda L. Burrows, Professor
Melanie Caffe-Treml, Assistant Professor
C. Gregg Carlson, Professor Emeritus
David Clay, Professor
Sharon Clay, Professor
James Doolittle, Associate Vice President for Research and Professor
Anne Fennell, Professor
Bryan French, Adjunct Assistant Professor
Billy Fuller, Professor
Karl D. Glover, Professor
Jose Luis Gonzalez, Associate Professor
David Graper, Professor
Xingyou Gu, Professor
Louis Hesler, Adjunct Associate Professor
Guo-Liang Jiang, Adjunct Assistant Professor
Paul Johnson, Professor
Kevin D. Kephart, Vice President for Research and Professor
Padmanaban Krishnan, Professor
Sandeep Kumar, Assistant Professor
Marie Langham, Professor
Michael Lehman., Adjunct Assistant Professor
Jonathan Lundgren, Adjunct
Douglas Malo, Distinguished Professor
Febina Mathew, Assistant Professor
Michael Moechnig, Adjunct Associate Professor
Nathan Mueller, Adjunct Assistant Professor
Thandiwe Nleya, Associate Professor
Shannon Osborne, Adjunct Assistant Professor
Vance Owens, Professor
Walter Riedell, Adjunct Assistant Professor
Peter R. Schaefer, Professor
Thomas Schumacher, Professor Emeritus
Sunish Sehgal, Assistant Professor
Fedora Sutton, Adjunct Associate Professor
Peter Sexton, Associate Professor
Senthil Subramanian, Associate Professor
Kelley J. Tilmon, Associate Professor
E. Brent Turnipseed, Professor
Howard J. Woodard, Professor
David Wright, Department Head and Professor
Jixiang Wu, Associate Professor

Programs

Master's Degree

- Plant Science (M.S.)

Doctoral Degree

- Biological Sciences (Ph.D.) - Plant Molecular Biology Specialization
- Biological Sciences (Ph.D.) - Plant Science Specialization
- Plant Science (Ph.D.)

Veterinary & Biomedical Sciences

Department Head: Professor Jane Christopher-Hennings
Graduate Coordinator: Professor Christopher Chase

For additional information contact:

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Alan Erickson, Professor
Michael Hildreth, Professor
Larry Holler, Professor
Radhey Kaushik, Professor
Feng Li, Professor
Regg Neiger, Professor
Eric Nelson, Professor
Angela Pillatzki, Assistant Professor
Joy Scaria, Assistant Professor
Alan Young, Professor

Programs

Master's Degree

- Animal Science (M.S.)
- Biological Sciences (M.S.)
    - Veterinary Microbiology Emphasis
    - Veterinary Pathology Emphasis

Doctoral Degree

- Biological Sciences (Ph.D.) - Veterinary Microbiology Specialization
- Biological Sciences (Ph.D.) - Veterinary Pathobiology Specialization

US-ATH
EAGLE

RABBIT
DEN

School of Design

Director: Michael (Tim) Steele

For additional information contact:

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Graduate Faculty

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Randy Clark, Associate Professor
Richard (Cable) Hardin, Associate Professor
Scott Wallace, Professor

Coursework Only

Architecture

Department Head: Associate Professor Brian Rex

For additional information contact:

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E-mail:	brian.rex@sdstate.edu	

Graduate Faculty

Brian Rex, Department Head and Associate Professor
Charles MacBride, Assistant Professor

Programs

Master's Degree

- Architecture (M.Arch.)

Chemistry and Biochemistry

Department Head: Professor James A. Rice
Graduate Coordinator: Professor James A. Rice

For additional information contact:

Mailing address:	SDSU Box 2202 Avera Health Science Center — SAV 131	Phone: 605-688-5154 Fax: 605-688-6364
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Jihong Cole-Dai, Professor
Tanya Gupta, Assistant Professor
Fathi Halaweish, Professor
Adam Hoppe, Associate Professor
Surtaj Iram, Assistant Professor
Linhong Jing, Assistant Professor
Brian Logue, Associate Professor
Matt Miller, Associate Professor
Doug Raynie, Associate Research Professor
James A. Rice, Department Head and Professor
John Robinson, Assistant Professor
Jay S. Shore, Associate Professor

Programs

Master's Degree

- Chemistry (M.S.)
- Chemistry (M.S.) - Chemical Education Specialization

Doctoral Degree

- Biochemistry (Ph.D.)
- Chemistry (Ph.D.)

Communication Studies and Theatre

Department Head: Professor Laurie L. Haleta
Graduate Coordinator: Assistant Professor Rebecca Kuehl

For additional information contact:

Mailing address:	SDSU Box 2218 Pugsley Center — SPC 115	Phone: 605-688-6131 Fax: 605-688-6551
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Melissa Hauschild-Mork, Assistant Professor
Karla Hunter, Assistant Professor
Rebecca Kuehl, Assistant Professor
Corey Shelsta, Professor
Elizabeth Tolman, Professor
Joshua Westwick, Assistant Professor
Lonnie Wilburn, Associate Professor
William J. Wood, Assistant Professor

Programs

Master's Degree

- Communication Studies and Journalism (M.S.) - Communication Studies Specialization

English

Department Head: Professor Jason McEntee
Graduate Coordinator: Assistant Professor Sharon Smith

For additional information contact:

Mailing address:	SDSU Box 2218 Pugsley - 301	Phone: 605-688-5191 Fax: 605-688-5192
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Kathleen Danker, Professor
Kathleen Donovan, Associate Dean and Professor
Nicole Flynn, Assistant Professor
Michael Keller, Professor
Jason McEntee, Department Head and Professor
Kathy Malone, Assistant Professor
Michael Nagy, Associate Professor
Sharon Smith, Assistant Professor
Christine Stewart, Associate Professor
John Taylor, Professor
Steven Wingate, Assistant Professor

Programs

Master's Degree

- English (M.A.)

Geography

Department Head: Professor George W. White
Graduate Coordinator: Professor Darrell E. Napton

For additional information contact:

Mailing address:	SDSU Box 504 109 Wecota Hall	Phone: 605-688-4511 Fax: 605-688-4030
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Trisha Jackson, Assistant Professor
Yan Lin, Assistant Professor
Thomas Loveland, Adjunct Professor
Darrell E. Napton, Professor
Robert Watrel, Associate Professor
George W. White, Department Head and Professor

Programs

Master's Degree

- Geography (M.S.)

Doctoral Degree

- Geospatial Science and Engineering (Ph.D.) - Remote Sensing Geography Specialization

History, Political Science, Philosophy and Religion

Department Head: Associate Professor William Prigge

For additional information contact:

Mailing address:	SDSU Box 510 West Hall — SWH 109	Phone: 605-688-4311
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Graduate Faculty

Thomas Agostini, Assistant Professor
Julie Lane, Assistant Professor
Arthur James Murphy, Assistant Professor
Gregory R. Peterson, Professor
Dale Potts, Assistant Professor
Charles Vollan, Associate Professor
Dave Wiltse, Assistant Professor
Evren Wiltse, Assistant Professor
Graham Wrightson, Assistant Professor

Coursework Only

Journalism and Mass Communication

Department Head: Professor Mary Arnold
Graduate Coordinator: Professor Lyle D. Olson (On-Campus Master Program)
Online Graduate Program Advisor: Assistant Professor Rocky Dailey (Online Masters in Mass Communication)

For additional information contact:

Mailing address:	SDSU Box 2235 Yeager Hall — SYE 211	Phone: 605-688-4171 Fax: 605-688-5034
Website:	www.sdstate.edu/mcom	
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Graduate Faculty

Mary Arnold, Department Head and Professor
Rebecca Britt, Assistant Professor
Rocky Dailey, Assistant Professor
Lyle D. Olson, Professor

Programs

Master's Degree

- Communication Studies and Journalism (M.S.) - Journalism Specialization
- Mass Communication (M.M.C.)

Certificate

- Health Journalism Certificate

Modern Languages and Global Studies

Interim Department Head: Professor Laurie L. Haleta

For additional information contact:

Mailing address:	SDSU Box 2275 Wagner Hall — SWG 121	Phone: 605-688-5101 Fax: 605-688-6699
Website:	www.sdstate.edu/mfl	
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Graduate Faculty

Marie-Pierre Baggett, Professor
Eckhard Rolz, Professor

Coursework Only

Music

Department Head: Professor David Reynolds

For additional information contact:

Mailing address:	SDSU Box 2212 Lincoln Music Hall — SLM 205	Phone: 605-688-5188 Fax: 605-688-4307
Website:	www.sdstate.edu/mus	
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Graduate Faculty

David Reynolds, Department Head and Professor

Coursework Only

Physics

Department Head: Professor Joel Rauber

For additional information contact:

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Graduate Faculty

Larry Browning, Professor
Yung Moo Huh, Associate Professor
Parashu Kharel, Assistant Professor
Robert McTaggart, Associate Professor
Joel Rauber, Department Head and Professor

Coursework Only

Psychology

Department Head: Professor Brad Woldt

For additional information contact:

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Graduate Faculty

Brady Phelps, Professor
Debra Spear, Professor
Bradley Woldt, Department Head and Professor

Coursework Only

Sociology and Rural Studies

Department Head: Professor Mary Emery
Graduate Coordinator: Professor Meredith Redlin

For additional information contact:

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Graduate Faculty

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Mary Emery, Department Head and Professor
Jacob Jantzer, Lecturer
Jeffrey Jacquet, Assistant Professor
Diane Kayongo-Male, Professor
Meredith Redlin, Professor
Jessica Ulrich-Shad, Assistant Professor
Julie Yingling, Assistant Professor
Weiwei Zhang, Assistant Professor

Programs

Master's Degree

- Sociology (M.S.)
- Sociology (M.S.) - Community Development Specialization

Doctoral Degree

- Sociology (Ph.D.)

Certificate

- Native Communities and Economic Development Certificate

College of Education & Human Sciences

Athletic Training

Department Head: Professor Matthew Vukovich
Graduate Coordinator: Assistant Professor Trevor Roiger

For additional information contact:

Mailing address:	SDSU Box 2203	Phone: 605-688-4668
	Intramural Building 116	Fax: 605-688-6110
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Graduate Faculty

Bernadette Olson, Associate Professor
Trevor Roiger, Assistant Professor
Matthew Vukovich, Department Head and Professor
Mary Beth Zwart, Assistant Professor

Programs

Master's Degree

- Athletic Training (M.S.)

Counseling and Human Development

Department Head: Professor Jay Trenhaile
Graduate Coordinator: Professor Jay Trenhaile
University Center - Rapid City: Stephen Saiz

For additional information contact:

Mailing address:	SDSU Box 507	Phone: 605-688-4190
	Wenona Hall — SWE 312	Fax: 605-688-5929
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William Briddick, Associate Professor
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Ann Michelle Daniels, Associate Professor
Alan Davis, Professor
Ruth Harper, Professor
Mary Kay Helling, Associate Vice President for Academic Affairs and Professor
Gregory Howard, Lecturer
Sun Woo Kang, Assistant Professor
Amber Letcher, Assistant Professor
Renee Oscarson, Associate Professor
Marysz Palczewski Rames, Vice President for Student Affairs and Assistant Professor
Howard Smith, Associate Dean and Professor Emeritus
Jay Trenhaile, Department Head and Professor

Programs

Master's Degree

- Counseling and Human Resource Development (M.Ed.) - Administration of Student Affairs Specialization
- Counseling and Human Resource Development (M.S.) - Clinical Mental Health Counseling Specialization
- Counseling and Human Resource Development (M.S.) - College Counseling Specialization
- Counseling and Human Resource Development (M.S.) - Marriage and Family Counseling Specialization
- Counseling and Human Resource Development (M.S.) - Rehabilitation and Mental Health Counseling Specialization
- Counseling and Human Resource Development (M.S.) - School Counseling Specialization
- Human Sciences (M.S.) - Adult Development in the Workplace Specialization
- Human Sciences (M.S.) - Family and Community Services Specialization

Dietetics

Department Head: Professor Matthew Vukovich
Graduate Coordinator: Professor Kendra Kattelmann

For more information contact:

Mailing address:	SDSU	Phone: 605-688-*5161*
	SIM 116, Box 2203	Fax: 605-688-5603
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Graduate Faculty

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Kendra Kattelmann, Professor
Lacey McCormack, Assistant Professor
Matthew Vukovich, Department Head and Professor

Programs

Master's Degree

- Dietetics (M.S.)

Human Sciences

Dean: Professor Jill Thorngren
Program Head and Graduate Coordinator (Human Sciences): Professor Jane Hegland

For additional information contact:

Mailing address:	SDSU Box 2275A	Phone: 605-688-6181	
	SWG Wagner Hall 369	Fax: 605-688-4439	
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	soohyun.cho@sdstate.edu		Family Financial Planning Specialization; Financial and Housing Counseling Certificate
	susan.strickler@sdstate.edu		Merchandising Specialization
	jay.trenhaile@sdstate.edu		Adult Development in the Workplace Specialization; Family and Community Services Specialization

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Kay Cutler, Associate Professor
Ann Michelle Daniels, Associate Professor
Debra DeBates, Professor
DeAnna Gilkerson, Professor
Jane Hegland, Associate Dean, Department Head and Professor

Mary Kay Helling, Associate Vice President for Academic Affairs and Professor
Carrie Johnson, Assistant Professor and Extension Specialist
Sun Woo Kang, Assistant Professor
Amber Letcher, Assistant Professor
Nancy Lyons, Associate Professor
Laurie Stenberg Nichols, Provost, Vice President for Academic Affairs and Professor
Renee Oscarson, Associate Professor
Lorna Saboe-Wounded Head, Assistant Professor
Andrew Stremmel, Department Head and Professor
JeongHee Yeo, Assistant Professor

Programs

Master's Degree

- Human Sciences (M.S.) - Adult Development in the Workplace Specialization
- Human Sciences (M.S.) - Family and Community Services Specialization
- Human Sciences (M.S.) - Family and Consumer Sciences Education Specialization
- Human Sciences (M.S.) - Family Financial Planning Specialization
- Human Sciences (M.S.) - Merchandising Specialization

Certificate

- Family Financial Planning Certificate
- Financial and Housing Counseling Certificate
- Merchandising Certificate

Nutrition and Exercise Sciences

Department Head: Professor Matthew Vukovich
Graduate Coordinator: Professor Matthew Vukovich

For additional information contact:

Mailing address:	SDSU Box 2203 Intramural Building 116	Phone: 605-688-4668 Fax: 605-688-6110
Website:	www.sdstate.edu/hns/graduate-programs/ms-nutritional-sciences	
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Graduate Faculty

Moul Dey, Associate Professor
Elizabeth Droke, Associate Professor
Kendra K. Kattelmann, Professor
Lacey McCormack, Assistant Professor
Jessica Meendering, Associate Professor
Bernadette Olson, Associate Professor
Trevor Roiger, Assistant Professor
Igor Sergeev, Professor
Bonny L. Specker, Professor
Matthew Vukovich, Department Head/Professor
C.Y. Wang, Associate Dean and Professor
Gary Van Guilder, Assistant Professor
Mary Beth Zwart, Assistant Professor

Programs

Master's Degree

- Nutrition and Exercise Sciences (M.S.) - Dietetics and Nutrition Specialization
- Nutrition and Exercise Sciences (M.S.) - Exercise Science Specialization
- Nutrition and Exercise Sciences (M.S.) - Nutritional Science Specialization

Doctoral Degree

- Nutrition and Exercise Sciences (Ph.D.)

Certificate

- Transdisciplinary Childhood Obesity Prevention Certificate

Sport and Recreation Studies

Department Head: Professor Matthew Vukovich
Graduate Coordinator: Professor Matthew Vukovich

For additional information contact:

Mailing address:	SDSU Box 2203 Intramural Building 116	Phone: 605-688-4668 Fax: 605-688-6110
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Graduate Faculty

Patty Hacker, Professor
Bernadette Olson, Associate Professor
Trevor Roiger, Assistant Professor
Matthew Vukovich, Department Head/Professor
Mary Beth Zwart, Assistant Professor

Programs

Master's Degree

- Sport and Recreation Studies (M.S.)

Teaching, Learning, and Leadership

Department Head: Professor Andrew Stremmel
Graduate Coordinator: Associate Professor Kenneth S. Rasmussen

For additional information contact

Mailing address:	SDSU Box 507 Wenona Hall — SWE 108	Phone: 605-688-6815
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Graduate Faculty

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Mary Bowne, Associate Professor
Kay Cutler, Professor
Ralph Erion, Professor
Patty Hacker, Professor
Jennifer Kampmann, Assistant Professor
Jeongmi Kim, Assistant Professor
Mary Moeller, Associate Professor
Christine Nganga, Assistant Professor
Kenneth Rasmussen, Associate Professor
Scott Smalley, Assistant Professor
Andrew Stremmel, Department Head and Professor
Jen Weber, Instructor

Programs

Master's Degree

- Agricultural Education (M.S.)
- Curriculum and Instruction (M.Ed.) - Adult and Higher Education Specialization
- Curriculum and Instruction (M.Ed.) - Early Childhood Education Specialization
- Curriculum and Instruction (M.Ed.) - Elementary Education Specialization
- Curriculum and Instruction (M.Ed.) - Secondary Education Specialization
- Educational Administration (M.Ed.) - Elementary Education Specialization
- Educational Administration (M.Ed.) - Secondary Education Specialization

Jerome J. Lohr College of Engineering

Agricultural and Biosystems Engineering

Department Head: Associate Professor Van C. Kelley
Graduate Coordinator: Distinguished Professor Kasiviswanathan Muthukumarappan

For additional information contact:

Mailing address:	SDSU Box 2120 Agricultural Engineering - SAE 107	Phone: 605-688-5141 Fax: 605-688-6764
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Graduate Faculty

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Erin L. Cortus, Assistant Professor
Zhengrong Gu, Assistant Professor
Christopher H. Hay, Assistant Professor
Daniel S. Humburg, Professor
James L. Julson, Professor
Van C. Kelley, Department Head and Associate Professor
Kasiviswanathan Muthukumarappan, Distinguished Professor
Dennis P. Todey, Associate Professor
Todd P. Trooien, Professor
Lin Wei, Assistant Research Professor

Programs

Master's Degree

- Agricultural and Biosystems Engineering (M.S.)

Doctoral Degree

- Agricultural, Biosystems and Mechanical Engineering (Ph.D.)
- Biological Sciences (Ph.D.) - Agricultural and Biosystems Engineering Specialization

Certificate

- Bioenergy and Sustainable Technology Certificate

Agricultural, Biosystems and Mechanical Engineering

ABE Department Head: Associate Professor Van C. Kelley
ME Department Head: Professor Kurt Bassett
ABE Graduate Coordinator: Distinguished Professor Kasiviswanathan Muthukumarappan
ME Graduate Coordinator: Professor Zhong Hu

For additional information contact:

Agriculture and Biosystems Engineering

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Mechanical Engineering

Mailing address:	SDSU Box 2219 Crothers Engineering Hall 216	Phone: 605-688-5426 Fax: 605-688-5878
Website:	www.sdstate.edu/me	
E-mail:	Zhong.Hu@sdstate.edu	

Graduate Faculty

Michael F. Adelaine, Vice President for Technology & Safety and Professor
Gary A. Anderson, Professor
Kurt Bassett, Department Head and Professor
Erin L. Cortus, Assistant Professor
Fereidoon Delfanian, Professor
Jikai Du, Assistant Professor
Stephen Gent, Assistant Professor
Zhengrong Gu, Assistant Professor
Christopher H. Hay, Assistant Professor
Zhong Hu, Professor
Daniel S. Humburg, Professor
James L. Julson, Professor
Van C. Kelley, Department Head and Associate Professor
Todd Letcher, Assistant Professor
Gregory Michna, Assistant Professor
Kasiviswanathan Muthukumarappan, Distinguished Professor
Dennis P. Todey, Associate Professor
Todd P. Trooien, Professor
Lin Wei, Assistant Research Professor

Programs

Doctoral Degree

- Agricultural, Biosystems and Mechanical Engineering (Ph.D.)

Civil Engineering

Department Head: Professor Nadim Wehbe
Graduate Coordinator: Professor Suzette Burckhard

For additional information contact:

Mailing address:	SDSU Box 2219 Crothers Engineering Hall	Phone: 605-688-5427 Fax: 605-688-6476
Website:	www.sdstate.edu/cvlee	
E-mail:	suzette.burckhard@sdstate.edu	

Graduate Faculty

Suzette Burckhard, Professor
Guanghui Hua, Assistant Professor
Allen Jones, Professor
Hesham Mahgoub, Associate Professor
Xiao Qin, Associate Professor
Richard A. Reid, Associate Dean and Professor
Christopher G. Schmit, Professor
Francis C.K. Ting, Professor
Nadim Wehbe, Department Head and Professor

Programs

Master's Degree

- Civil Engineering (M.S.)

Doctoral Degree

- Civil Engineering (Ph.D.)

Computer Science

Department Head: Professor Steven Hietpas
Graduate Coordinator: Professor Sung Shin

For additional information contact:

Mailing address:	SDSU Box 2222	Phone: 605-688-5719
	Administration — EECS 214	Fax: 605-688-4401
Website:	www.sdstate.edu/eecs/cs	
E-mail:	sdsu.eecs@sdstate.edu	

Graduate Faculty

Robert Fourney, Associate Professor
George Hamer, Associate Professor
Yi Liu, Associate Professor
Manki Min, Associate Professor
Ali Salehnia, Professor
Sung Y. Shin, Professor

Programs

Master's Degree

- Computer Science (M.S.)

Construction and Operations Management

Department Head: Professor Teresa Hall
Graduate Coordinator: Professor Huitian Lu

For additional information contact:

Mailing address:	SDSU Box 2223	Phone: 605-688-6417
	Solberg Hall SSO 116	Fax: 605-688-5041
Website:	www.sdstate.edu/com/graduate-programs	
E-mail:	huitian.lu@sdstate.edu	

Graduate Faculty

Teresa Hall, Department Head and Professor
Ross Kindermann, Professor
Ekaterina Koromyslova, Assistant Professor
Huitian Lu, Professor
Carrie Steinlicht, Senior Lecturer

Programs

Master's Degree

- Operations Management (M.S.)

Certificate

- Management Foundations Certificate
- Systems Management Certificate

Electrical Engineering

Department Head: Professor Steven Hietpas
Graduate Coordinator: Associate Professor Qiquan Qiao

For additional information contact:

Mailing address:	SDSU Box 2222	Phone: 605-688-4526
	SDEH 214	Fax: 605-688-4401
Website:	www.sdstate.edu/eecs/ee/graduate	
E-mail:	sdsu.eecs@sdstate.edu	

Graduate Faculty

Lewis F. Brown, Dean of College of Engineering and Professor
Qi Hua Fan, Associate Professor
Robert Fourney, Associate Professor
Dennis L. Helder, Associate Dean of Research and Distinguished Professor
Steven M. Hietpas, Department Head and Professor
Qiquan Qiao, Associate Professor
Songxin Tan, Associate Professor
Reinaldo Tonkoski, Assistant Professor
Wei Sun, Assistant Professor

Programs

Master's Degree

- Electrical Engineering (M.S.)

Doctoral Degree

- Electrical Engineering (Ph.D.)

Geospatial Science and Engineering

Graduate Coordinator: Professor Michael Wimberly

For additional information contact:

Mailing address:	SDSU Box 506B	Phone: 605-688-5350
	Wecota Hall – SWC 115	Fax: 605-688-5227
E-mail:	Michael.Wimberly@sdstate.edu	

Graduate Faculty

Suzette R. Burckhard, Professor
Mark A. Cochrane, Professor
Kevin Gallo, Adjunct Professor
Alisa L. Gallant, Adjunct Professor
Niall P. Hanan, Professor
Dennis Helder, Associate Dean of Research and Professor
Geoffrey M. Henebry, Professor
Trisha Jackson, Assistant Professor
Carol Johnston, Professor
Yan Lin, Assistant Professor
Shuguang (Leo) Liu, Adjunct Professor
Thomas R. Loveland, Adjunct Professor
Darrell Napton, Professor
David P. Roy, Professor
Gabriel Senay, Adjunct Professor
Dennis Todey, Associate Professor
Jim Vogelmann, Adjunct Professor
Michael C. Wimberly, Professor
Xiaoyang Zhang, Professor

Programs

Doctoral Degree

- Geospatial Science and Engineering (Ph.D.)
- Geospatial Science and Engineering (Ph.D.) - Remote Sensing Engineering Specialization
- Geospatial Science and Engineering (Ph.D.) - Remote Sensing Geography Specialization

Mathematics and Statistics

Department Head: Professor Kurt D. Cogswell
Graduate Coordinator: Associate Professor Donald Vestal

For additional information contact:

Mailing address:	SDSU Box 2220C Architecture, Mathematics and Engineering 209	Phone: 605-688-6196 Fax: 605-688-6814
Website:	www.sdstate.edu/mathstat	
E-mail:	donald.vestal@sdstate.edu	

Graduate Faculty

Ross P. Abraham, Professor
Matthew Biesecker, Associate Professor
Thomas Brandenburger, Assistant Professor
Kurt D. Cogswell, Department Head and Professor
Gemechis Djira, Associate Professor
Donna Flint, Professor
Xijin Ge, Associate Professor
Gary Hatfield, Assistant Professor
Daniel Kemp, Professor
Jung-Han Kimn, Associate Professor
Ross Kindermann, Professor
Christine Larson, Professor
Cedric Neumann, Assistant Professor
Yunpeng Pan, Assistant Professor
Chris Saunders, Assistant Professor
Daniel J. Schaal, Professor
Robert C. Schmidt, Professor
Donald Vestal, Associate Professor
Sharon Vestal, Associate Professor

Programs

Master's Degree

- Data Science (M.S.)
- Mathematics (M.S.)
- Mathematics (M.S.) - Statistics Specialization
- Statistics (M.S.)

Doctoral Degree

- Computational Science and Statistics (Ph.D.)

Mechanical Engineering

Department Head: Professor Kurt Bassett
Graduate Coordinator: Associate Professor Zhong Hu

For additional information contact:

Mailing address:	SDSU Box 2219 SCEH 216	Phone: 605-688-5426 Fax: 605-688-5878
Website:	www.sdstate.edu/me/graduate-program	
E-mail:	zhong.hu@sdstate.edu	

Graduate Faculty

Kurt Bassett, Department Head and Professor
Fereidoon Delfanian, Professor
Jikai Du, Assistant Professor
Shawn Duan, Professor
Stephen Gent, Assistant Professor
Zhong Hu, Professor
Todd Letcher, Assistant Professor
Gregory Michna, Assistant Professor

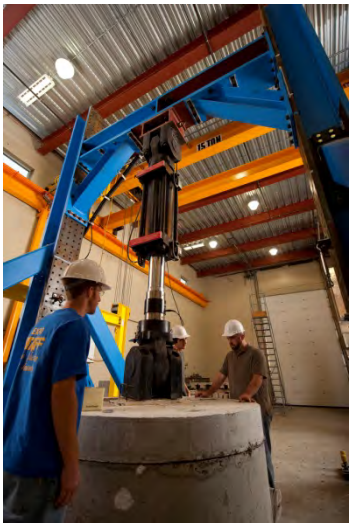
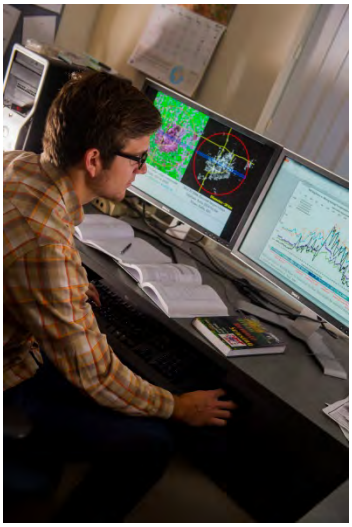
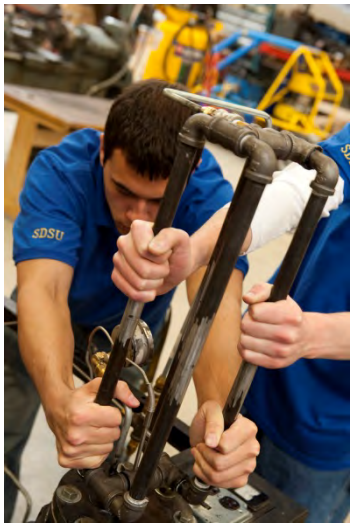
Programs

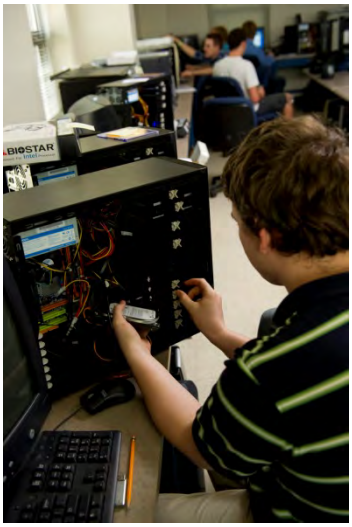
Master's Degree

- Mechanical Engineering (M.S.)

Doctoral Degree

- Agricultural, Biosystems and Mechanical Engineering (Ph.D.)



Graduate School

Dean: Kinchel C. Doerner

For additional information contact:

Mailing address:	SDSU Box 2201	Phone: 605-688-4181
	Administration Building — SAD 130	Fax: 605-688-6167
Website:	www.sdstate.edu/graduate	
E-mail:	gradschool@sdstate.edu	

Graduate Faculty

Kinchel C. Doerner, Dean of the Graduate School/Professor

College of Nursing

Associate Dean of Graduate Nursing: Associate Professor Mary Minton

For additional information contact:

Mailing address:	SDSU Box 2275	Phone: 605-688-4114
	SWG Wagner Hall 255	Fax: 605-688-5827
Website:	www.sdstate.edu/nurs/programs/graduate	
E-mail:	SDSU.gradnursing@sdstate.edu	

Graduate Faculty

Robin Arends, Clinical Assistant Professor
Deborah K. Banik, Assistant Professor
Victoria Britson, Assistant Professor
Linda Burdette, Assistant Professor
Paula Carson, Associate Professor
Gloria Craig, Professor
Cynthia Elverson, Associate Professor
Nancy Fahrenwald, Dean and Professor
Kay Foland, Professor
Nicole Gibson, Clinical Assistant Professor
S. Jo Gibson, Clinical Assistant Professor
Margaret Hegge, Distinguished Professor Emerita
Lori Hendrickx, Professor
Linda Herrick, Associate Dean Undergraduate Nursing and Professor
Barbara Hobbs, Assistant Dean West River Nursing and Associate Professor
Polly Hulme, Professor
Mary Isaacson, Assistant Professor
Cristina Lammers, Associate Professor
Heidi Mennenga, Assistant Professor
Mary Minton, Associate Dean Graduate Nursing and Associate Professor
Marylou Mylant, Professor
Roberta Olson, Dean and Professor Emerita
Robin Peterson-Lund, Assistant Professor
Rebecca Randall, Assistant Professor
Shirley Roddy, Adjunct Assistant Professor
Thomas Stenvig, Associate Professor
Lois Tschetter, Assistant Dean Undergraduate Nursing and Associate Professor
Jo Voss, Associate Professor
Howard Wey, Associate Professor

Programs

Master's Degree

- Nursing (M.S.) - Clinical Nursing Leadership Specialization
- Nursing (M.S.) - Family Nurse Practitioner Specialization
- Nursing (M.S.) - Nurse Educator Specialization

Doctoral Degree

- Nursing (Ph.D.)

Professional Doctoral Degree

- Doctor of Nursing Practice (D.N.P.) (Post Master to D.N.P. - NPs, CRNAs, CNSs, and CNMs)
- Doctor of Nursing Practice (D.N.P.) - Family Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Family Nurse Practitioner Specialization (Post Master to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Family Psychiatric and Mental Health Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Neonatal Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Pediatric Clinical Nurse Specialist Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Pediatric Nurse Practitioner Specialization (B.S.N. to D.N.P.)

Certificate

- Post Master Clinical Nurse Leadership Certificate
- Post Master Family Nurse Practitioner Certificate
- Post Master Nursing Educator Certificate

College of Pharmacy

Dean: Professor Dennis D. Hedge
Associate Dean for Academic Programs: Professor Jane Mort
Assistant Dean of Research: Professor Xiangming Guan
Assistant Dean for Student Services: Associate Professor Daniel Hansen
Pharmaceutical Sciences Department Head: Professor Omathanu Perumal
Pharmacy Practice Department Head: Professor James Clem

For additional information regarding the Master of Public Health program contact:

Mailing address:	SDSU Box 2202C Pharmacy — SAV 249	Phone: 605-688-6347
Website:	www.sdstate.edu/mph	

For additional information regarding the Doctor of Pharmacy program contact:

Mailing address:	SDSU Box 2202C Pharmacy — SAV 133	Phone: 605-688-6197 or 605-688-5598
Website:	www.sdstate.edu/pha	Fax: 605-688-6232 or 605-688-5993
E-mail:	dan.hansen@sdstate.edu	

For additional information regarding the Ph.D. in Pharmaceutical Sciences program contact:

Mailing address:	SDSU Box 2202C Pharmacy — SAV 275	Phone: 605-688-6197 or 605-688-5598
Website:	www.sdstate.edu/pha	Fax: 605-688-6232 or 605-688-5993
E-mail:	xiangming.guan@sdstate.edu	

Graduate Faculty

Gudiseva Chandrasekher, Associate Professor
James Clem, Department Head and Professor
Hesham Fahmy, Associate Professor
Debra K. Farver, Professor
Xiangming Guan, Assistant Dean of Research and Professor
Jayarama Gunaje, Associate Professor
Dennis Hedge, Dean and Professor
Jodi Heins, Professor
David L. Helgeland, Professor
Zhu-Qiu Jin, Assistant Professor
Brad Laible, Professor
Kimberly Messerschmidt, Professor
Jane Mort, Associate Dean for Academic Programs and Professor
Omathanu Perumal, Department Head and Professor
Shafiqur Rahman, Professor
Teresa Seefeldt, Associate Professor
Hemachand Tummala, Associate Professor

Programs

Master's Degree

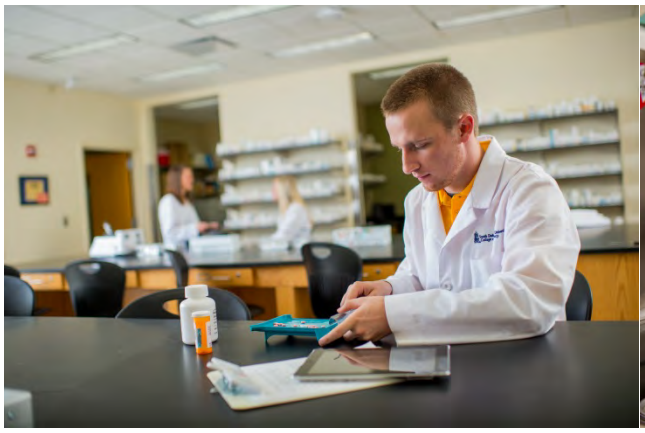
- Public Health (M.P.H.)

Doctoral Degree

- Pharmaceutical Sciences (Ph.D.)

Professional Doctoral Degree

- Pharmacy (Pharm.D.)



Off-Campus & Distance Programs **47**

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Office of Continuing and Distance Education
Box 2115, Brookings, SD 57007
E-mail: distance@sdstate.edu
www.continuinged.sdstate.edu

The Office of Continuing and Distance Education works to broaden the reach of SDSU, with a commitment to providing quality education no matter where students reside. The office serves students on campus and across the globe. In addition to online education, the Office of Continuing and Distance Education coordinates the program offerings at several off-campus locations. The University Centers effectively extend the reach of SDSU by offering the same quality education to students who want to earn their degree while living and working in their home community.

Summer Term

SDSU offers a wide range of courses on and off-campus to continue your studies during the summer months as well as numerous special workshops, short courses, distance education classes, 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.

University Center - Sioux Falls

(South Dakota Public Universities and Research Center)

South Dakota State University, through University Center in Sioux Falls, provides college coursework and degree programs in Sioux Falls. University Center is designed to serve the needs of students in the Sioux Falls area. The course content, number and contact hours are the same as the identical course taught on campus. However, a typical three-credit course will meet for three hours one day or night per week rather than one hour three days per week. Coursework is offered during the fall, spring, and summer terms. The start and end of term for summer at University Center is different from the dates of summer term on campus.

The majors offered in Sioux Falls include General Studies (A.A), Consumer Affairs, General Studies (B.G.S.), Human Development and Family Studies, Interdisciplinary Studies, Nursing, Psychology, and Sociology at the undergraduate level. A Master's degrees in Nursing is offered. Students in all majors may complete their general education core in Sioux Falls at University Center.

Capital University Center

The Capital University Center in Pierre was established by the people of Central South Dakota in 1982 to provide opportunities in higher education for the people of the region. In 1983, CUC and South Dakota State University entered into an agreement to enhance educational opportunities for residents of Central South Dakota through the offering of courses designed to transfer to degree-granting institutions of higher education. In 2003, CUC was fully merged into the SD Board of Regents System. SDSU offers at CUC the Associate of Arts degree in General Studies, the Bachelor of General Studies, and the Bachelor of Science degree with a major in Interdisciplinary Studies, as well as a variety of general education courses and non-credit programs.

Black Hills State University - Rapid City

Black Hills State University in Rapid City provides both undergraduate and graduate offerings. Undergraduate programs include the Bachelor of Science in Interdisciplinary Studies, Bachelor of General Studies, and Bachelor of Science in Nursing. In addition to undergraduate offerings, the College of Education and Human Sciences offers Master of Education and Master of Science programs in Educational Administration and Counseling in Rapid City. These programs serve the military personnel, teachers, administrators, and counselors in Western South Dakota. SDSU coordinates its West River activities with other Regental universities serving the area.

Distance Education

South Dakota State University offers undergraduate and graduate courses using various distance education technologies. Utilizing the DDN (Digital Dakota Network), two-way audio and video classes allow students to actively participate in classroom activities while attending at a location more convenient to the student. South Dakota State University also offers Internet-based courses for students wishing a more flexible schedule. The Internet courses are similar to on campus courses, and students receive the same credit for completing an Internet course as they would for an on campus course. The Electronic University Consortium (EUC) of South Dakota is a single point of contact for information and access to distance education and training available from the six South Dakota public universities. Based upon more than 80 years of effective off-campus education, South Dakota State University is committed to serving:

- Working adults
- Part-time students
- Time- and place-bound individuals
- K-12 students, teachers and administrators
- Employees seeking career development skills
- Government and military personnel
- Persons with disabilities

Every year, several thousand students enroll in the 19 degree-programs, 8 certificate programs and 250+ courses that SDSU offers online. These often require little more than an internet connection, a book or two, and a motivated, responsible student.

For more information concerning distance education call toll free at 866-827-3198, or go to the Distance Education website at http://distance.sdstate.edu/.

Outreach Programs

South Dakota State University has a long tradition of, and responsibility for, delivering a variety of outreach efforts to locations across the state, region, and world. These include educational services to University Center in Sioux Falls, the University Center in Rapid City, the Capital University Center in Pierre (CUC), Nursing Upward Mobility, and numerous other distance education classes, workshops, and services.

The Office of Continuing and Distance Education provides coordination and support for off-campus educational programs and serves as a conduit for the University's service mission to citizens of South Dakota, the region and world. Outreach Programs are designed to deliver both state- and self-support education through on-site or distance education credit courses, non-credit conferences, short courses, and workshops.

Credit Programs - Academic standards and policies governing off-campus and technology communicated 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 and many courses are available by distance education. Additional locations are added as need and enrollment indicates.

The Office of Continuing and Distance Education provides opportunities for individuals to participate in professional development and personal enrichment activities throughout the year. Continuing and Distance Education offers a number of Continuing Education Units (CEUs), tax update workshops, and partners with Osher Lifelong Learning Institute (OLLI) to offer short-term, non-credit classes.

State Authorization

Colleges and Universities who offer certain services to out-of-state students may be required to request authorization in the states whose students they serve. SDSU is intent on complying with all state regulations and will apply for authorization, when necessary, from those states where it conducts activities such as delivery of online courses, placement for field experiences (internships, clinicals, practicums, etc.) academic and athletic recruiting, marketing, etc. For details and information go to the Distance Education website at http://distance.sdstate.edu.

Notification of Complaint Process for Program Integrity

Any person may file the complaint with the Executive Director of the South Dakota Board of Regents to obtain a review and appropriate action on allegations that an institution governed by the Board:

- Violated South Dakota consumer protection laws;
- Engaged in fraud or false advertising;
- Violated South Dakota laws relating to the licensure of postsecondary institutions or programs;
- Failed to provide an educational program meeting contemporary standards for content and rigor;
- Failed to assign qualified instructors; or
- Violated one or more accreditation requirements.

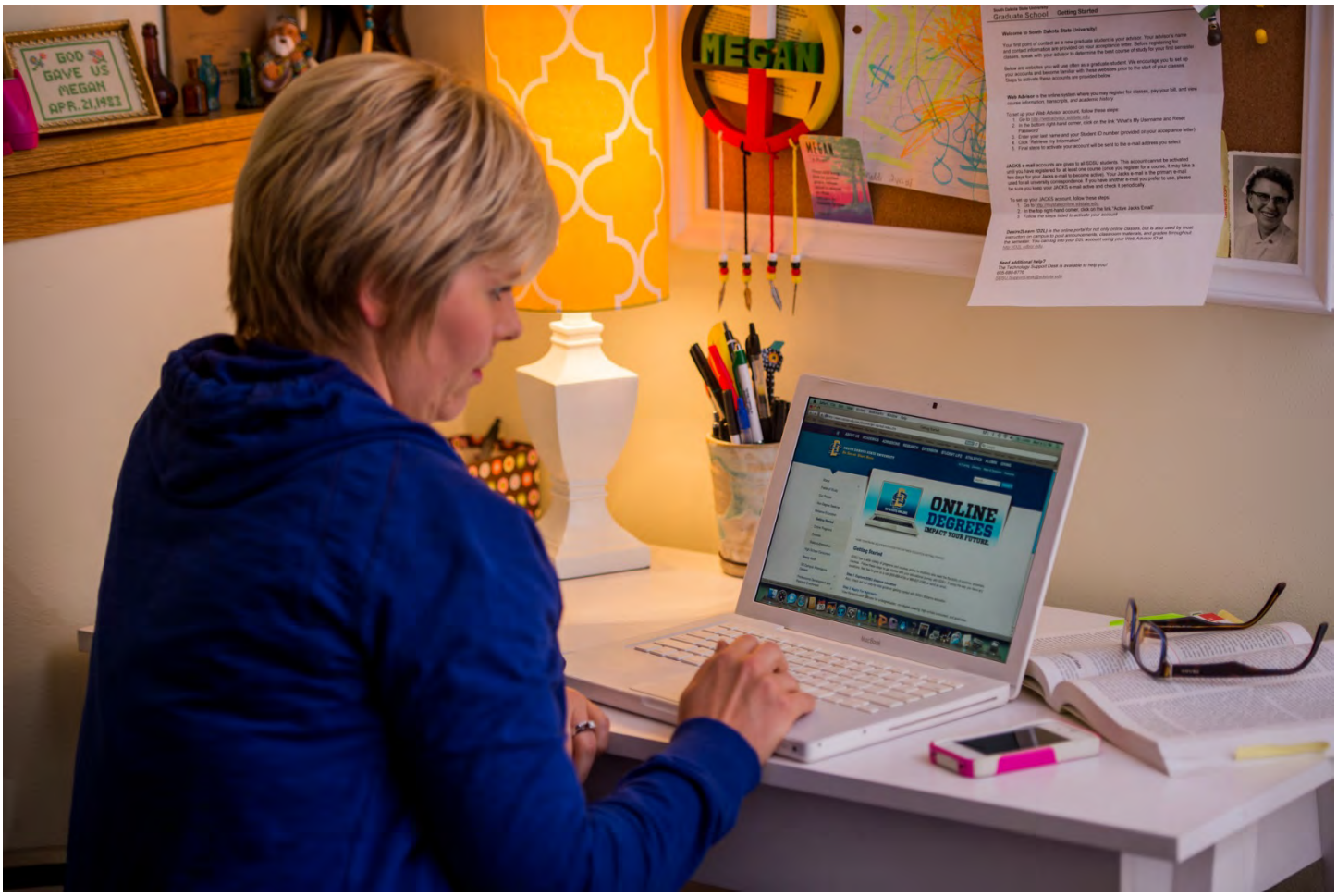
Where the institution has not already considered and acted upon the complaint, the Executive Director will refer the matter to the institutional president for review and action. If the complainant challenges an institutional disposition of the complaint, the Executive Director will provide for an independent review and disposition of the allegations. The Executive Director may be contacted at: The Office of the Executive Director of the South Dakota Board of Regents, 306 East Capitol Avenue, Suite 200; Pierre, South Dakota 57501-2545; Phone 605-773-3455; info@sdbor.edu.

Allegations involving violation of consumer protection laws may also be filed with Office of Attorney General, Division of Consumer Protection; 1302 E Hwy 14 Ste 3; Pierre SD 57501; Phone 605-773-4400, 1-800-300-1986 (in-state only); Fax 605-773-7163; consumerhelp@state.sd.us; online complaint form, http://atg.sd.gov/Consumers/HandlingComplaints/ConsumerComplaintForm.aspx.

Contact Information For Students Residing In States Other Than South Dakota Who Have Complaints Relating Specifically To Distance Learning Or Correspondence Education

Pursuant to the United States Department of Education's Program Integrity Rule, South Dakota State University is required to provide all prospective and current students with the contact information of the state agency or agencies that handle complaints against postsecondary education institutions offering distance learning or correspondence education within that state. Students residing in other states while enrolled in a course offered by South Dakota State University are encouraged to utilize the institution's internal complaint or review policies and procedures prior to filing a complaint with the state agency or agencies. However, if the complaint is not resolved through these processes, a student may use the following list to identify the office(s) in the state in which the student resides to which the complaint against any public institution in South Dakota may be filed.

Agencies by State (http://www.sdstate.edu/cee/upload/Ensuring-Program-Integrity.pdf) where these complaints may be Filed: (NOTE: This list is subject to change. If a student is not able to contact the appropriate agency in a given state, please contact the Offices of the South Dakota Board of Regents and assistance will be provided. (306 East Capitol Ave, Suite 200, Pierre, SD 57501; phone: 605-773-3455; e-mail: info@sdbor.edu).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MEGAN
Graduate School
Getting Started
ONLINE DEGREES
IMPACT YOUR FUTURE.

Master's Degree Requirements **51**

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Master's Degree Checklist *53*

Admission Requirements

The application file must be complete with the application form, application fee, all post-secondary transcripts, degree certificate, and other materials as required by specific programs before processing of the application will begin. Application materials are due to the Graduate School by April 15 to be considered for fall admission and by August 15 (international applicants) or October 15 (domestic applicants) to be considered for spring admission. **Students should check with their specific program of interest, as some programs have earlier deadlines.** Master's degree applicants must have an approved Bachelor's degree from an accredited institution (except in approved/accelerated programs). Applications for domestic, international or non-degree seeking students are found at http://app.applyyourself.com/?id=sdstate-g.

Advisory Committee

After consultation with the student, the head of the major department will designate a major advisor. As soon as possible, but no later than the completion of fifty (50) percent of the credits toward graduation, the major advisor will recommend to the Dean of the Graduate School (by submission of the committee approval request form) members of an Advisory Committee. All graduate students in master's (option A, B and C) degrees must form a committee. The Advisory Committee must be composed of three (3) to five (5) members. The committee must include:

- *Committee Chair* – must hold either full Graduate Faculty or Associate Graduate Faculty status at SDSU to chair master's (option B and C) committees. Committee Chair must hold full Graduate Faculty status at SDSU to chair master's (option A) committees. Lecturer or Senior Lecturer-rank faculty who hold Associate Graduate Faculty status may chair master's (option A) committees with Department Head approval. This member assists the student in developing a suitable graduate program, provides continuing guidance and counsel, evaluates student progress, informs the student as to who will provide primary research supervision, serves as a contact for the committee and ensures the completion of the degree requirements to the Dean of the Graduate School.
- *Additional member(s) with expertise within the discipline* - must hold either full Graduate Faculty or Associate Graduate Faculty status at SDSU. Additional members assist the student in developing a suitable graduate program, provide continuing guidance and counsel, evaluate student progress, and assist with the completion of the degree requirements. Additional members may serve as co-chairs.
- *Graduate Faculty Representative* - selected by the Dean of the Graduate School from within a distant, broadly-defined discipline. This member represents the Graduate Council to ensure the supervision of the student is carried out with sufficient integrity. This member ensures that minimal academic standards are maintained and acts as an advocate and counselor for the student. For votes regarding the final oral defense, the Graduate Faculty Representative must vote in the affirmative for the vote to carry.

Committee chairs, with department head approval, may request up to two (2) additional committee members. The Dean of the Graduate School approves requests for additional committee members.

Professional doctorate degree holders with full Graduate Faculty status may only serve as chair for a committee for the degree which they hold.

Adjunct faculty members or University employees holding a master's degree who fail to qualify as Associate Graduate Faculty member may serve on graduate student committees. Such committees must contain the minimum number of Full/Associate Graduate Faculty in addition to the master's degree holder. A committee may only include one master's degree holder. Addition of the master's degree holder does not alter the maximum number of committee members allowed. The master's degree holder is not considered as having Associate Graduate Faculty status and cannot serve as co-chair.

The Advisory Committee is responsible for approving the content and scope of comprehensive and final examinations, both written and oral. The committee must evaluate the student's performance for the final oral exam and all other degree requirements taken under the auspices of -798 coursework (including those internal to the program).

All committee members must be available for regular meetings with the student and/or committee. Each committee member has voting privileges. Only committee members may vote on business before the committee. For activities requiring committee votes, the chair must ensure due diligence for accommodating all members of the committee. The Graduate Faculty Representative and all but one (1) of the graduate committee must vote in the affirmative to pass the student.

The Department Head is responsible for informing the Graduate School if and when a committee member can no longer discharge her/his duties consistent with the policies of the University.

Plan of Study/Credit Requirements

After the Advisory Committee is formed, the major advisor will schedule a meeting with the student to develop a plan of study. The plan of study must be submitted using the plan of study form (http://www.sdstate.edu/graduate/upload/Master-s-Plan-of-Study.pdf) and approved by the major advisor and the Dean of the Graduate School for approval prior to completion of 50 percent of the credits toward graduation. Delay in submitting a plan of study may result in disapproval of courses taken prior to approval and/or registration restrictions. Changes in the approved plan of study must be requested using the change in plan of study form (http://www.sdstate.edu/graduate/forms/upload/Change-of-Plan-of-Study-2015.pdf). While devising the plan of study, please refer to specific academic program requirements in the Academic Programs section of the catalog in addition to the following information.

Plan of Study Total Credits Required:

	Options:	*Minimum Credit Hours**
A	Thesis	*30*
B	Research/Design Paper	*32*
C	Coursework only	*35*
D	Coursework only (professional)	*30*

*Requirements may vary by Graduate Program

Minor/Supporting Area Requirement - Few programs require a minor. Please see departmental requirements for specific minors.

Graduate Credit Requirement - Credit applied toward graduate credentials should be at the 500-level and above. At least fifty (50) percent of the credits on a plan of study must be in courses 600-series or above. Please refer to the Graduate Credit Requirements Policy for more information http://www.sdstate.edu/policies/upload/Credit-Requirements-for-Graduate-Degree-Programs.pdf.

Language Requirement - There is no general language requirement for the Master's degree. However, individual departments may require a speaking or reading knowledge of a modern language other than English.

Examinations

Final Oral Exam - The student arranges with his/her advisory committee the time and location for the final oral examination. The student will submit the final oral exam form to the Graduate School no less than two (2) weeks prior to the examination date. A final oral examination will be administered by the Advisory Committee, covering the student's plan of study and research if appropriate. This examination must be comprehensive, testing the student's ability to analyze, integrate, and apply knowledge from the discipline. The Graduate Faculty Representative and all but one (1) of the graduate committee must vote to pass the student. The final oral exam must be completed three (3) weeks prior to the end of the semester in order to graduate.

Thesis, Research Paper, or Design Paper

Research Paper/Design Paper Requirements - Students following Option B must complete at least two (2) credits for a research problem (or design paper in Engineering) in the major field and present a written report. The content, style, and format of the report must meet the requirements of the program. The research report or design paper must be approved by the Advisory Committee and filed in the major department. A copy of the written report should be provided to each committee member, including the Graduate Faculty Representative ten (10) working days before the oral exam, and be available at the final oral examination.

Thesis Requirements - A thesis must meet the requirements of the program and the Graduate School and must be submitted by each student completing a Master's degree in Option A. The thesis must represent a scholarly contribution to research knowledge in the major field. A research area for the thesis topic should be chosen after consultation with the major advisor as early in the student's program as possible. The thesis accounts for five (5) to ten (10) semester hours in the major.

Thesis Formatting and Deposition - All theses must be submitted to the Graduate School for appropriate format checking and deposition with the library. Instructions are found on the Graduate School website (http://www.sdstate.edu/graduate/current/guidelines.cfm).

Use of Human Subjects or Vertebrate Animals in Research - After receiving approval of the research proposal students must also seek approval for the use of human subjects or vertebrate animals in research (from the appropriate committee, if applicable). These approvals must be secured before beginning the study. For more information, visit the Research Compliance website (http://www.sdstate.edu/research/compliance/index.cfm) or contact the SDSU Research Compliance Coordinator in the Office of Research & Sponsored Programs, SAD 124, 605-688-6696.

Credit Sharing between Graduate Credentials

Credit can be used for the satisfaction of more than one graduate credential (graduate certificate, graduate minor, master's degree) issued by SDSU and may be paired to share credit. Each graduate credential may be paired with itself or any other graduate credential. For example, two master's degrees may be paired or a master's degree and a graduate certificate.

The allowable credit shared between graduate credentials equals the sum of the minimum required credit hours for each credential divided by 6 (six). The maximum allowed is 50% of either credential program. Once a graduate credential participates in a credit pairing, the graduate credential may not be paired with a third credential. Credit hours may not be used three times to satisfy graduate credential requirements.

Time Limitation

Obsolete Program - If the requirements for the Master's degree are not completed within six (6) years from the program start date, a form to request an extension of the graduate program must be submitted to the Graduate School. The request will be reviewed and a decision as to whether the student may continue in the program will be made by the Graduate School Dean.

Obsolete Coursework - Courses completed more than six (6) years prior to completion of the requirements of the Master's degree are regarded as obsolete coursework. Such courses may be used in the Master's degree program if validated. Validation is allowed at the discretion of the major advisor with approval of the Graduate School. Validation of obsolete coursework cannot exceed fifty (50) percent of the total coursework listed on the plan of study and must be certified by the major advisor on the appropriate form. Course validation may be subject to a processing fee. Only courses taken at SDSU may be validated.

Master's Degree Checklist

Requirements	Timeline
Designation of Major Advisor	Upon acceptance into Graduate School.
Designation of Advisory Committee	During first semester of graduate work Graduate Faculty Representative will be assigned by the Graduate School.
Plan of Study	During the first semester of graduate work or before 50% of coursework is complete. Must be approved by major advisor and submitted to Graduate School.
Graduation Application	During final semester, by deadline.*
Final Oral Exam	During final semester, by deadline.*Final oral exam form must be submitted **two (2) weeks** prior to exam date.
Thesis Format Check(Option A Only)	After successful completion of final oral exam, by deadline.*
Final Submission of Thesis(Option A Only)	Must complete format check first. Final submission due by deadline.*Signed acceptance page and library fee must also be submitted.

Final Submission of Research/Design Paper(Option B Only)	Submitted directly to the Department by specified deadline.

* The Graduate School sets deadlines for graduation (http://www.sdstate.edu/graduate/current/important-dates.cfm) each semester. Please also consult with your Department for other program specific requirements and deadlines. All forms are available on the Graduate School Forms page (http://www.sdstate.edu/graduate/forms/index.cfm).

Doctor of Pharmacy Degree Requirements **55**

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Program Application Requirements

Preparation for the Major

A sound basic education in science and mathematics courses is an essential part of preparation for the study of pharmacy. Good written and verbal communication skills are important. Students planning to transfer from another college or university should consult with the College of Pharmacy early in their academic careers to plan coursework that will transfer to the College of Pharmacy. For more information, visit http://www.sdstate.edu/pha/apply/pre-pharmacy-curriculum.cfm

Application Process

All students seeking admission to the 4-year professional program leading to the Doctor of Pharmacy degree must submit an application for the professional program. Applications are available from the College of Pharmacy web site. The deadline for applying for admission for the fall semester is February 1. Limitations in the size of the physical facilities, the number of faculty and the number of advanced pharmacy practice experience sites make it necessary to limit the class size in the professional program. Each student admitted into the professional program is required to authorize and pay for a criminal background check. The background check report is automatically sent to the student and to the College and must be approved by the Admissions Committee.

Selection is competitive and based upon several factors including pre-pharmacy coursework, ACT or PCAT scores, written and oral communication skills, knowledge of the profession, residency status and other factors. Any student who anticipates successful completion of the pre-pharmacy requirements prior to fall semester is eligible to apply.

Notification of acceptance into the professional program will be made by March 15. Students admitted to the professional program must submit a non-refundable deposit to secure their position for the fall semester. That deposit will be applied to student's account in the fall semester.

Curriculum/Plan of Study

The curriculum is divided into a 2-year pre-pharmacy and a 4-year professional program phase. The pre-pharmacy courses provide a solid knowledge base and ability to use critical thought processes in the biological and physical sciences.

The four years of the professional program incorporate a solid foundation of pharmaceutical science courses as well as a comprehensive sequence of therapeutics and professional practice courses. Students earn a B.S. in Pharmaceutical Sciences after successful completion of the first two years of the professional program. The application of drug knowledge, basic science, and critical thinking to resolve problems of drug distribution and patient care are emphasized throughout the curriculum. In their first three years of the program, students gain initial practice experience through introductory pharmacy practice experiences in settings such as community and hospital pharmacies. In the final year of the program, students have an opportunity to apply knowledge and pharmacy care principles to pharmacy practice situations in a series of advanced pharmacy practice experiences in a variety of patient care settings which include patient care areas of hospitals, nursing homes, community pharmacies, hospital pharmacies, Indian Health Service facilities and clinic pharmacies.

College of Pharmacy Regulations

Students in the College of Pharmacy are governed by the regulations which apply to all students at SDSU but are also governed by requirements established by the College. These requirements are presented in detail in the Pharmacy Student Handbook and include:

Progression – Progression standards for students in the Pharm.D. program are set to assure graduates are prepared to provide pharmacy services to the public. The integrated curriculum relies on information and skills garnered in previous courses and therefore, students' success depends on achieving a minimum level of performance in each course. Minimum level of performance is defined as a grade of C or better based on University Catalog grade definitions. A grade of D is defined as in terms of "insufficient" and "inadequate" according to the University Catalog. A grade of F is defined in terms of "failure." D, F, and U (unsatisfactory) grades do not represent a minimum level of performance need to develop skills, abilities, and knowledge of a general practitioner.

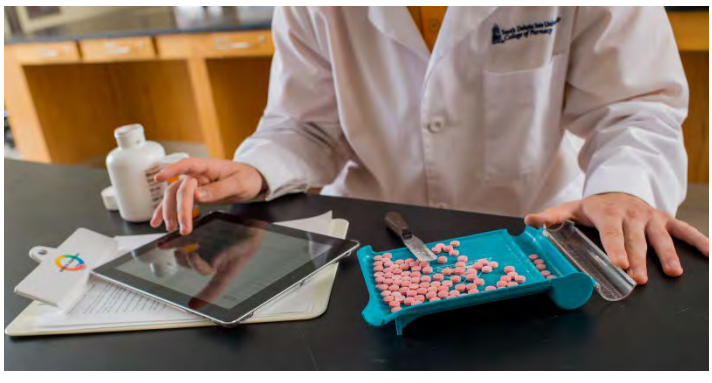
Refused Status - A student will be placed on refused status if the student:

a. Earns a D, F, or U in a pharmacy course.
b. Does not complete the Pharm.D. program within six years of starting the professional program.

Class Standing Requirements

Standing - Some pharmacy courses have prerequisites such as "P1 Year Standing", etc. These are defined as follows (note: "completion" means a passing grade in each pharmacy course and maintaining semester and cumulative PHA GPA requirements):

P1 Year Standing - The student must have been admitted into the professional program.
P2 Year Standing - Completion of all PHA 300 level required courses and PHA 109/101.
P3 Year Standing - Completion of all PHA 400 level required courses and PHA 610, a bachelor's degree, and all capstone activities are required to begin the fall semester. Completion of all required PHA 700, non-advanced practice experience courses are required to progress to the subsequent semester.
P4 Year Standing - completion of all PHA 600-700 level required, non-advanced practice courses, and 300 hours of IPPE.



Doctor of Philosophy Degree Requirements **57**

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Admission Requirements

The application file must be complete with the application form, application fee, all post-secondary transcripts, degree certificates, and other materials as required by specific programs before processing of the application will begin. A completed application must be filed with the Graduate School by April 15 for consideration for fall admission and by August 15 (international applicants) or October 15 (domestic applicants) for consideration for spring admission. **Students should check with their specific program of interest as some programs have earlier deadlines.** Applicants for the Doctor of Philosophy degree, 60-credit plan, will usually have a Master's degree. This degree must be awarded from an approved, accredited institution. In those cases where applicants do not have a Master's degree, departmental requirements will apply, either requiring completion of a Master's degree or permitting an individual to move directly into a doctoral program, 90-credit plan. Applications for domestic, international or non-degree seeking students are found at http://app.applyyourself.com/?id=sdstate-g.

Advisory Committee

After consultation with the student, the head of the major department will designate a major advisor. As soon as possible, but no later than the completion of fifty (50) percent of the credits toward graduation, the major advisor will recommend to the Dean of the Graduate School (by submission of the committee approval request form) members of an Advisory Committee. The Advisory Committee must be composed of four (4) to six (6) members. The committee must include:

- *Committee Chair* – must hold full Graduate Faculty status at SDSU. This member assists the student in developing a suitable graduate program, provides continuing guidance and counsel, evaluates student progress, informs the student as to who will provide primary research supervision, serves as a contact for the committee and ensures the completion of the degree requirements to the Dean of the Graduate School.
- *Two (2) additional members with expertise within the discipline*– must hold either full Graduate Faculty or Associate Graduate Faculty status at SDSU. Additional members assist the student in developing a suitable graduate program, provide continuing guidance and counsel, evaluate student progress, and assist with the completion of the degree requirements. Additional members may serve as co-chairs.
- *Graduate Faculty Representative* – selected by the Dean of the Graduate School from within a distant, broadly-defined discipline. This member represents the Graduate Council to ensure the supervision of the student is carried out with sufficient integrity. This member ensures that minimal academic standards are maintained and acts as an advocate and counselor for the student. For votes regarding the final oral defense, the Graduate Faculty Representative must vote in the affirmative for the vote to carry.

Committee chairs, with department head approval, may request up to two (2) additional committee members. The Dean of the Graduate School approves requests for additional committee members.

Professional doctorate degree holders with full Graduate Faculty status may only serve as chair for a committee for the degree which they hold.

Adjunct faculty members or University employees holding a master's degree who fail to qualify as Associate Graduate Faculty member may serve on graduate student committees. Such committees must contain the minimum number of Full/Associate Graduate Faculty in addition to the master's degree holder. A committee may only include one master's degree holder. Addition of the master's degree holder does not alter the maximum number of committee members allowed. The master's degree holder is not considered as having Associate Graduate Faculty status and cannot serve as co-chair.

The Advisory Committee is responsible for approving the content and scope of comprehensive and final examinations, both written and oral. The committee must evaluate the student's performance for the comprehensive exams and final defense and all other degree requirements taken under the auspices of -898 coursework (including those internal to the program).

All committee members must be available for regular meetings with the student and/or committee. Each committee member has voting privileges. Only committee members may vote on business before the committee. For activities requiring committee votes, the chair must ensure due diligence for accommodating all members of the committee. The Graduate Faculty Representative and all but one (1) of the graduate committee must vote in the affirmative to pass the student.

The Department Head is responsible for informing the Graduate School if and when a committee member can no longer discharge her/his duties consistent with the policies of the University.

Plan of Study/Credit Information

After the Advisory Committee is formed, the major advisor will schedule a meeting with the student to develop a plan of study and to consider a research area for the dissertation. The plan of study must be submitted using the plan of study form (www.sdstate.edu/graduate/upload/PhD-Plan-of-Study.pdf) and approved by the Advisory Committee and the Dean of the Graduate School prior to completion of 50 percent of the credits toward graduation. Delay in submitting a plan of study may result in disapproval of courses taken prior to approval and/or registration restrictions. Student cannot take the comprehensive written examination prior to approval of the plan of study. Changes in the approved plan of study must be requested using the change in plan of study form (www.sdstate.edu/graduate/forms/upload/Change-of-Plan-of-Study-2015.pdf). While devising the plan of study, please refer to specific academic program requirements in the Academic Programs section of the catalog in addition to the following information.

Total Credits Required - A minimum of three academic years of full-time work beyond the Bachelor's degree (minimum of 90 semester credits, 90-Credit Plan) or a minimum of two (2) academic years of full time work beyond the Master's degree (minimum of 60 semester credits, 60-Credit Plan) are generally required for the Doctor of Philosophy degree. Where consideration is given to a Master's degree it must be in the area of the program or a related area, be an academic program from an accredited institution, and be declared at the time the plan of study is submitted. The Advisory Committee may require more credits than the minimum listed previously if it believes the extra requirements are in the best interest of the student.

Program Courses - At least sixty (60) credits of the 90-Credit Plan or forty (40) credits of the 60-Credit Plan required for the degree must be earned in the program. Dissertation and transfer credits may apply. Not all courses need to be in a single department or area, but all courses should be closely related to the program area.

Minor or Supporting Courses, if required - Few programs require a minor. Please see departmental requirements for specific minors.

Graduate Credit Requirement - Credit applied toward graduate credentials should be at the 500-level and above. At least fifty (50) percent of the credits on a plan of study must be in courses 600-series or above. Please refer to the Graduate Credit Requirements Policy for more information http://www.sdstate.edu/policies/upload/Credit-Requirements-for-Graduate-Degree-Programs.pdf.

Language Requirement - There is no general language requirement for the Doctoral degree. However, individual departments may require a speaking or reading knowledge of a modern language other than English.

Examinations

Interim Evaluation - Upon completion of approximately fifty (50) percent of the coursework on the plan of study, the Advisory Committee will meet to evaluate the progress of the student, provide advice and counsel, and recommend continuance or termination of the program. Because the Doctor of Philosophy is a terminal academic degree, student performance includes an evaluation of progress in the program and academic performance. The Advisory Committee may recommend, in writing to the student and Dean of the Graduate School, termination of the student in the program.

Comprehensive Written and Oral Examinations- Comprehensive examinations are generally administered after coursework on the plan of study has been substantially completed. The comprehensive written examination is followed, upon satisfactory completion, by an oral examination. These examinations are to test the student's breadth of knowledge and his/her ability to integrate this knowledge.

The student arranges with his/her committee the time and location for the comprehensive written and oral examinations. Copies of the written examinations must be kept on file in the major department. Upon successful completion of the comprehensive written examination, the student will arrange with his/her advisor and committee members to take the comprehensive oral examination. The comprehensive oral exam form must be submitted to the Graduate School at least two (2) weeks prior to the exam date. The submission of this form initiates the necessary paperwork to be provided by the Graduate School to the student and committee members. The comprehensive examinations must be completed at least three (3) months before the final oral examination. Upon satisfactory completion of the comprehensive examinations, the student is formally admitted to candidacy for the PhD degree. If the student does not receive the PhD degree within three (3) years after becoming a candidate, comprehensive examinations must be repeated.

Final Oral Exam - The student arranges with his/her advisory committee the time and location for the final oral examination. The student will submit the final oral exam form to the Graduate School no less than two (2) weeks prior to the examination date. While the Advisory Committee determines the character and length of the examination, sufficient time should be devoted to the dissertation, including literature review, to evaluate the ability of the student to defend the research. In addition, questions to test the student's general knowledge, judgment and critical thinking powers are usually asked. The Graduate Faculty Representative and all but one (1) of the graduate committee must vote to pass the student. The final oral examination cannot be taken earlier than three (3) months following successful completion of the comprehensive examinations, and must be completed three (3) weeks prior to the end of the semester in order to graduate.

Dissertation

Proposal - The student in consultation with the major advisor or dissertation advisor shall prepare a written dissertation proposal for approval by the Advisory Committee.

Requirements - The dissertation should represent at least one (1) academic year of full-time research (18-30 credits). Of no specific length, the dissertation should advance or modify knowledge in the discipline and demonstrate the candidate's mastery of the subject. The dissertation should meet discipline standards as required by the program.

Dissertation Formatting and Deposition - All dissertations must be submitted to the Graduate School for appropriate format checking and deposition with the library. Instructions are found on the Graduate School website (http://www.sdstate.edu/graduate/current/guidelines.cfm).

Use of Human Subjects or Vertebrate Animals in Research - After receiving approval of the research proposal students must also seek approval for the use of human subjects or vertebrate animals in research, when applicable, from the appropriate committee. These approvals must be secured before beginning the study. For more information, visit the Research Compliance website (http://www.sdstate.edu/research/compliance/index.cfm) or contact the SDSU Research Compliance Coordinator in the Office of Research & Sponsored Programs, SAD 124, Telephone: 605-688-6975.

Time Limitation

Obsolete Program - If the Doctor of Philosophy degree is not completed within eight (8) years from the program start date, a form to request an extension of the graduate program must be submitted to the Graduate School. The request will be reviewed and a decision as to whether the student may continue in the program will be made by the Graduate School Dean.

Obsolete Coursework - Courses taken more than eight (8) years before completion of the doctorate are regarded as obsolete coursework. Obsolete courses may be used in the doctoral degree program if validated. Validation is allowed at the discretion of the advisory committee and department involved and can be accomplished by passing validation requirements in the subject matter area. Validated obsolete coursework cannot exceed fifty (50) percent of the total coursework (excluding dissertation credits) listed on the plan of study and must be certified by the advisory committee on a form provided by the Graduate School. Course validation may be subject to a processing fee. Only courses taken at SDSU may be validated.

Doctor of Philosophy Checklist

Requirements	**Timeline**
Designation of Major Advisor	Upon acceptance into Graduate School.
Designation of Advisory Committee	During first semester of graduate work graduate faculty representative will be assigned by the Graduate School.
Plan of Study	During the first semester of graduate work or before 50% of coursework is complete. Must be approved by all Advisory Committee members and submitted to Graduate School.
Comprehensive Written Exam	Per Dept procedures, near the completion of coursework. Comprehensive written exam form due to Graduate School **two (2) weeks** prior to exam date.
Comprehensive Oral Exam	Scheduled upon successful completion of comprehensive written exam. Comprehensive oral exam form due to Graduate School **two (2) weeks** prior to exam date. Must be three (3) months prior to final oral exam.
Graduation Application	During final semester, by deadline.*
Final Oral Exam (Dissertation Defense)	During final semester, by deadline. Final oral exam form must be submitted **two (2) weeks** prior to exam date.

Final Submission of Dissertation	Must complete format check first. Final submission due by deadline.* Signed acceptance page and library fee must also be submitted.

* The Graduate School sets deadlines for graduation each semester (http://www.sdstate.edu/graduate/current/important-dates.cfm). Please also consult with your Department for other program specific requirements and deadlines. All forms are available on the Graduate School Forms page (http://www.sdstate.edu/graduate/forms/index.cfm).

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Graduate Programs at SDSU

The Graduate School supports post-baccalaureate education at SDSU by promoting programs for student recruitment, setting and adhering to admission standards, and defining and maintaining rigorous academic standards for graduate programs. Administrative support is provided to departments and colleges delivering master's, doctoral, and professional programs, as well as graduate certificates.

Master's Degrees

- Master of Architecture (M.Arch.)
- Master of Arts (M.A.)
- Master of Education (M.Ed.)
- Master of Mass Communication (M.M.C.)
- Master of Public Health (M.P.H.)
- Master of Science (M.S.)

Doctoral Ph.D. & Professional Programs

- Doctor of Nursing Practice (D.N.P.)
- Doctor of Pharmacy (Pharm.D.)
- Doctor of Philosophy (Ph.D.)

Graduate Certificates

Programs & Degrees (Listed Alphabetically)

Master's Degrees

- Agricultural and Biosystems Engineering (M.S.)
- Agricultural Education (M.S.)
- Animal Science (M.S.)
- Architecture (M.Arch.)
- Athletic Training (M.S.)
- Biological Sciences (M.S.)
- Biological Sciences (M.S.) - Biology Specialization
- Biological Sciences (M.S.) - Dairy Science Specialization
- Biological Sciences (M.S.) - Food Science Specialization
- Biological Sciences (M.S.) - Microbiology Specialization
- Chemistry (M.S.)
- Chemistry (M.S.) - Chemical Education Specialization
- Civil Engineering (M.S.)
- Communication Studies and Journalism (M.S.) - Communication Studies Specialization
- Communication Studies and Journalism (M.S.) - Journalism Specialization
- Computer Science (M.S.)
- Counseling and Human Resource Development (M.Ed.) - Administration of Student Affairs Specialization
- Counseling and Human Resource Development (M.S.) - Clinical Mental Health Counseling Specialization
- Counseling and Human Resource Development (M.S.) - College Counseling Specialization
- Counseling and Human Resource Development (M.S.) - Marriage and Family Counseling Specialization
- Counseling and Human Resource Development (M.S.) - Rehabilitation and Mental Health Counseling Specialization
- Counseling and Human Resource Development (M.S.) - School Counseling Specialization
- Curriculum and Instruction (M.Ed.) - Adult and Higher Education Specialization
- Curriculum and Instruction (M.Ed.) - Early Childhood Education Specialization
- Curriculum and Instruction (M.Ed.) - Elementary Education Specialization
- Curriculum and Instruction (M.Ed.) - Secondary Education Specialization
- Data Science (M.S.)
- Dietetics (M.S.)
- Economics (M.S.)
- Educational Administration (M.Ed.) - Elementary Education Specialization
- Educational Administration (M.Ed.) - Secondary Education Specialization
- Electrical Engineering (M.S.)
- English (M.A.)
- Geography (M.S.)
- Human Sciences (M.S.) - Adult Development in the Workplace Specialization
- Human Sciences (M.S.) - Family and Community Services Specialization
- Human Sciences (M.S.) - Family and Consumer Sciences Education Specialization
- Human Sciences (M.S.) - Family Financial Planning Specialization
- Human Sciences (M.S.) - Merchandising Specialization
- Mass Communication (M.M.C.)
- Mathematics (M.S.)
- Mathematics (M.S.) - Statistics Specialization
- Mechanical Engineering (M.S.)
- Nursing (M.S.) - Clinical Nursing Leadership Specialization
- Nursing (M.S.) - Family Nurse Practitioner Specialization
- Nursing (M.S.) - Nurse Educator Specialization
- Nutrition and Exercise Sciences (M.S.) - Dietetics and Nutrition Specialization
- Nutrition and Exercise Sciences (M.S.) - Exercise Science Specialization
- Nutrition and Exercise Sciences (M.S.) - Nutritional Science Specialization
- Operations Management (M.S.)
- Plant Science (M.S.)
- Public Health (M.P.H.)
- Sociology (M.S.)
- Sociology (M.S.) - Community Development Specialization
- Sport and Recreation Studies (M.S.)
- Statistics (M.S.)
- Wildlife and Fisheries Sciences (M.S.) - Fisheries Sciences
- Wildlife and Fisheries Sciences (M.S.) - Wildlife Sciences

Doctoral Degrees

- Agricultural, Biosystems and Mechanical Engineering (Ph.D.)
- Animal Science (Ph.D.)
- Biochemistry (Ph.D.)
- Biological Sciences (Ph.D.)
- Biological Sciences (Ph.D.) - Agricultural and Biosystems Engineering Specialization
- Biological Sciences (Ph.D.) - Biology Specialization
- Biological Sciences (Ph.D.) - Dairy Science Specialization
- Biological Sciences (Ph.D.) - Food Science Specialization
- Biological Sciences (Ph.D.) - Microbiology Specialization
- Biological Sciences (Ph.D.) - Molecular Biology Specialization
- Biological Sciences (Ph.D.) - Plant Molecular Biology Specialization
- Biological Sciences (Ph.D.) - Plant Science Specialization
- Biological Sciences (Ph.D.) - Veterinary Microbiology Specialization

- Biological Sciences (Ph.D.) - Veterinary Pathobiology Specialization
- Chemistry (Ph.D.)
- Civil Engineering (Ph.D.)
- Computational Science and Statistics (Ph.D.)
- Electrical Engineering (Ph.D.)
- Geospatial Science and Engineering (Ph.D.)
- Geospatial Science and Engineering (Ph.D.) - Remote Sensing Engineering Specialization
- Geospatial Science and Engineering (Ph.D.) - Remote Sensing Geography Specialization
- Nursing (Ph.D.)
- Nutrition and Exercise Sciences (Ph.D.)
- Pharmaceutical Sciences (Ph.D.)
- Plant Science (Ph.D.)
- Sociology (Ph.D.)
- Wildlife and Fisheries Sciences (Ph.D.)

Professional Doctoral Degrees

- Doctor of Nursing Practice (D.N.P.) (Post Master to D.N.P. - NPs, CRNAs, CNSs, and CNMs)
- Doctor of Nursing Practice (D.N.P.) - Family Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Family Nurse Practitioner Specialization (Post Master to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Family Psychiatric and Mental Health Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Neonatal Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Pediatric Clinical Nurse Specialist Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Pediatric Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Pharmacy (Pharm.D.)

Graduate Certificates

- Animal Science Certificate
- Bioenergy and Sustainable Technology Certificate
- Family Financial Planning Certificate
- Financial and Housing Counseling Certificate
- Grassland Management Certificate
- Health Journalism Certificate
- Management Foundations Certificate
- Merchandising Certificate
- Native Communities and Economic Development Certificate
- Post Master Clinical Nurse Leadership Certificate
- Post Master Family Nurse Practitioner Certificate
- Post Master Nursing Educator Certificate
- Systems Management Certificate
- Transdisciplinary Childhood Obesity Prevention Certificate

Coursework Only

- History, Political Science, Philosophy, and Religion
- Modern Languages
- Music
- Physics
- Psychology
- Studio Arts

Programs & Degrees (Listed by College)

College of Agriculture & Biological Sciences

Animal Science
Master's Degree
- Animal Science (M.S.)

Doctoral Degree
- Animal Science (Ph.D.)

Certificate
- Animal Science Certificate

Biological Sciences
Master's Degree
- Biological Sciences (M.S.)

Doctoral Degree
- Biological Sciences (Ph.D.)

Biology and Microbiology
Master's Degree
- Biological Sciences (M.S.) - Biology Specialization
- Biological Sciences (M.S.) - Microbiology Specialization

Doctoral Degree
- Biological Sciences (Ph.D.) - Biology Specialization
- Biological Sciences (Ph.D.) - Microbiology Specialization
- Biological Sciences (Ph.D.) - Molecular Biology Specialization

Dairy Science
Master's Degree
- Biological Sciences (M.S.) - Dairy Science Specialization
- Biological Sciences (M.S.) - Food Science Specialization

Doctoral Degree
- Biological Sciences (Ph.D.) - Dairy Science Specialization

Economics
Master's Degree
- Economics (M.S.)

Natural Resource Management
Master's Degree
- Wildlife and Fisheries Sciences (M.S.) - Fisheries Sciences
- Wildlife and Fisheries Sciences (M.S.) - Wildlife Sciences

Doctoral Degree
- Wildlife and Fisheries Sciences (Ph.D.)

Certificate
- Grassland Management Certificate

Plant Science
Master's Degree
- Plant Science (M.S.)

Doctoral Degree
- Biological Sciences (Ph.D.) - Plant Molecular Biology Specialization
- Biological Sciences (Ph.D.) - Plant Science Specialization
- Plant Science (Ph.D.)

Veterinary & Biomedical Sciences
Doctoral Degree
- Biological Sciences (Ph.D.) - Veterinary Microbiology Specialization
- Biological Sciences (Ph.D.) - Veterinary Pathobiology Specialization

College of Arts & Sciences

School of Design
- Coursework Only

Architecture
Master's Degree
- Architecture (M.Arch.)

Chemistry and Biochemistry
Master's Degree
- Chemistry (M.S.)
- Chemistry (M.S.) - Chemical Education Specialization

Doctoral Degree
- Biochemistry (Ph.D.)
- Chemistry (Ph.D.)

Communication Studies and Theatre
Master's Degree
- Communication Studies and Journalism (M.S.) - Communication Studies Specialization

English
Master's Degree
- English (M.A.)

Geography
Master's Degree
- Geography (M.S.)

History, Political Science, Philosophy and Religion
- Coursework Only

Journalism and Mass Communication
Master's Degree
- Communication Studies and Journalism (M.S.) - Journalism Specialization
- Mass Communication (M.M.C.)

Certificate
- Health Journalism Certificate

Modern Languages and Global Studies
- Coursework Only

Music
- Coursework Only

Physics
- Coursework Only

Psychology
- Coursework Only

Sociology and Rural Studies
Master's Degree
- Sociology (M.S.)
- Sociology (M.S.) - Community Development Specialization

Doctoral Degree
- Sociology (Ph.D.)

Certificate
- Native Communities and Economic Development Certificate

College of Education & Human Sciences

Athletic Training
Master's Degree
- Athletic Training (M.S.)

Counseling and Human Development
Master's Degree
- Counseling and Human Resource Development (M.Ed.) - Administration of Student Affairs Specialization
- Counseling and Human Resource Development (M.S.) - Clinical Mental Health Counseling Specialization
- Counseling and Human Resource Development (M.S.) - College Counseling Specialization
- Counseling and Human Resource Development (M.S.) - Marriage and Family Counseling Specialization
- Counseling and Human Resource Development (M.S.) - Rehabilitation and Mental Health Counseling Specialization
- Counseling and Human Resource Development (M.S.) - School Counseling Specialization

Dietetics
Master's Degree
- Dietetics (M.S.)

Human Sciences
Master's Degree
- Human Sciences (M.S.) - Adult Development in the Workplace Specialization
- Human Sciences (M.S.) - Family and Community Services Specialization
- Human Sciences (M.S.) - Family and Consumer Sciences Education Specialization
- Human Sciences (M.S.) - Family Financial Planning Specialization
- Human Sciences (M.S.) - Merchandising Specialization

Certificate
- Family Financial Planning Certificate
- Financial and Housing Counseling Certificate
- Merchandising Certificate

Nutrition and Exercise Sciences
Master's Degree
- Nutrition and Exercise Sciences (M.S.) - Dietetics and Nutrition Specialization
- Nutrition and Exercise Sciences (M.S.) - Exercise Science Specialization
- Nutrition and Exercise Sciences (M.S.) - Nutritional Science Specialization

Doctoral Degree
- Nutrition and Exercise Sciences (Ph.D.)

Certificate
- Transdisciplinary Childhood Obesity Prevention Certificate

Sport and Recreation Studies
Master's Degree
- Sport and Recreation Studies (M.S.)

Teaching, Learning, and Leadership
Master's Degree
- Agricultural Education (M.S.)
- Curriculum and Instruction (M.Ed.) - Adult and Higher Education Specialization
- Curriculum and Instruction (M.Ed.) - Early Childhood Education Specialization
- Curriculum and Instruction (M.Ed.) - Elementary Education Specialization
- Curriculum and Instruction (M.Ed.) - Secondary Education Specialization
- Educational Administration (M.Ed.) - Elementary Education Specialization
- Educational Administration (M.Ed.) - Secondary Education Specialization

Jerome J. Lohr College of Engineering

Agricultural and Biosystems Engineering
Master's Degree
- Agricultural and Biosystems Engineering (M.S.)

Doctoral Degree
- Biological Sciences (Ph.D.) - Agricultural and Biosystems Engineering Specialization
- Agricultural, Biosystems and Mechanical Engineering (Ph.D.)

Certificate
- Bioenergy and Sustainable Technology Certificate
- Agricultural, Biosystems and Mechanical Engineering

Civil Engineering
Master's Degree
- Civil Engineering (M.S.)

Doctoral Degree
- Civil Engineering (Ph.D.)

Computer Science
Master's Degree
- Computer Science (M.S.)

Construction and Operations Management
Master's Degree
- Operations Management (M.S.)

Certificate
- Management Foundations Certificate
- Systems Management Certificate

Electrical Engineering
Master's Degree

- Electrical Engineering (M.S.)

Doctoral Degree
- Electrical Engineering (Ph.D.)

Geospatial Science and Engineering
Doctoral Degree
- Geospatial Science and Engineering (Ph.D.)
- Geospatial Science and Engineering (Ph.D.) - Remote Sensing Engineering Specialization
- Geospatial Science and Engineering (Ph.D.) - Remote Sensing Geography Specialization

Mathematics and Statistics
Master's Degree
- Data Science (M.S.)
- Mathematics (M.S.)
- Mathematics (M.S.) - Statistics Specialization
- Statistics (M.S.)

Doctoral Degree
- Computational Science and Statistics (Ph.D.)

Mechanical Engineering
Master's Degree
- Mechanical Engineering (M.S.)

Doctoral Degree
- Agricultural, Biosystems and Mechanical Engineering (Ph.D.)

College of Nursing

Master's Degree
- Nursing (M.S.) - Clinical Nursing Leadership Specialization
- Nursing (M.S.) - Family Nurse Practitioner Specialization
- Nursing (M.S.) - Nurse Educator Specialization

Doctoral Degree
- Nursing (Ph.D.)

Professional Doctoral Degree
- Doctor of Nursing Practice (D.N.P.) (Post Master to D.N.P. - NPs, CRNAs, CNSs, and CNMs)
- Doctor of Nursing Practice (D.N.P.) - Family Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Family Nurse Practitioner Specialization (Post Master to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Family Psychiatric and Mental Health Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Neonatal Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Pediatric Clinical Nurse Specialist Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Pediatric Nurse Practitioner Specialization (B.S.N. to D.N.P.)

Certificate
- Post Master Clinical Nurse Leadership Certificate
- Post Master Family Nurse Practitioner Certificate
- Post Master Nursing Educator Certificate

College of Pharmacy

Master's Degree
- Public Health (M.P.H.)

Doctoral Degree
- Pharmaceutical Sciences (Ph.D.)

Professional Doctoral Degree
- Pharmacy (Pharm.D.)

Programs & Degrees (Listed by Degree)

Master of Architecture (M.Arch.)

- Architecture (M.Arch.)

Master of Arts (M.A.)

- English (M.A.)

Master of Education (M.Ed.)

- Counseling and Human Resource Development (M.Ed.) - Administration of Student Affairs Specialization
- Curriculum and Instruction (M.Ed.) - Adult and Higher Education Specialization
- Curriculum and Instruction (M.Ed.) - Early Childhood Education Specialization
- Curriculum and Instruction (M.Ed.) - Elementary Education Specialization
- Curriculum and Instruction (M.Ed.) - Secondary Education Specialization
- Educational Administration (M.Ed.) - Elementary Education Specialization
- Educational Administration (M.Ed.) - Secondary Education Specialization

Master of Mass Communication (M.M.C.)

- Mass Communication (M.M.C.)

Master of Public Health (M.P.H)

- Public Health (M.P.H.)

Master of Science (M.S.)

- Agricultural and Biosystems Engineering (M.S.)
- Agricultural Education (M.S.)
- Animal Science (M.S.)
- Athletic Training (M.S.)
- Biological Sciences (M.S.)
- Biological Sciences (M.S.) - Biology Specialization
- Biological Sciences (M.S.) - Dairy Science Specialization
- Biological Sciences (M.S.) - Food Science Specialization
- Biological Sciences (M.S.) - Microbiology Specialization
- Chemistry (M.S.)
- Chemistry (M.S.) - Chemical Education Specialization
- Civil Engineering (M.S.)
- Communication Studies and Journalism (M.S.) - Communication Studies Specialization
- Communication Studies and Journalism (M.S.) - Journalism Specialization
- Computer Science (M.S.)
- Counseling and Human Resource Development (M.S.) - Clinical Mental Health Counseling Specialization
- Counseling and Human Resource Development (M.S.) - College Counseling Specialization
- Counseling and Human Resource Development (M.S.) - Marriage and Family Counseling Specialization
- Counseling and Human Resource Development (M.S.) - Rehabilitation and Mental Health Counseling Specialization
- Counseling and Human Resource Development (M.S.) - School Counseling Specialization
- Data Science (M.S.)
- Dietetics (M.S.)
- Economics (M.S.)
- Electrical Engineering (M.S.)
- Geography (M.S.)
- Human Sciences (M.S.) - Adult Development in the Workplace Specialization
- Human Sciences (M.S.) - Family and Community Services Specialization
- Human Sciences (M.S.) - Family and Consumer Sciences Education Specialization
- Human Sciences (M.S.) - Family Financial Planning Specialization
- Human Sciences (M.S.) - Merchandising Specialization
- Mathematics (M.S.)
- Mathematics (M.S.) - Statistics Specialization
- Mechanical Engineering (M.S.)
- Nursing (M.S.) - Clinical Nursing Leadership Specialization
- Nursing (M.S.) - Family Nurse Practitioner Specialization
- Nursing (M.S.) - Nurse Educator Specialization
- Nutrition and Exercise Sciences (M.S.) - Dietetics and Nutrition Specialization
- Nutrition and Exercise Sciences (M.S.) - Exercise Science Specialization
- Nutrition and Exercise Sciences (M.S.) - Nutritional Science Specialization
- Operations Management (M.S.)
- Plant Science (M.S.)
- Sociology (M.S.)
- Sociology (M.S.) - Community Development Specialization
- Sport and Recreation Studies (M.S.)
- Statistics (M.S.)
- Wildlife and Fisheries Sciences (M.S.) - Fisheries Sciences
- Wildlife and Fisheries Sciences (M.S.) - Wildlife Sciences

Doctor of Nursing Practice (D.N.P.)

- Doctor of Nursing Practice (D.N.P.) (Post Master to D.N.P. - NPs, CRNAs, CNSs, and CNMs)
- Doctor of Nursing Practice (D.N.P.) - Family Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Family Nurse Practitioner Specialization (Post Master to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Family Psychiatric and Mental Health Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Neonatal Nurse Practitioner Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Pediatric Clinical Nurse Specialist Specialization (B.S.N. to D.N.P.)
- Doctor of Nursing Practice (D.N.P.) - Pediatric Nurse Practitioner Specialization (B.S.N. to D.N.P.)

Doctor of Pharmacy (Pharm.D.)

- Pharmacy (Pharm.D.)

Doctor of Philosophy (Ph.D.)

- Agricultural, Biosystems and Mechanical Engineering (Ph.D.)
- Animal Science (Ph.D.)
- Biochemistry (Ph.D.)
- Biological Sciences (Ph.D.)
- Biological Sciences (Ph.D.) - Agricultural and Biosystems Engineering Specialization
- Biological Sciences (Ph.D.) - Biology Specialization
- Biological Sciences (Ph.D.) - Dairy Science Specialization
- Biological Sciences (Ph.D.) - Food Science Specialization
- Biological Sciences (Ph.D.) - Microbiology Specialization
- Biological Sciences (Ph.D.) - Molecular Biology Specialization
- Biological Sciences (Ph.D.) - Plant Molecular Biology Specialization

- Biological Sciences (Ph.D.) - Plant Science Specialization
- Biological Sciences (Ph.D.) - Veterinary Microbiology Specialization
- Biological Sciences (Ph.D.) - Veterinary Pathobiology Specialization
- Chemistry (Ph.D.)
- Civil Engineering (Ph.D.)
- Computational Science and Statistics (Ph.D.)
- Electrical Engineering (Ph.D.)
- Geospatial Science and Engineering (Ph.D.)
- Geospatial Science and Engineering (Ph.D.) - Remote Sensing Engineering Specialization
- Geospatial Science and Engineering (Ph.D.) - Remote Sensing Geography Specialization
- Nursing (Ph.D.)
- Nutrition and Exercise Sciences (Ph.D.)
- Pharmaceutical Sciences (Ph.D.)
- Plant Science (Ph.D.)
- Sociology (Ph.D.)
- Wildlife and Fisheries Sciences (Ph.D.)

Graduate Certificates

- Animal Science Certificate
- Bioenergy and Sustainable Technology Certificate
- Family Financial Planning Certificate
- Financial and Housing Counseling Certificate
- Grassland Management Certificate
- Health Journalism Certificate
- Management Foundations Certificate
- Merchandising Certificate
- Native Communities and Economic Development Certificate
- Post Master Clinical Nurse Leadership Certificate
- Post Master Family Nurse Practitioner Certificate
- Post Master Nursing Educator Certificate
- Systems Management Certificate
- Transdisciplinary Childhood Obesity Prevention Certificate

Coursework Only

- History, Political Science, Philosophy, and Religion
- Modern Languages
- Music
- Physics
- Psychology
- Studio Arts

Agricultural and Biosystems Engineering (M.S.)

Program Information

Graduate work in the Department of Agricultural and Biosystems Engineering leads to Master of Science in Agricultural and Biosystems Engineering and Doctor of Philosophy in Biological Sciences degrees.

Students who undertake graduate studies in Agricultural and Biosystems Engineering normally have as their goal a better understanding of the current theories, principles, issues, and problems in agricultural and biological systems. Graduate studies improve the student's ability to think critically and creatively, and to synthesize, analyze, and integrate ideas for decision-making and problem solving.

The department offers students an opportunity to undertake research and advanced study in specialization areas such as machine vision, food and biomaterial processing, physical properties of biological materials, natural resource engineering, structures, indoor environment, waste management and machine design.

Course Delivery Format

The program engages students in lecture, laboratory, and in hands-on, field-based learning experiences.

Facilities and Services

The Agricultural and Biosystems Engineering Department is housed in the Agricultural Engineering Building. The entire building is dedicated to undergraduate instruction and research and outreach projects that support the engineering needs of production agriculture, natural resource conservation, and value added processing of the food and fiber produced in the region. Additional research and outreach projects take place at multiple field locations in the region. There are almost 17000 square feet of space dedicated to industry-sponsored student design projects and cutting edge research, including a full fabrication shop and two computer labs to support these efforts. The department is also home to the Water Resources Institute, dedicated to the proper stewardship of the state's water resources.

Student Engagement and Support Opportunities

Many students participate in activities such as designing and building the Quarter-scale tractor, internships, and research projects. Other ABE opportunities are available via our student branch of the American Society of Agricultural and Biological Engineers (ASABE). In addition, engineering opportunities are available via organizations such as Society of Women Engineers, Engineers Without Borders, and others. The most outstanding students are honored by induction into the ABE honorary society of Alpha Epsilon and engineering honor societies such as Tau Beta Pi.

Available Options for Graduate Degrees

Master of Science Option A
Option B

Core Requirements

- ABE 771 - Graduate Seminar Credits: 1
- STAT 541 - Statistical Methods II Credits: 3
- ABE 798 - Thesis (Option A) Credits: 5-8
  or ABE 788 - Master's Research Problems/Projects (Option B) Credits: 2-3
- ABE Electives: 9
  - ABE 544 - Unit Operations of Biological Materials Processing and Lab Credits: 4
  - ABE 555 - Principles Biological Separation Processing and Lab Credits: 3
  - ABE 732 - Advanced Hydrology in Agriculture Credits: 2
  - ABE 733 - Ground Water Engineering in Agriculture Credits: 3
  - ABE 734 - Advanced Irrigation Engineering Credits: 3
  - ABE 748 - Bioseparations Credits: 3
  - ABE 752 - Theoretical Micro-Climatology Credits: 2
  - ABE 754 - Advanced Unit Operations of Food/Biomaterials Processing and Lab Credits: 3
  - ABE 763 - Instrumentation and Lab Credits: 3
  - ABE 771 - Graduate Seminar Credits: 1

*Other elective courses from outside the department (such as in Computer Science, Math, Physics or another engineering department or another supporting department) may be used only if: (1) 500-level or higher, (2) they support a coherent plan of study, and (3) they are approved by the Major Advisor and Graduate School.

- Additional Approved Electives: 9-17
  - Plan A: 9-12
  - Plan B: 16-17

*Other courses from outside the ABE department (such as in Computer Science, Math, Physics or another engineering department or another supporting department) may be used only if: (1) 500-level or higher, (2) they support a coherent plan of study, and (3) they are approved by the Major Advisor and Graduate School.

Total Credits: 30 (Option A), 32 (Option B)

Additional Admission Requirements

GRE: Not required

TOEFL: Score of 550 paper-based, 79 Internet-based

IELTS: 5.5

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Agricultural Education (M.S.)

Program Coordinator/Contact

Scott Smalley, Assistant Professor
Department of Teaching, Learning, and Leadership
E-mail: scott.smalley@sdstate.edu

Program Information

The Master's degree in Agricultural Education is designed to meet the needs of individuals who work (or plan to work) in agricultural education, non-profit organizations, post-secondary education or in agriculture leadership. The department of Teaching, Learning, and Leaderships provides professional preparation for those who want to expand their knowledge and advance themselves professionally in the agricultural industry.

Students are able to choose from either a program in which only coursework is required or a program in which they must complete a research project or creative component. If a student elects to completed a thesis (Plan A) the program will include 30 credit hours. If a student elects to complete a creative component (Plan B), the student must complete a minimum of 32 credit hours in order to graduate. If a full coursework option is selected (Plan C), the student must complete a minimum of 36 credit hours.

Accreditation, Certification, Licensure

This program can lead to alternative certification in agricultural education at the secondary level in South Dakota.

Course Delivery Format

The program can be completed online through the Brookings Campus. Some course offerings will be available face to face.

Available Options for Graduate Degrees

Master of Science Option A
Option B
Option C

Core Requirements

- AGED 610 - Introduction to Research Credits: 3
- AGED 650 - Foundations of Agricultural Education Credits: 3
- EDFN 745 - Effective Teaching: Theory Into Practice Credits: 3
- EDFN 747 - Curriculum: Theory Into Practice Credits: 2
- EPSY 740 - Advanced Educational Psychology Credits: 3
- SEED 748 - Secondary Curriculum Practicum Credits: 1
- Select one of the following options:
  - Option A
    - AGED 798 - Thesis Credits: 1-7 (5-7 credits required)
    - Electives: 8-10
  - Option B
    - AGED 788 - Research Problems in Agricultural Education Credits: 1-2 (3 credits required)
    - Electives: 14
  - Option C
    - Electives: 21

Total Credits: 30 (Option A), 32 (Option B), 36 (Option C)

Additional Admission Requirements

GRE: Not required

TOEFL: 525 paper-based, 71 Internet-based or higher

Applicants must provide a resume, goal statement, and two professional letters of reference as part of the application process.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Animal Science (M.S.)

Program Information

The Department of Animal Science offers graduate programs leading to the Master of Science and Doctor of Philosophy degrees in Animal Science, or the Doctor of Philosophy degree in Biological Sciences. Faculty and graduate students are actively involved in basic and/or applied research in the fields of nutrition, reproductive physiology, muscle biology, animal breeding, meat science, and animal production.

With the multi-disciplinary approaches towards production efficiency, product enhancement, and natural resources management, graduate students gain strong skill sets. The graduate programs are administered in collaboration with the Departments of Animal Science, Dairy Science, Veterinary and Biomedical Sciences, and Agricultural and Biosystems Engineering. The Department is committed to providing graduate students with quality educational and research experiences and preparing them to meet the challenges of a competitive job market upon graduation.

This program allows for considerable latitude in the education and training of students. Identification of a major professor with resources to support the student's thesis project is required for unconditional acceptance into the program. An advisory committee will be formed for each student. The advisory committee will work with the student to design a unique and individualized plan of study to meet the interests and needs of the student. While the training of most students is largely directed to a single discipline represented within one of the participating departments, cross-discipline training is available and encouraged.

Facilities

Training and experience in research methods are among the most important facets of a well-rounded graduate student education. Excellent facilities and large herds and flocks of livestock are available for Animal Science research at South Dakota State University. To ensure continued access to modern research facilities in the future, a major effort is underway to renovate or replace livestock production research facilities. A facility for ruminant nutrition is presently under construction, and funding has recently been approved for a new swine research facility. A new facility for sheep physiology and management research is in the planning stages. Renovation of off-campus research facilities is also a priority. Plans are also being implemented for on-campus construction of multi-departmental facilities to house research related to environmental stress of plants and animals.

Student Engagement and Support Opportunities

The department conducts cutting edge research that creates opportunities for graduate students. Qualified students may apply for a Graduate Research Assistant position and the Darwin Britzman Graduate Assistant Scholarship.

Available Options for Graduate Degrees

Master of Science Option A

Core Requirements

- AS 790 - Seminar Credits: 1
- 12-14 credits of discipline specific courses are required for a total requirement of 30 credits.
  - AS 711 - Ruminology Credits: 3
  - AS 712 - Ruminant Nutrition Credits: 3
  - AS 720 - Advanced Selection of Domestic Animals Credits: 3
  - AS 730 - Endocrinology Credits: 3
  - AS 732 - Advanced Physiology of Reproduction Credits: 3
  - AS 734 - Protein and Energy Nutrition Credits: 3
  - AS 736 - Monogastric Nutrition Credits: 3
  - AS 740 - Metabolism Credits: 3
  - AS 750 - Animal Growth and Development Credits: 3
  - AS 753 - Research Topics in Meat Science Credits: 3
  - DS 731 - Laboratory Techniques in Dairy Science Credits: 3
  - STAT 541 - Statistical Methods II Credits: 3
  - STAT 761 - Design of Experiments I Credits: 3
  - PS 756 - Quantitative Genetics Credits: 3
  - VET 523 - Advanced Mammalian Physiology Credits: 4

Total Credits: 30 (Option A)

Develop a Plan of Study no later than the end of the first semester of study.

- The Advisory Committee will work with the student to select the discipline specific courses intended to prepare the student in their emphasis area.

Develop a research proposal no later than the end of the first semester.

Additional Admission Requirements

GRE: Not required

TOEFL: required score of 550 paper-based, 79-80 Internet-based

Two letters of reference, a letter of interest and intent, and a resume.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Architecture (M.Arch.)

Program Information

The Master of Architecture (M.Arch.) program prepares professional leaders with specialized knowledge and skills to meet the nation's needs in design, build, and education. The aim of the program is to prepare architecture majors to practice at an advanced level.

The Master of Architecture degree is comprised of a 48 credit hour, four semester graduate curriculum which rounds out the department's seven semester NAAB accreditation candidate professional program. (See department website (www.sdstate.edu/arch/) for NAAB Professional Program details.)

Course Delivery Format

The curriculum is interactive, haptic and performance based, offering problem solving experiences in all major areas of professional practice.

Available Options for Graduate Degrees

Master of Architecture Option C

Core Requirements

- ARCH 521 - Building Media IV Credits: 2
- ARCH 522 - Building Media V Credits: 2
- ARCH 531 - Building Shop IV Credits: 2
- ARCH 551 - Whole Building Studio I Credits: 6
- ARCH 552 - Whole Building Studio II Credits: 6
- ARCH 571 - Architectural Practice I Credits: 2
- ARCH 572 - Architectural Practice II Credits: 2
- ARCH 631 - Building Technology II Credits: 2
- ARCH 632 - Building Technology III Credits: 2
- ARCH 651 - Professional Design Practice I Credits: 6
- ARCH 652 - Professional Design Practice II Credits: 6
- ARCH 671 - Architectural Practice III Credits: 2
- ARCH 672 - Architectural Practice IV Credits: 2
- ARCH 692 - Topics Credits: 3
- Electives Credits: 3

Total Credits: 48 (Option C)

Additional Admission Requirements

Students may be admitted fully or provisionally. Students provisionally admitted with insufficient graphic capacity may be required to take fundamental drawing and / or design courses the Fall semester before beginning professional study.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Athletic Training (M.S.)

Program Information

The South Dakota State University Master of Science in Athletic Training (AT) Program aspires to prepare engaged practitioners and contemporary leaders of athletic training. The program exists to cultivate a learning environment implementing innovative and best practice pedagogies which challenge students to become reflective, professional, and ethical practitioners dedicated to improving patients' quality of life. The overall goals of the program are to provide students with knowledge and experiences which improve the depth and breadth of professional competency in athletic training, enhance written and oral communication abilities, promote an appreciation for the ways research can inform practice, and/or prepare students for advanced study in the field.

The Master of Science in Athletic Training prepares students for entry into clinical practice as licensed athletic trainers. The program is two years in length and includes coursework in the summer between and first and second professional years. In addition to completing the courses required for the curriculum, students must successfully complete proficiencies associated with clinical education and clinical experiences under the supervision of preceptors who are appropriately credentialed health care professionals. Clinical experiences will include working with a variety of patients in high schools, colleges/universities, sports medicine clinics, and medical and rehabilitation clinics. Upon successful completion of the curriculum, students will be eligible to challenge the national certifying examination for athletic trainers through the Board of Certification (BOC).

Each year the Master of Science in AT program admits (1) new cohort of students who begin their plan of study during the Fall semester. Admittance to the program is on a competitive basis. For initial consideration, students must be admitted into Graduate School at SDSU. To complete their eligibility for admission, candidates must also complete a secondary selective admissions application specifically for the AT program.

Course Delivery Format

The program consists of lecture, laboratory, and experiential learning opportunities.

Additional Academic Requirements

Students enrolled in the Athletic Training program must pay for a background check before they can be placed at any of the clinical sites. Approximate cost of the background check is $75.00.

Accreditation, Certification, and Licensure

Upon completion of the program, students are eligible to challenge the national certifying examination for athletic trainers through the Board of Certification. The Entry Level Graduate Program in Athletic Training at South Dakota State University was awarded initial accreditation by the Commission on Accreditation of Athletic Training Education (CAATE) in August, 2008. As a professional degree program, it is not designed for individuals who already have a degree in Athletic Training and/or are eligible for certification in Athletic Training.

Student Support and Engagement Opportunities

The Department of Health and Nutritional Sciences aims to provide premier academic programs and high-quality services to students. A limited number of research and teaching assistantships and scholarships may be available to qualified graduate students.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- AT 541-541L - Athletic Training Techniques I and Lab Credits: 3
- AT 542 - Athletic Training Techniques II Credits: 3
- AT 543-543L - Athletic Training Techniques III and Lab Credits: 3
- AT 544 - Athletic Training Techniques IV Credits: 2
- AT 554 - Athletic Injuries Assessment – Lower Extremity Credits: 2
- AT 556 - Athletic Injuries Assessment – Upper Extremity Credits: 2
- AT 562 - Interventions I Credits: 3
- AT 564 - Interventions II Credits: 2
- AT 574 - Interventions III Credits: 2
- AT 790 - Seminar Credits 2
- AT 795 - Practicum Credits: 9
- HNS 783 - Research Methods in Health and Nutritional Sciences Credits: 3
- PE 745 - Applied Biomechanics Credits 3
- PE 750 - Advanced Exercise Physiology Credits 3

Option A

- HNS 798 - Thesis Credits: 5

Option B

- HNS 788 - Master's Research Problems/Projects Credits: 3
- HNS 796 - Field Experience Credits: 2

Option C

- HNS 796 - Field Experience Credits: 2

Total Credits: 47(Option A & B), 44 (Option C)

Additional Admission Requirements

GRE: Not required

TOEFL: Score of 525 paper-based, 71 Internet-based.

Program Application

Admission into the MSAT program is on a competitive basis. Each year the AT program uses a Primary (Graduate School Application) and Secondary (Program Application) Selective Admission Process to admit (1) new cohort of students who will begin their program of study during the Fall semester. In order to establish this cohort, the AT program reviews applications during (2) time periods during the application year:

- Fall Application Review (for next Fall admittance): Candidates who wish to get an early start on the application process in order to receive early notification of acceptance/denial into the Master of Science in AT program can complete their full application during the Fall semester. Graduate School applications are due by November 1st and secondary Program Application materials are due by December 1st.

- Spring Application Review (for next Fall admittance): Candidates who wish to have more time to complete the requirements for admittance into the Master of Science in AT program have until the Spring semester to complete the application process. Graduate School applications are due by February 1st and secondary Program Application materials are due by March 1st.

In order to complete all application requirements, students must:

- Complete the Graduate School Application and submit this to the South Dakota State University Graduate School
- Complete the Secondary Selective Admission Process/Program Application and submit application materials directly to the MS in Athletic Training Program

Students should begin the application process by submitting their Graduate School Application to the SDSU Graduate School and downloading Program Application materials for the MS in Athletic Training Program from the program website.

- GRADUATE SCHOOL APPLICATIONS MUST BE SUBMITTED TO THE GRADUATE SCHOOL BY EITHER NOVEMBER 1 or FEBRUARY 1 (See Fall Application Review.) This allows time for graduate school personnel to review applications and forward them to the program. An applicant must be accepted by the Graduate School before a final decision on the secondary selective admission process will be made.
- SECONDARY SELECTIVE ADMISSION/PROGRAM APPLICATION MATERIALS MUST BE SUBMITTED BY DECEMBER 1 or MARCH 1 (See Spring Application Review.) These materials can be submitted directly to:

  Trevor Roiger, EdD, ATC
  Box 2203, Intramural Building 116
  Department of Health and Nutrition Sciences
  Brookings, SD 57007

Verification and Demonstration of Technical Standards

Students will receive a copy of the program's technical standards as part of the application process. They will be asked to verify that they have received a copy, understand the concepts and work with the program if accommodations are necessary. Technical standards set the guidelines for the application process and progress in the major by describing the essential skills considered necessary for admitted students to possess in order to complete the responsibilities associated with being an athletic training student and subsequently, a practicing athletic trainer. Technical Standards are requirements of the Commission on Accreditation of Athletic Training Education (CAATE). Technical standards are assessed at the time of application, during progress and for completion of the program. Skills are described in five areas: cognitive ability/skills, psychomotor skill, affective behaviors, interpersonal skills, and knowledge or/interest in the profession of athletic training. The technical standards also describe policy statements regarding accommodations, standards of English as a second language, and eligibility requirements for the BOC national certifying examination and state licensing examinations.

Secondary Selective Admissions Minimum Selection Criteria

The criteria listed below represents additional pre-requisite requirements.

Completed Health Assessment

Verification of Technical Standards

Cumulative (or Junior-Senior) GPA of 3.0 or better

Completion of the Athletic Training Observation Record

Completed Program application, letter of interest, three letters of reference and a personal interview

Successful completion (C or better) of the following courses or their equivalents.*

Basic and Applied Sciences

- Eight (8) credits Chemistry
- BIOL 221 - Human Anatomy
- BIOL 325 - Mammalian Physiology
- NURS 323 - Introduction of Pathophysiology**
- PE 350 - Exercise Physiology
- PE 454 - Biomechanics

Social Sciences

- PSYC 417 - Health Psychology - OR - PSYC 451 - Abnormal Psychology
- HDFS 210 - Lifespan Development

General Health Science Courses

- HLTH 120 - Community Health - OR - HLTH 212 - Contemporary Health - OR - HSC 443 - Public Health Science
- NURS 201 - Medical Terminology
- PE 354 - Prevention and Care of Athletic Injuries

Nutrition

- NFS 315 - Human Nutrition

Statistics

- STAT 281 - Statistics

Optional

- AT 164 - Introduction to Athletic Training

* Students may be asked to submit syllabi from courses or demonstrate competence in specific discipline areas if they completed courses to an institution other than SDSU.

**If a student is unable to complete an undergraduate course in Pathophysiology, they will have the option of completing NURS 323: Pathophysiology or PE 550: Clinical Exercise Physiology.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Biological Sciences (M.S.)

Program Information

This is a collaborative graduate program leading to the Master of Science degree in Biological Sciences. Departments that cooperate in the program are the Departments of Agricultural and Biosystems Engineering; Biology and Microbiology; Dairy Science; Natural Resource Management; Plant Science; and Veterinary & Biomedical Sciences. Specializations and emphases are available in the following areas:

- Biology Specialization
- Dairy Science Specialization
- Food Science Specialization
- Microbiology Specialization
- Veterinary Microbiology Emphasis
- Veterinary Pathology Emphasis

The masters and doctoral programs in Biological Sciences allow for considerable latitude in the education and training of students. Students interested in advanced studies in the biological sciences will have the opportunity to tailor a program that meets their interest by selecting courses offered by faculty from the participating departments. While the training of most students is largely directed to a single discipline represented within one of the participating departments, cross-discipline training is available. Generally, identification of a major professor with resources to support the student's dissertation project is required for unconditional acceptance into the program. Therefore, interested persons should make application for program admission well in advance of the anticipated date of enrollment. Please refer to each departmental section for a listing of the graduate faculty and details regarding the areas of study offered in this program. Inquiries should be made directly to the department representing the discipline of interest.

Biological Sciences Program Objectives

Graduates of the Master's of Science in Biological Sciences will:

- Have a deep understanding and knowledge of biological principles related to the chosen discipline
- Apply principles into practice in the field or industry setting
- Have an appreciation and working knowledge of scientific research methods in the discipline
- Demonstrate ability to interpret research findings and understand the implications
- Write a coherent thesis or research paper and demonstrate the ability to write a scientific journal paper
- Demonstrate competence in the major course topics covered by the student's graduate plan of study
- Demonstrate the ability to use ethics in decision making and planning
- Demonstrate information literacy for science-based decision making and lifetime learning

Course Delivery

Biological Sciences courses are delivered face-to-face and enhanced with web-based instruction. Online delivery may be offered for specific courses.

Facilities and Services

A variety of outstanding laboratories, green houses, McCrory Gardens and Arboretum, livestock units, and field stations are available for education and research. Many Biological Sciences faculty hold appointments in the South Dakota Agricultural Experiment Station.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B

Core Requirements

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

Option A

- XXX 790 - Seminar Credits: 2
- XXX 798 - Thesis Credits: 5-10
- 3 or more credits of STAT courses numbered 500-level or higher
- 6 additional course credits, designed to meet the interests and individual needs of the student

Option B

- XXX 790 - Seminar Credits: 2
- XXX 788 - Master's Research Problems/Project minimum Credits: 2-3
- 3 or more credits of STAT courses numbered 500-level or higher

Additional Admission Requirements

GRE: Not a general requirement, but individual departments may require GRE

TOEFL: required score of 525 paper-based, 71 Internet-based

(Individual departments may have different requirements for GRE and TOEFL.)

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Biological Sciences (M.S.) - Biology Specialization

Program Information

The Department of Biology and Microbiology provides students with a wide range of opportunities for advanced study. The graduate faculty offer expertise and graduate student advisement in subdisciplines from molecular biology through ecology. Faculty members are very successful in obtaining extramural funds to support graduate student projects. Graduate students have modern research laboratories, equipment and field research sites available to carry out their research projects. The learning environment, scholarly excellence and quality of teaching are areas of strength in the department's Graduate Program.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B

Core Requirements

For details see specific program: Biological Sciences (M.S.)

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

Option A

- XXX 790 - Seminar Credits: 2
- XXX 798 - Thesis Credits: 5-10
- 3 or more credits of STAT courses numbered 500-level or higher
- 6 additional course credits, designed to meet the interests and individual needs of the student

Option B

- XXX 790 - Seminar Credits: 2
- XXX 788 - Master's Research Problems/Project minimum Credits: 2-3
- 3 or more credits of STAT courses numbered 500-level or higher

Masters Graduation Requirements

- Yearly evaluation (research progress + coursework)
- Presentation of Thesis/Paper (public) during last semester of program
- Oral defense of Thesis (committee) during last semester of program
- Thesis (Plan A) - OR - Research Paper (Plan B) completion

Additional Admission Requirements

GRE: Scores ranking above the 50th percentile will strengthen the case for admission

TOEFL: Score of 575 paper-based, 90 Internet based

IELTS: 6.5

At least two letters of reference or Personal References must be sent to the Department. A personal statement that includes a description of the applicants involvement in research, the applicants research interest, and career goals is also required.

Retention in the program is dependent on formation of a committee and completion of review matrix by the end of the first year. In ensuing years, students must have a committee meeting and complete review annually.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Biological Sciences (M.S.) - Dairy Science Specialization

Program Information

The Dairy Science Department provides research opportunities leading to Masters and PhD degrees. SDSU is one of two universities in the US with a Dairy Science Program that offers Dairy Production and Manufacturing majors. It is equipped with excellent laboratories, and a state of the art dairy processing plant which has the capability of processing fluid milk, cheese, butter, ice cream, concentrated and dried products, and other products. It also has a dairy research and training facility where a herd of 300 Holstein and Brown Swiss cattle for teaching and research is maintained. Metabolism and surgical facilities in the Animal Science Complex, and specialized laboratory equipment the Genomics Lab and other departments on campus, including, Veterinary and Biomedical Sciences, and Health and Nutritional Sciences Programs are also available. Graduate students accepted in the program will have opportunities to utilize these facilities to develop basic and/or applied research programs in dairy product processing, microbiology, chemistry, food safety, dairy cattle nutrition, metabolism, breeding, microbiology of the rumen, immunology, and management, while interacting with well qualified faculty. The SDSU Dairy Science Program, in collaboration with the Food Science and Nutrition Program at the University of Minnesota and the Food Science and Human Nutrition Program at Iowa State University, is the Midwest Dairy Foods Research Center. This provides graduate students in the manufacturing area a unique opportunity to be involved with current issues and research needs.

Student Engagement and Support Opportunities

An application to the graduate program serves as an application for a graduate assistantship. Qualified applicants may be eligible for financial aid in the form of departmental research assistantships for masters and doctoral students. Graduate assistants pay one-third the resident tuition per credit, per semester for tuition and fees. The department also offers some limited scholarships for qualified students.

Available Options for Graduate Degrees

Master of Science Option A
Option B

Core Requirements

For details see specific program: M.S. in Biological Sciences.

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

Option A

- XXX 790 - Seminar Credits: 2
- XXX 798 - Thesis Credits: 5-10
- 3 or more credits of STAT courses numbered 500-level or higher
- 6 additional course credits, designed to meet the interests and individual needs of the student

Option B

- XXX 790 - Seminar Credits: 2
- XXX 788 - Master's Research Problems/Project minimum Credits: 2-3
- 3 or more credits of STAT courses numbered 500-level or higher

Additional Academic Requirements

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

At least two letters of reference and a personal statement that includes a description of the applicants' involvement in research, the applicant's research interest, and career goals.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Biological Sciences (M.S.) - Food Science Specialization

Program Information

The Food Science program offers excellent opportunities for graduate level coursework and research leading to academic or industry careers in Food Science. Graduate students receive advanced preparation related to food processing, product development, and food safety. Food Science is a multi-disciplinary program that is administered by the Department of Dairy Science, but may also include such diverse areas as animal science, food grain processing, and agricultural & biosystems engineering.

Available Options for Graduate Degrees

Master of Science Option A
Option B

Core Requirements

For details see specific program: M.S. in Biological Sciences.

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

Option A:

- XXX 790 - Seminar Credits: 2
- XXX 798 - Thesis Credits: 5-10
- 3 or more credits of STAT courses numbered 500-level or higher
- FS 550 - Food Analysis Credits: 4
- FS 550L - Food Analysis Laboratory Credits: 0
- FS 551 - New Food Product Development Credits: 4
- FS 551L - New Food Product Development Laboratory Credits: 0
- Electives: 7-12

Option B:

- XXX 790 - Seminar Credits: 2
- XXX 788 - Master's Research Problems/Project minimum Credits: 2-3
- 3 or more credits of STAT courses numbered 500-level or higher
- FS 550 - Food Analysis Credits: 4
- FS 550L - Food Analysis Laboratory Credits: 0
- FS 551 - New Food Product Development Credits: 4
- FS 551L - New Food Product Development Laboratory Credits: 0
- Electives: 16-17

Total Credits: 30 (Option A), 32 (Option B)

Additional Academic Requirements

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

At least two letters of reference and a personal statement that includes a description of the applicants' involvement in research, the applicant's research interest, and career goals.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Biological Sciences (M.S.) - Microbiology Specialization

Program Information

The Department of Biology and Microbiology provides students with a wide range of opportunities for advanced study. The graduate faculty offer expertise and graduate student advisement in subdisciplines from molecular biology through ecology. Faculty members are very successful in obtaining extramural funds to support graduate student projects. Graduate students have modern research laboratories, equipment and field research sites available to carry out their research projects. The learning environment, scholarly excellence and quality of teaching are areas of strength in the department's Graduate Program.

Available Options for Graduate Degrees

Master of Science Option A
Option B

Core Requirements

For details see specific program: Biological Sciences (M.S.).

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

Option A

- XXX 790 - Seminar Credits: 2
- XXX 798 - Thesis Credits: 5-10
- 3 or more credits of STAT courses numbered 500-level or higher
- 6 additional course credits, designed to meet the interests and individual needs of the student

Option B

- XXX 790 - Seminar Credits: 2
- XXX 788 - Master's Research Problems/Project minimum Credits: 2-3
- 3 or more credits of STAT courses numbered 500-level or higher

Masters Graduation Requirements

- Yearly evaluation (research progress + coursework)
- Presentation of Thesis/Paper (public) during last semester of program
- Oral defense of Thesis (committee) during last semester of program
- Thesis (Plan A) - OR - Research Paper (Plan B) completion

Additional Admission Requirements

GRE: Scores ranking above the 50th percentile will strengthen the case for admission

TOEFL: Score of 575 paper-based, 90 Internet based

IELTS: 6.5

At least two letters of reference or Personal References must be sent to the Department. A personal statement that includes a description of the applicants involvement in research, the applicants research interest, and career goals is also required.

Retention in the program is dependent on formation of a committee and completion of review matrix by the end of the first year. In ensuing years, students must have a committee meeting and complete review annually.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Chemistry (M.S.)

Program Information

The Department's chemistry faculty research programs fall into the thematic focus areas of environmental chemistry and green chemistry, chemical sensor development, organic synthesis, materials chemistry, natural products chemistry, and chemical education. Within these multidisciplinary and interdisciplinary focus areas, students can select research projects that involve the traditional subdisciplines of chemistry; analytical, biochemistry, inorganic, organic and physical. Currently active research projects in the Department focus on various aspects of analytical chemistry, drug discover and delivery, synthesis or photoactive materials including polymers, materials chemistry and self assembly, chromatography, the chemistry of cell membranes, environmental and green chemistry, chemistry of climate change, photo-physical chemistry, natural products synthesis, biophysical chemistry, computational chemistry, and solid-state NMR. For additional information student should review the descriptions of current faculty research interests at chembiochem.sdstate.edu.

In addition to a traditional thesis-based (Option A) M.S. degree, the Department also offers a predominantly on-line M.S. in chemistry in chemical education. This is a non-thesis (Option B) degree that focuses on the content necessary for practicing high school teachers to achieve highly qualified status. Admission in this program is limited to practicing high school science teachers, students interested in the thesis-based M.S. degree in chemical education should specify this on the application for admission.

Research Instrumentation

The Department is equipped with modern instrumentation core facilities to support its research program. These facilities are readily available to graduate students for "hands-on" experience after successfully completing a short training course.

- **NMR core facility** includes 600, 400, and 200 MHz solution FT-NMR spectrometers and 400, 300, 100 MHz wide-bore solid-state NMR spectrometers.
- **Core campus mass spectrometry facility** consists of a 7T ESI FTMS; a high-resolution magnetic sector mass spectrometer with EI and CI sources and GC, HPLC, pyrolysis and fast-atom bombardment capabilities, a MALDI-TOF mass spectrometer; a Eksigent/Thermo LTQ ESI LC-MS/SM dedicated to "bottom-up" proteomics studies and an Applied Biosystems SCIEX QTRAP ESI LC-MS/MS dedicated to small molecule and metablomics characterizations; and a Varian GCMS.
- **Core campus proteomics facility** has all the necessary equipment to prepare samples for mass-spectrometry-based proteomics characterizations.
- **Optical Spectroscopy lab** containing 2 FT-IR spectrometer with far-IR capabilities; time-resolved spectrofluorometer; atomic absorption and diode-array UV-Vis spectrophotometers.
- **Powder x-ray diffractometer**
- The Department is home to multiple state of the art fluorescence microscopes for the analysis of biochemical reactions involving purified molecules and within living cells. These instruments including spinning disk confocal microscope, total internal reflection fluorescence (TIRF) microscopy, targeted photo-bleaching, instrumentation of for ensemble and single molecule Fluorescence Resonance Energy Transfer (FRET) experiments and fluorescence correlation spectroscopy, and optogenetics capabilities. The department also houses cell/tissue culture facilities, large- and small-scale protein purification equipment and biophysical characterization capabilities including an Isothermal Titration Calorimetry. Campus computer facilities (including a Beowulf supercomputer cluster) are readily available. Individual groups maintain their own system for molecular modeling, word processing or data manipulation. Direct, on-line computer access to chemical and biochemical literature databases such as *Chemical Abstracts* and *Web of Science* are provided by the Department.
- In addition to these departmental resources, individual research groups also maintained instrumentation including supercritical fluid chromatography and extraction, for FRET microscopy, laser light scattering, and computational chemistry. Campus super-computer facilities and on-line computer access to Web of Science, Chemical Abstracts Services and other on-line information sources are readily available.

Facilities

The Department is housed in the newly constructed Avera Health Science Center South and newly renovated Avera Health and Science Center North. Combined, these connected facilities provide 100,000 sq. ft. of research and instructional space.

Available Options for Graduate Degrees

Master of Science Option A

Core Requirements

Thesis-Based (Option A)

Students are required to complete a minimum of 30 credits which includes 21 credits of course work (12 credits of core coursework and 9 credits specific to the research project); 2 credits of seminar; and 7 credits of research.

- CHEM 701 - Advanced Organic Chemistry I Credits: 3
  or CHEM 705 - Principles of Biochemistry Credits: 2-5 (3 credits required)
- CHEM 703 - Advanced Physical Chemistry Credits: 3
- CHEM 704 - Advanced Inorganic Chemistry Credits: 3
- CHEM 706 - Advanced Analytical Chemistry Credits: 3
- CHEM 707 - Chemical Communication Skills Credits: 2
- CHEM Electives: 7
- CHEM 798 - Thesis Credits: 9

Additional Admission Requirements

International students wishing to be considered for an assistantship should submit a complete application no later than March 15 for Fall admission and October 1 for Spring admission.

GRE: General and subject score are recommended but not required

TOEFL: Score of 580 paper-based, 92-93 Internet-based

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Chemistry (M.S.) - Chemical Education Specialization

Program Information

The Department's chemistry faculty research programs fall into the thematic focus areas of environmental chemistry and green chemistry, chemical sensor development, organic synthesis, materials chemistry, natural products chemistry, and chemical education. Within these multidisciplinary and interdisciplinary focus areas, students can select research projects that involve the traditional subdisciplines of chemistry; analytical, biochemistry, inorganic, organic and physical. Currently active research projects in the Department focus on various aspects of analytical chemistry, drug discover and delivery, synthesis or photoactive materials including polymers, materials chemistry and self assembly, chromatography, the chemistry of cell membranes, environmental and green chemistry, chemistry of climate change, photo-physical chemistry, natural products synthesis, biophysical chemistry, computational chemistry, and solid-state NMR. For additional information student should review the descriptions of current faculty research interests at www.sdstate.edu/chem.

In addition to a traditional thesis-based (Option A) M.S. degree, the Department also offers a predominantly on-line M.S. in chemistry in chemical education. This is a non-thesis (Option B) degree that focuses on the content necessary for practicing high school teachers to achieve highly qualified status. Admission in this program is limited to practicing high school science teachers, students interested in the thesis-based M.S. degree in chemical education should specify this on the application for admission.

Research Instrumentation

The Department is equipped with modern instrumentation core facilities to support its research program. These facilities are readily available to graduate students for "hands-on" experience after successfully completing a short training course.

- **NMR core facility** includes 600, 400, and 200 MHz solution FT-NMR spectrometers and 400, 300, 100 MHz wide-bore solid-state NMR spectrometers.
- **Core campus mass spectrometry facility** consists of a 7T ESI FTMS; a high-resolution magnetic sector mass spectrometer with EI and CI sources and GC, HPLC, pyrolysis and fast-atom bombardment capabilities, a MALDI-TOF mass spectrometer; a Eksigent/Thermo LTQ ESI LC-MS/SM dedicated to "bottom-up" proteomics studies and an Applied Biosystems SCIEX QTRAP ESI LC-MS/MS dedicated to small molecule and metablomics characterizations; and a Varian GCMS.
- **Core campus proteomics facility** has all the necessary equipment to prepare samples for mass-spectrometry-based proteomics characterizations.
- **Optical Spectroscopy lab** containing 2 FT-IR spectrometer with far-IR capabilities; time-resolved spectrofluorometer; atomic absorption and diode-array UV-Vis spectrophotometers.
- **Powder x-ray diffractometer**
- The Department is home to multiple state of the art fluorescence microscopes for the analysis of biochemical reactions involving purified molecules and within living cells. These instruments including spinning disk confocal microscope, total internal reflection fluorescence (TIRF) microscopy, targeted photo-bleaching, instrumentation of for ensemble and single molecule Fluorescence Resonance Energy Transfer (FRET) experiments and fluorescence correlation spectroscopy, and optogenetics capabilities. The department also houses cell/tissue culture facilities, large- and small-scale protein purification equipment and biophysical characterization capabilities including an Isothermal Titration Calorimetry. Campus computer facilities (including a Beowulf supercomputer cluster) are readily available. Individual groups maintain their own system for molecular modeling, word processing or data manipulation. Direct, on-line computer access to chemical and biochemical literature databases such as *Chemical Abstracts* and *Web of Science* are provided by the Department.
- In addition to these departmental resources, individual research groups also maintained instrumentation including supercritical fluid chromatography and extraction, for FRET microscopy, laser light scattering, and computational chemistry. Campus super-computer facilities and on-line computer access to Web of Science, Chemical Abstracts Services and other on-line information sources are readily available.

Facilities

The Department is housed in the newly constructed Avera Health Science Center South and newly renovated Avera Health and Science Center North. Combined, these connected facilities provide 100,000 sq. ft. of research and instructional space.

Available Options for Graduate Degrees

Master of Science Option B

Core Requirements

Non-Thesis-Based (Option B) – Specialization in Chemical Education

Students are required to complete 32 credits, 26 credits are offered on-line. Six (6) credits of 2 separate laboratory development courses are delivered on-site at South Dakota State University during the two consecutive summers that students are enrolled in the program. The student completes 3 credits for the development, implementation, and reporting of a problem-based project completed in the participant's classroom. The written report of this project is defended orally as the capstone activity of the program.

- CHEM 770 - Atomic Theory & Bonding Credits: 3
- CHEM 771 - Intermolecular Interactions & Phases of Matter Credits: 3
- CHEM 772 - Thermodynamics Credits: 3
- CHEM 773 - Equilibria & Acid-Base Chemistry Credits: 3
- CHEM 774 - Kinetics, Nuclear, & Electrochemistry Credits: 3
- CHEM 775 - Organic & Biochemistry Credits: 3
- CHEM 776 - Laboratory Development Credits: 2 (Must be taken twice for 3 credits each session.)
- CHEM 777 - Action Research in the Secondary Classroom Credits: 3
- CHEM 778 - Chemistry Teaching Strategies Credits: 3

- CHEM 788 - Research Problems in the Chemistry Classroom Credits: 1-2 (Must be taken twice, once for 1 credit, the second for 2 credits.)

Additional Admission Requirements

International students wishing to be considered for an assistantship should submit a complete application no later than March 15 for Fall admission and October 1 for Spring admission.

GRE: General and subject score are recommended but not required

TOEFL: Score of 580 paper-based, 92-93 Internet-based

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Civil Engineering (M.S.)

Program Information

The MSCE program offers courses, design, and research activities within Civil and Environmental Engineering that are related to structural, transportation, geotechnical, water resources, hydrology, hydraulics and environmental engineering, as well as engineering mechanics. Students can pursue an MS degree under a thesis, design paper, or coursework only option.

Educational Objectives

The Civil Engineering Program at SDSU prepares students to achieve the following educational objectives within the first five years of their career:

- Completion of professional licensure or specialized certification,
- Completion of advanced academic degrees and/or active participation in professional societies, and
- Assume leadership positions within organizations in their profession, in their communities and in the global society.

Accreditation

The department has been accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

Course Delivery Format

The program offers course, design, and research activities within Civil and Environmental Engineering that are related to structural, transportation, geotechnical, water resources, hydrology, hydraulics, and environmental engineer, was well as areas of engineering mechanics in classroom, laboratory, and field-based setting.

Facilities and Services

The Civil and Environmental Engineering department is housed in Crothers Engineering Hal and maintains over 18,000 square feet of classroom and laboratory space dedicated to undergraduate instruction and research experience, as well as testing laboratories for research and sponsored projects. This includes the Lohr Structures Lab, Fluid Mechanics Lab, HDR Environmental Lab, Geotechnical Lab, Concrete Lab, Structural Materials Lab, Bituminous Lab, Design Studio Laboratories and Student Computer Lab

Student Engagement

The department provides outreach and services through the American Society of Civil Engineers Student Chapter Program.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- CEE 702 - Advanced Civil and Environmental Engineering Minimum Credits: 2
- CEE 798 - Thesis Credits: 5-10 (Option A)
  or CEE 788 - Master's Research Problems/Project Credits: 2-3 (Option B)
- Civil and Environmental Engineering Elective Credits: 18-33 (Depending on Option)
- Supporting Elective Credits: 0-9 (Depending on Option)

Total Credits: 30 (Option A), 32 (Option B), 35 (Option C)

Additional Admission Requirements

GRE: Not required

TOEFL: Score of 525 paper-based, 71 Internet-based

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Communication Studies and Journalism (M.S.) - Communication Studies Specialization

Program Information

The Master of Science specialization in Communication Studies is designed to provide advanced studies in the area of communication theory, research methodology, instructional methodology, and public address. It provides further professional preparation and competencies in the area of communication. The program provides broad-based, graduate degree for students with an undergraduate degree in communication studies and related areas. Students will be exposed to areas of concentration including organizational, interpersonal, and instructional communication as well as rhetorical and communication theory, drama, and competencies in the area of communication.

Student Learning Outcomes

A graduate with a Master of Science specialization in Communication Studies will be able to:

- Recognize and apply communication theory in a variety of contexts,
- Understand multiple methodologies for conducting communication research,
- Conduct independent and original research,
- Demonstrate advanced competencies in the area of communication.

Course Delivery Format

The on campus program provides a wide range of course formats including seminar, small group, interactive and collaborative partnerships; limited courses are offered online.

Available Options for Graduate Degrees

Master of Science Option A

Core Requirements

- SPCM 501 - Advanced Interpersonal Communications Credits: 3
- SPCM 701 - Introduction: Graduate Studies Credits: 3 - *First semester*
- SPCM 787 - Research Methods in Speech Communications Credits: 3 - *Second semester*
- SPCM 605 - Current Approaches to Communication Credits: 3
- SPCM 700 - Instructional Methods in Communication Credits: 3 - *Required only for Graduate Assistants*
- SPCM 798 - Thesis Credits: 5-7
- Electives approved by advisor

Total Credits: 30

Additional Admission Requirements

GRE: Not required

TOEFL: Department requirement of 600 paper-based, 100 Internet-based

Prerequisite of a minimum of 20 semester hours of undergraduate credit in Speech, Theatre, Journalism, or Communication. Other undergraduate programs *may* qualify.

A personal statement and three letters of recommendation that address: 1) the ability and preparation of the student for graduate level work, and 2) the ability to

work in the classroom environment, and if interested, to serve as a graduate teaching assistant for SPCM 101: Fundamentals of Speech.

Additional Department Requirements

To be considered for a Graduate Teaching Assistantship in the Department of Communication Studies & Theatre, the department requires a cover letter, resume, and contact information for three references. These documents should be sent to the Department Head, Dr. Laurie Haleta, at laurie.haleta@sdstate.edu.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Communication Studies and Journalism (M.S.) - Journalism Specialization

Program Information

The Master of Science in Communication Studies and Journalism – Journalism Specialization consists of advanced studies in journalism, advertising and public relations. The goal of the program is to expand and contribute to the knowledge of these academic fields rather than the knowledge of professional practice. This degree provides an introduction to research and advanced study in preparation for students seeking to move on to the doctoral level.

Student Learning Outcomes

Graduates of the Journalism program

- advance mass communication's body of knowledge through research, analysis and application.
- demonstrate leadership and mass communication skills for expanding their influence within their chosen professions.
- adapt fundamental critical thinking and storytelling skills to the interconnected world with its digital, networked media environment.
- utilize technology and have the vision to expand their knowledge base and skill set.

Accreditation

The Department is accredited by the national accrediting body of journalism and mass communication, the Accrediting Council on Education in Journalism and Mass Communications (ACEJMC).

Course Delivery Method

This program is offered at SDSU's Brookings campus and includes both face-to-face and online instruction options.

Facilities and Services

The former Printing and Rural Journalism Building was renamed Yeager Hall in recognition of the contributions of Anson and Ada May Yeager. Mr. Yeager was longtime editor of the Argus Leader in Sioux Falls. The Department moved into expanded and renovated facilities in 2000 that cost $2.4 million. The Yeager Media Center, completed in 2012, is a high-definition television and new media facility and the primary center for SDSU campus television and media production. Newly remodeled classrooms enhance teaching space in the modern educational facility. The Joe L. Floyd News Media Laboratory is connected to digital video and audio production suites. Second floor of Yeager Hall includes a conference room, a reading room, a student lounge, and individual offices for the Department's faculty members.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B

Core Requirements

- MCOM 704 - Introduction to Graduate Studies Credits: 3
  or MCOM 705 - Introduction to Master of Mass Communication Credits: 3
- MCOM 710 - Cross-Platform Storytelling Credits: 3
  or MCOM 785 - Health Journalism Credits: 3
  or MCOM 615 - Opinion Writing Credits: 3
- MCOM 730 - Media Law Case Studies Credits: 3
  or MCOM 530 - Media Law Credits: 3
- MCOM 786 - Conducting Professional Research Credits: 3
  or MCOM 787 - Research Methods in Communication Credits: 3
- MCOM 798 - Thesis (Option A) Credits: 6
  or MCOM 788 - Master's Research Problems/Projects (Option B) Credits: 2
- Elective Credits: 18-24

Total Required Credits: 30 (Option A), 32 (Option B)

Additional Admission Requirements

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

IELTS: 6.5

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

See Master's Degree Requirements for more detail.

Computer Science (M.S.)

Program Information

The Department of Electrical Engineering and Computer Science offers the Master of Science in Computer Science. The program prepares graduate students for positions in the design and development of computer systems and applications in business and industry and for scientific positions in industrial or academic computing research. Areas of research interest within the department currently include Software Engineering, Medical Image Processing, Parallel Processing, Applied Computing, GIS, Computer Security, Cluster Computing, and Computer Networks.

Program Objectives

The CS graduate program objectives are to equip individuals to:

- Discover and disseminate knowledge relevant to the discipline of computer science.
- Provide leadership for increasingly complex roles in computer science and industry.
- Contribute to the advancement of the science of computer science serving regional and national needs.

Course Delivery Format

A majority of the courses are taught on campus in smart classrooms. The smart classrooms allow for a variety of methods for student engagement and faculty are able to record and post their lectures on-line.

Facilities and Services

With more than $12 million invested in classrooms and laboratories, graduate students benefit from modern lecture rooms and gain valuable experience using state-of-the-art equipment. The recently dedicated modern Daktronics Engineering Hall is home to the Computer Science program with over 15,000 square feet of dedicated research space.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B

Core Requirements

- CSC 705 - Design and Analysis of Computer Algorithms (COM) Credits: 3
- CSC 710 - Structure and Design of Programming Languages Credits: 3
- CSC 720 - Theory of Computation Credits: 3
- CSC 770 - Software Engineering Management Credits: 3
- CSC 798 - Thesis (Option A)
  or CSC 788 - Master's Research Problems/Projects (Option B) Credits 2-5
- Approved electives 13-18

Total Credits: 30 (Option A), 32 (Option B)

Additional Admission Requirements

GRE: Not required

TOEFL: Department requirement of 525 paper-based, 71 Internet-based

Additional Graduation Requirements

All CS graduate candidates must pass a comprehensive written examination. The comprehensive written examination is offered twice during each academic year. The four graduate core courses are the subjects of the comprehensive written examination.

Comprehensive Written Exam Requirements

- All CS graduate candidates must pass a comprehensive written examination. The comprehensive written examination is offered twice during each academic year. It is usually during the third week of both the fall and spring semester. The four graduate core courses (listed below) are the subjects of the comprehensive written examination.

- CS graduate students can take the comprehensive exam up to three times as long as they have an average score of 50 or higher in the comprehensive exam and a minimum score of 40 or higher in each of the core course exams. If at any time in the students' scores fall below the criteria, the student loses the option of retaking the exam.

- If a student submits an application to take the comprehensive exam, that application will be counted as one of their three opportunities.

Final Oral Exam Requirements

The final oral exam is required for both option A and option B students. It is scheduled for approximately two hours. The first part of the exam includes the candidate's thesis or design paper defense, and the second part of the exam comprises the candidate's course work.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Counseling and Human Resource Development (M.Ed.) - Administration of Student Affairs Specialization

Program Coordinator/Contact

Ruth Harper, Professor
Department of Counseling and Human Development
E-mail: ruth.harper@sdstate.edu

Program Information

This Administration of Student Affairs Specialization is designed for those who seek professional roles in student affairs or related areas of higher education in any postsecondary setting. The administrative emphasis will build skills based on both theory and experience. Students that complete this 36-credit program will earn a Master of Education in Counseling & Human Resource Development (CHRD) specializing in Administration of Student Affairs.

Accreditation, Certification, and Licensure

Standards and Accreditations

The Master of Education specialization in Administration of Student Affairs meets the guidelines of the Council for the Advancement of Standards in Higher Education (CAS).

Course Delivery Format

Instruction occurs through didactic (classroom) and clinical experience. Most classes are enhanced with internet supplement.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- CHRD 601 - Introduction to Professional Issues and Ethics Credits: 1
- CHRD 602 - Research and Evaluation in Counseling and Human Development Credits: 3
- EDFN 727 - Group Processes Credits: 3
- CHRD 742 - Career Counseling and Planning Credits: 3
- CHRD 770 - Student Development: Theory and Practice Credits: 3
- CHRD 771 - Student Personnel Services Credits: 3
- CHRD 772 - Administration and Leadership in Student Affairs Credits: 3
- CHRD 794 - Internship Credits: 2-6
- Elective Credits: 11
  - CHRD 798 - Thesis (Option A)
  - CHRD 788 - Research Problems in Counseling and Guidance (Option B)
  - Additional Coursework (Option C)

Total Credits: 36

Additional Admission Requirements for Counseling and Human Resource Development (M.S./M.Ed.)

GRE: Not required

TOEFL: Department requirement of 525 paper-based, 71 Internet-based

Formal Application Process

In addition to applying for Graduate School, applicants must also apply to the CHRD program by April 1 for fall admission or by October 1 for spring admission. Admission is competitive; late applications will not be considered. Students have one calendar year from the time of acceptance to begin taking courses otherwise formal re-application to the CHRD program is required.

The CHRD department requires all applicants to submit the documents below by the appropriate admission deadline:

- CHRD Disclosure Statement
- Resume
- A typed, one-page goal statement discussing your aspirations to the counseling field
- Two completed CHRD Recommendation Forms (do not use the Graduate School reference forms).

Based on the rating score of the applicant's file, the applicant will either be invited to the group screening interview top continue the admissions process or denied admission.

Criminal Background Check Requirement

Applicants who successfully complete the interview will be required to successfully complete and pay for a criminal background check before an official offer of admission is secured.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Counseling and Human Resource Development (M.S.) - Clinical Mental Health Counseling Specialization

Program Coordinator/Contact

Kristin Bruns, NCC, LPC in Ohio
Department of Counseling and Human Development
E-mail: kristin.bruns@sdstate.edu

Program Information

Students who successfully complete this 60-credit hour specialization will earn a Master of Science in Counseling and Human Resource Development specializing in Clinical Mental Health Counseling. Upon successful completion of the core requirements, and those of the Clinical Mental Health Counseling specialization and with the successful completion of the comprehensive written and oral

examinations, graduates are endorsed as having constructed appropriate entry level knowledge and as having met appropriate skill acquisition to be recognized as professional clinical mental health counselors. Students in the Clinical Mental Health Counseling specialization are also responsible for having taken supporting area courses which supplement or enhance their chosen specialty.

Accreditation, Certification, and Licensure

Standards and Accreditations

The Master of Science in CHRD specializing in Clinical Mental Health Counseling, is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) under the 2001 standards for Community Counseling.

Certification

All Master of Science students are eligible to begin the process for the National Certified Counselor certification by taking the NCE six months before or after they graduate.

The Clinical Mental Health Counseling specialization is designed to meet the requirements of the South Dakota Board of Counselor Examiners. Graduates of this specialization are eligible for training supervisee status under the South Dakota Board of Examiners for Counselors. Once graduates complete an approved plan for the remainder of the supervised clinical experience, they are eligible for licensure as a Licensed Professional Counselor (LPC).

Licensure

Graduation from this program does not grant immediate licensure as a counselor. Licensure differs by state and is obtainable by completing additional client contact hours after graduation. Students are responsible for researching licensure requirements for the state in which they plan to practice.

Student Learning Outcomes

Upon successful completion of the course requirements for a MS in CHRD specializing in Clinical Mental Health Counseling, students will:

- understand and advocate for positive attention to developmental needs of individuals, families, schools, and communities;
- promote mental health through well-developed and consistent theoretical study and application;
- appreciate cultural, ethnic, and gender differences as they relate to perceptions and expectations of counseling;
- apply ethical, legal, moral, and professional standards to all aspects of professional counseling services;
- respond to the mental health needs of a variety of individuals and families, through a wide spectrum of services including support, education, assessment, and treatment;
- understand and be able to appropriately select and apply a variety of service or treatment modalities;
- understand assessment strategies and the criteria for mental illnesses as well as effective treatments;
- understand and model healthy community and work relationships; and
- be prepared to pursue licensure as a professional counselor.

Course Delivery Format

Instruction occurs through didactic (classroom) and clinical experience. Most classes are enhanced with internet supplement.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- CHRD 601 - Introduction to Professional Issues and Ethics Credits: 1
- CHRD 602 - Research and Evaluation in Counseling and Human Development Credits: 3
- CHRD 610 - Developmental Issues in Counseling Credits: 3
- CHRD 661 - Theories of Counseling Credits: 3
- CHRD 701 - Professional Issues and Ethics II Credits: 1
- CHRD 731 - Multicultural Counseling and Human Relations Credits: 3
- CHRD 736 - Appraisal of the Individual Credits: 3
- CHRD 742 - Career Counseling and Planning Credits: 3
- CHRD 766 - Group Counseling Credits: 3
- CHRD 785 - Pre-Practicum Credits: 3
- CHRD 786 - Counseling Practicum Credits: 3-5
- CHRD 713 - Administration and Management of Mental Health Organizations Credits: 3
- CHRD 723 - Counseling the Family Credits: 3
- CHRD 755 - Clinical Diagnosis and Treatment Planning Credits: 3
- CHRD 794 - Internship Credits: 9
- PHA 647 - Pharmacological Issues in Mental Health Counseling Credits: 3
- Elective Credits: 9
  - CHRD 798 - Thesis (Option A)
  - CHRD 788 - Research Problems in Counseling and Guidance (Option B)
  - Additional Coursework (Option C)

Total Credits: 60

Additional Program Requirements for Counseling and Human Resource Development (M.S./M.Ed.)

- All Master of Science students are required to purchase and carry professional liability insurance throughout the duration of the program. M.Ed. students will be required to purchase and carry professional liability insurance if enrolled in clinical courses.
- Clinical course registration is completed by the department.
- Students enrolled in the M.S. CHRD program need to complete a practicum and an approved internship. These experiences allow students to learn by doing, with active, sound supervision. The practicum and internship experiences carry clock and credit hour completion expectations. For example, for every 3 credits of internship, students are required to complete 20 hours per week of on-site experience. In addition, regular work expectations outside the classroom exist for every credit hour enrolled. Thus, students enrolled in 3 credits of internship or practicum experience will be considered part-time. Students enrolled in 4 credits of internship or 3 credits of practicum plus other courses to total 4 semester credits will be considered full-time.

Additional Admission Requirements for Counseling and Human Resource Development (M.S./M.Ed.)

GRE: Not required

TOEFL: Department requirement of 525 paper-based, 71 Internet-based

Formal Application Process

In addition to applying for Graduate School, applicants must also apply to the CHRD program by April 1 for fall admission or by October 1 for spring admission. Admission is competitive; late applications will not be considered. Students have one calendar year from the time of acceptance to begin taking courses otherwise formal re-application to the CHRD program is required.

The CHRD department requires all applicants to submit the documents below by the appropriate admission deadline:

- CHRD Disclosure Statement
- Resume
- A typed, one-page goal statement discussing your aspirations to the counseling field
- Two completed CHRD Recommendation Forms (do not use the Graduate School reference forms).

Based on the rating score of the applicant's file, the applicant will either be invited to the group screening interview top continue the admissions process or denied admission.

Criminal Background Check Requirement

Applicants who successfully complete the interview will be required to successfully complete and pay for a criminal background check before an official offer of admission is secured.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Counseling and Human Resource Development (M.S.) - College Counseling Specialization

Program Coordinator/Contact

Ruth Harper, Professor
Department of Counseling and Human Development
E-mail: ruth.harper@sdstate.edu

Program Information

This program prepares students to work in higher education settings in the various aspects of student life that take place largely outside of the classroom. These include, but are not limited to, student affairs administration, general college student counseling, career counseling, academic advising, institutional admissions, student activities, multicultural affairs, and residence hall settings. Currently, there are no certification or licensure requirements for student personnel professionals. Students who successfully complete this 48-credit hour specialization will earn a Master of Science in Counseling and Human Resource Development specializing in College Counseling. Upon successful completion of the core requirements, and those of the College Counseling specialization, and, with the successful completion of the comprehensive written and oral examinations, graduates are endorsed as student affairs professionals.

Accreditation, Certification, and Licensure

Standards and Accreditations

The Master of Science in CHRD specializing in College Counseling is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

Certification

All Master of Science students are eligible to begin the process for the National Certified Counselor certification by taking the NCE six months before or after they graduate.

Licensure

Graduation from this program does not grant immediate licensure as a counselor. Licensure differs by state and is obtainable by completing additional client contact hours after graduation. Students are responsible for researching licensure requirements for the state in which they plan to practice.

Student Learning Outcomes

Upon successful completion of the requirements for a M.S. in CHRD with an emphasis in College Counseling, students will:

- Understand and apply various student development theories;
- Understand and incorporate multicultural and diverse perspectives;
- Comprehend the effects of student characteristics and the effects of college on students;
- Be proficient at individual and group counseling techniques;
- Understand the historical, philosophical, psychological, cultural, and sociological foundations of higher education and student affairs;
- Have skills and knowledge of assessment, evaluation, and research in higher education and student affairs;
- Be familiar with the organization and administration of student affairs programs and services;
- Demonstrate program planning and evaluation skills;
- Practice in accordance with the legal and ethical standards of counseling and college student personnel;
- Be able to develop and maintain human relations and enhance student development within the professional setting;
- Be prepared to pursue licensure as a professional counselor.

Course Delivery Format

Instruction occurs through didactic (classroom) and clinical experience. Most classes are enhanced with internet supplement.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- CHRD 601 - Introduction to Professional Issues and Ethics Credits: 1
- CHRD 602 - Research and Evaluation in Counseling and Human Development Credits: 3
- CHRD 610 - Developmental Issues in Counseling Credits: 3
- CHRD 661 - Theories of Counseling Credits: 3
- CHRD 701 - Professional Issues and Ethics II Credits: 1
- CHRD 731 - Multicultural Counseling and Human Relations Credits: 3
- CHRD 736 - Appraisal of the Individual Credits: 3
- CHRD 742 - Career Counseling and Planning Credits: 3
- CHRD 766 - Group Counseling Credits: 3
- CHRD 785 - Pre-Practicum Credits: 3
- CHRD 786 - Counseling Practicum Credits: 3
- CHRD 770 - Student Development: Theory and Practice Credits: 3
- CHRD 771 - Student Personnel Services Credits: 3
- CHRD 772 - Administration and Leadership in Student Affairs Credits: 3
- CHRD 794 - Internship Credits: 6
- Elective Credits: 4
  - CHRD 798 - Thesis (Option A)
  - CHRD 788 - Research Problems in Counseling and Guidance (Option B)
  - Additional Coursework (Option C)

Total Credits: 48

Additional Program Requirements for Counseling and Human Resource Development (M.S./M.Ed.)

- All Master of Science students are required to purchase and carry professional liability insurance throughout the duration of the program. M.Ed. students will be required to purchase and carry professional liability insurance if enrolled in clinical courses.
- Clinical course registration is completed by the department.
- Students enrolled in the M.S. CHRD program need to complete a practicum and an approved internship. These experiences allow students to learn by doing, with active, sound supervision. The practicum and internship experiences carry clock and credit hour completion expectations. For example, for every 3 credits of internship, students are required to complete 20 hours per week of on-site experience. In addition, regular work expectations outside the classroom exist for every credit hour enrolled. Thus, students enrolled in 3 credits of internship or practicum experience will be considered part-time. Students enrolled in 4 credits of internship or 3 credits of practicum plus other courses to total 4 semester credits will be considered full-time.

Additional Admission Requirements for Counseling and Human Resource Development (M.S./M.Ed.)

GRE: Not required

TOEFL: Department requirement of 525 paper-based, 71 Internet-based

Formal Application Process

In addition to applying for Graduate School, applicants must also apply to the CHRD program by April 1 for fall admission or by October 1 for spring admission. Admission is competitive; late applications will not be considered. Students have one calendar year from the time of acceptance to begin taking courses otherwise formal re-application to the CHRD program is required.

The CHRD department requires all applicants to submit the documents below by the appropriate admission deadline:

- CHRD Disclosure Statement
- Resume

- A typed, one-page goal statement discussing your aspirations to the counseling field
- Two completed CHRD Recommendation Forms (do not use the Graduate School reference forms).

Based on the rating score of the applicant's file, the applicant will either be invited to the group screening interview top continue the admissions process or denied admission.

Criminal Background Check Requirement

Applicants who successfully complete the interview will be required to successfully complete and pay for a criminal background check before an official offer of admission is secured.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Counseling and Human Resource Development (M.S.) - Marriage and Family Counseling Specialization

Program Coordinator/Contact

Jay Trenhaile, LP
Department of Counseling and Human Development
Email: jay.trenhaile@sdstate.edu

Jill Thorngren, LMFT (Montana)
College of Education and Human Sciences
Email: jill.thorngren@sdstate.edu

Program Information

The specialization in Marriage and Family Counseling is designed to meet the requirements of the South Dakota Board of Counselor Examiners. Graduates of this specialization are eligible for certification as a Marriage and Family Therapist after completion of certification requirements as outlined by the South Dakota Board of Counselor Examiners.

Accreditation, Certification, and Licensure

Standards and Accreditations

The Master of Science in CHRD specializing in Marriage and Family Counseling, is seeking accreditation by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

Certification

All Master of Science students are eligible to begin the process for the National Certified Counselor certification.

Student Learning Outcomes

Upon successful completion of the course requirements for a MS in CHRD specializing in Marriage and Family Counseling, students will:

- understand and advocate for positive attention to developmental needs of individuals, couples, families, and groups;
- effectively identify needs of individuals, couples, and families as they relate to human development and sexuality over the lifespan;
- appreciate cultural, ethnic, and gender differences as they relate to perceptions and expectations of counseling;
- apply ethical, legal, moral, and professional standards to all aspects of professional counseling services;
- respond to the mental health needs of a variety of individuals, couples, and families, through a wide spectrum of services including support, education, assessment, and treatment;
- understand and be able to appropriately select and apply a variety of service or treatment modalities;
- be prepared to pursue licensure as a professional counselor.

Course Delivery Format

Instruction occurs through didactic (classroom) and clinical experience. Most classes are enhanced with internet supplement.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- CHRD 601 - Introduction to Professional Issues and Ethics Credits: 1
- CHRD 602 - Research and Evaluation in Counseling and Human Development Credits: 3
- CHRD 610 - Developmental Issues in Counseling Credits: 3
- CHRD 661 - Theories of Counseling Credits: 3
- CHRD 701 - Professional Issues and Ethics II Credits: 1
- CHRD 723 - Counseling the Family Credits: 3
- CHRD 725 - Couples and Advanced Family Counseling Credits: 3
- CHRD 728 - Child and Adolescent Counseling Credits: 2
- CHRD 731 - Multicultural Counseling and Human Relations Credits: 3
- CHRD 736 - Appraisal of the Individual Credits: 3
- CHRD 742 - Career Counseling and Planning Credits: 3
- CHRD 755 - Clinical Diagnosis and Treatment Planning Credits: 4
- CHRD 756 - Counseling the Addictive Client Credits: 3
- CHRD 766 - Group Counseling Credits: 3
- CHRD 785 - Pre-Practicum Credits: 3
- CHRD 786 - Counseling Practicum Credits: 3-5
- CHRD 794 - Internship Credits: 2-6
- PHA 647 - Pharmacological Issues in Mental Health Counseling Credits: 3
- Select one of the following options:
  - Option A:
    - CHRD 798 - Thesis Credits: 1-6 (5 credits required)
  - Option B:
    - CHRD 788 - Research Problems in Counseling and Guidance Credits: 1-3 (4 credits required)
  - Option C:
    - Electives (Any prefix and course should be related to counseling): 4

Total Credits: 60 (Option A), 61 (Option B & C)

Additional Program Requirements for Counseling and Human Resource Development (M.S./M.Ed.)

- All Master of Science students are required to purchase and carry professional liability insurance throughout the duration of the program. M.Ed. students will be required to purchase and carry professional liability insurance if enrolled in clinical courses.
- Clinical course registration is completed by the department.
- Students enrolled in the M.S. CHRD program need to complete a practicum and an approved internship. These experiences allow students to learn by doing, with active, sound supervision. The practicum and internship experiences carry clock and credit hour completion expectations. For example, for every 3 credits of internship, students are required to complete 20 hours per week of on-site experience. In addition, regular work expectations outside the classroom exist for every credit hour enrolled. Thus, students enrolled in 3 credits of internship or practicum experience will be considered part-time. Students enrolled in 4 credits of internship or 3 credits of practicum plus other courses to total 4 semester credits will be considered full-time.

Additional Admission Requirements for Counseling and Human Resource Development (M.S./M.Ed.)

GRE: Not required

TOEFL: Department requirement of 525 paper-based, 71 Internet-based

Formal Application Process

In addition to applying for Graduate School, applicants must also apply to the CHRD program by April 1 for fall admission or by October 1 for spring admission. Admission is competitive; late applications will not be considered. Students have one calendar year from the time of acceptance to begin taking courses otherwise formal re-application to the CHRD program is required.

The CHRD department requires all applicants to submit the documents below by the appropriate admission deadline:

- CHRD Disclosure Statement
- Resume
- A typed, one-page goal statement discussing your aspirations to the counseling field
- Two completed CHRD Recommendation Forms (do not use the Graduate School reference forms).

Based on the rating score of the applicant's file, the applicant will either be invited to the group screening interview top continue the admissions process or denied admission.

Criminal Background Check Requirement

Applicants who successfully complete the interview will be required to successfully complete and pay for a criminal background check before an official offer of admission is secured.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Counseling and Human Resource Development (M.S.) - Rehabilitation and Mental Health Counseling Specialization

Program Coordinator/Contact

Alan Davis, Professor
Department of Counseling and Human Development
E-mail: alan.davis@sdstate.edu

Program Information

The Rehabilitation and Mental Health Counseling Specialization is dedicated to enhancing the effectiveness of counselors and programs of service to people with disabilities. Educational experiences will aim to prepare qualified rehabilitation counselors, increase knowledge in the field of rehabilitation, and to apply knowledge to the growing effectiveness of rehabilitation professionals and service delivery systems. In alliance with students, agencies, consumers, and professional organizations, the specialty area will promote the independence, acceptance, and dignity of all people with significant disabilities.

Students who successfully complete this 48-credit hour specialization will earn a Master of Science in Counseling and Human Resource Development specializing in Rehabilitation and Mental Health Counseling. Upon successful completion of the core requirements, and those of the Rehabilitation and Mental Health Counseling emphasis, and with successful completion of the comprehensive written and oral examinations, graduates are endorsed as having constructed appropriate entry level knowledge and as having met appropriate skill acquisition to be recognized as professional rehabilitation and mental health counselors. Students in this emphasis are also responsible for having taken supporting area courses which supplement or enhance their chosen specialty.

Accreditation, Certification, and Licensure

Standards and Accreditations

The Master of Science in CHRD specializing in Rehabilitation and Mental Health Counseling is accredited by the Council on Rehabilitation Education (CORE).

Certification

All Master of Science students are eligible to begin the process for the National Certified Counselor certification by taking the NCE six months before or after they graduate.

Students specializing in Rehabilitation and Mental Health Counseling are eligible to begin the process for the Certified Rehabilitation Counselor certification by taking the CRC exam after a student has completed 75% of coursework or after graduation.

Licensure

Graduation from this program does not grant immediate licensure as a counselor. Licensure differs by state and is obtainable by completing additional client contact hours after graduation. Students are responsible for researching licensure requirements for the state in which they plan to practice.

Program Objectives

- meet the growing needs and diverse challenges of consumers with physical and psychiatric disabilities; prepare qualified counselors for careers with federal, state, and private agencies;
- meet anticipated work force needs in the growing rehabilitation and mental health counseling field; and
- provide field experience and internships to develop professional counseling skills.

Student Learning Outcomes

Upon successful completion of the course requirements for a MS in CHRD specializing in Rehabilitation and Mental Health Counseling, students will:

- acquire a sound, basic education in rehabilitation;
- develop the lifelong habit of updating skills and professionalism;
- develop a commitment to assist individuals with disabilities in using their own resources and opportunities to meet their developmental, vocational, and educational needs;
- nourish a commitment to individual human values;
- exercise skills and competencies on a high ethical level and with personal integrity;
- maintain a critical, questioning, and exploratory attitude; and
- contribute to the profession by offering suggestions to educators and researchers with the overall goal of improving practice in the rehabilitation profession in general and in the specific area of professional application. Students should also be personally committed to the field of rehabilitation who can provide effective services to individuals with disabilities, including individuals with severe disabilities.
- Students are encouraged to contribute to the advancement of knowledge in the field of rehabilitation through research and the demonstrated application of significant findings.

Course Delivery Format

Instruction occurs through didactic (classroom) and clinical experience. Most classes are enhanced with internet supplement. Rehabilitation counseling specific courses are on a semester rotation for online delivery. Classes are scheduled for one day per week for three hours. All courses are available at the University Center-Rapid City except for rehabilitation-specific courses. The Rehabilitation Counseling specialization is not available at the University Center-Rapid City. A few courses are available at the University Center-Sioux Falls; CHRD does not offer a degree program at the University Center in Sioux Falls.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- CHRD 601 - Introduction to Professional Issues and Ethics Credits: 1
- CHRD 602 - Research and Evaluation in Counseling and Human Development Credits: 3
- CHRD 610 - Developmental Issues in Counseling Credits: 3
- CHRD 661 - Theories of Counseling Credits: 3
- CHRD 701 - Professional Issues and Ethics II Credits: 1
- CHRD 731 - Multicultural Counseling and Human Relations Credits: 3
- CHRD 736 - Appraisal of the Individual Credits: 3
- CHRD 742 - Career Counseling and Planning Credits: 3

- CHRD 766 - Group Counseling Credits: 3
- CHRD 785 - Pre-Practicum Credits: 3
- CHRD 786 - Counseling Practicum Credits: 3
- CHRD 751 - Overview of Rehabilitation and Mental Health Counseling Credits: 3
- CHRD 752 - Medical and Psychological Aspects of Disability Credits: 3
- CHRD 753 - Case Management Principles and Plan Development Credits: 3
- CHRD 794 - Internship Credits: 6
- Elective Credits: 4
  - CHRD 798 - Thesis (Option A)
  - CHRD 788 - Research Problems in Counseling and Guidance (Option B)
  - Additional Coursework (Option C)

Total Credits: 48

Additional Program Requirements for Counseling and Human Resource Development (M.S./M.Ed.)

- All Master of Science students are required to purchase and carry professional liability insurance throughout the duration of the program. M.Ed. students will be required to purchase and carry professional liability insurance if enrolled in clinical courses.
- Clinical course registration is completed by the department.
- Students enrolled in the M.S. CHRD program need to complete a practicum and an approved internship. These experiences allow students to learn by doing, with active, sound supervision. The practicum and internship experiences carry clock and credit hour completion expectations. For example, for every 3 credits of internship, students are required to complete 20 hours per week of on-site experience. In addition, regular work expectations outside the classroom exist for every credit hour enrolled. Thus, students enrolled in 3 credits of internship or practicum experience will be considered part-time. Students enrolled in 4 credits of internship or 3 credits of practicum plus other courses to total 4 semester credits will be considered full-time.

Additional Admission Requirements for Counseling and Human Resource Development (M.S./M.Ed.)

GRE: Not required

TOEFL: Department requirement of 525 paper-based, 71 Internet-based

Formal Application Process

In addition to applying for Graduate School, applicants must also apply to the CHRD program by April 1 for fall admission or by October 1 for spring admission. Admission is competitive; late applications will not be considered. Students have one calendar year from the time of acceptance to begin taking courses otherwise formal re-application to the CHRD program is required.

The CHRD department requires all applicants to submit the documents below by the appropriate admission deadline:

- CHRD Disclosure Statement
- Resume
- A typed, one-page goal statement discussing your aspirations to the counseling field
- Two completed CHRD Recommendation Forms (do not use the Graduate School reference forms).

Based on the rating score of the applicant's file, the applicant will either be invited to the group screening interview top continue the admissions process or denied admission.

Criminal Background Check Requirement

Applicants who successfully complete the interview will be required to successfully complete and pay for a criminal background check before an official offer of admission is secured.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Counseling and Human Resource Development (M.S.) - School Counseling Specialization

Program Coordinator/Contact

Hande Briddick, Associate Professor
Department of Counseling and Human Development
E-mail: hande.briddick@sdstate.edu

Program Information

The School Counseling specialization is designed to prepare students for endorsement/certification as a school counselor in the state of South Dakota. Should the student seek endorsement in another state, it is that student's responsibility to meet any additional requirements by that particular state. Students who successfully complete this 48-credit hour specialization will earn a Master of Science in Counseling and Human Resource Development specializing in School Counseling.

Upon successful completion of the core requirements, and those of the School Counseling specialization, and with the successful completion of the comprehensive written and oral examinations, graduates are endorsed as having constructed entry level knowledge and as having met appropriate skill acquisition to be recognized as professional school counselors. Students in the School Counseling specialization are also responsible for having taken supporting area courses which supplement or enhance their chosen specialty.

Accreditation, Certification, and Licensure

Standards and Accreditations

The Master of Science in CHRD specializing in School Counseling is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

Certification

All Master of Science students are eligible to begin the process for the National Certified Counselor certification by taking the NCE six months before or after they graduate.

The School Counseling specialization prepares students for endorsement/certification in the state of South Dakota. Students are responsible for researching school counseling certification requirements for any state in which they wish to practice.

Licensure

Graduation from this program does not grant immediate licensure as a counselor. Licensure differs by state and is obtainable by completing additional client contact hours after graduation. Students are responsible for researching licensure requirements for the state in which they plan to practice.

Student Learning Outcomes

Upon successful completion of the requirements for the School Counseling specialization, students will:

- understand developmental theory as it relates to the difference(s) between "normal" developmental behavior and "abnormal" developmental behavior in youth;
- utilize knowledge and skills to address the counseling needs of a dynamic and diverse population of students and their families;
- be prepared to create and deliver a comprehensive, K-12 developmental school guidance program;
- be able to consult with school personnel and serve as a liaison to community programs to assist in coordinating services for students, parents, and teachers;
- understand and provide effective individual, group, and classroom guidance services;
- know the ethical, legal, and professional standards in a K-12 educational institution;
- develop a commitment to continued personal and professional development;
- be certified by the State of South Dakota as a K-12 School Counselor; and
- be prepared to pursue licensure as a professional counselor.

Course Delivery Format

Instruction occurs through didactic (classroom) and clinical experience. Most classes are enhanced with internet supplement.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- CHRD 601 - Introduction to Professional Issues and Ethics Credits: 1
- CHRD 602 - Research and Evaluation in Counseling and Human Development Credits: 3
- CHRD 610 - Developmental Issues in Counseling Credits: 3
- CHRD 661 - Theories of Counseling Credits: 3
- CHRD 701 - Professional Issues and Ethics II Credits: 1
- CHRD 731 - Multicultural Counseling and Human Relations Credits: 3
- CHRD 736 - Appraisal of the Individual Credits: 3
- CHRD 742 - Career Counseling and Planning Credits: 3
- CHRD 766 - Group Counseling Credits: 3
- CHRD 785 - Pre-Practicum Credits: 3
- CHRD 786 - Counseling Practicum Credits: 3
- CHRD 721 - School Counseling Credits: 3
- CHRD 722 - Administration and Management of School Counseling Programs Credits: 3
- CHRD 723 - Counseling the Family Credits: 3
- CHRD 755 - Clinical Diagnosis and Treatment Planning Credits: 3
- CHRD 794 - Internship Credits: 6
- Elective Credits: 1
  - CHRD 798 - Thesis (Option A)
  - CHRD 788 - Research Problems in Counseling and Guidance (Option B)
  - Additional Coursework (Option C)

Total Credits: 48

Additional Program Requirements for Counseling and Human Resource Development (M.S./M.Ed.)

- All Master of Science students are required to purchase and carry professional liability insurance throughout the duration of the program. M.Ed. students will be required to purchase and carry professional liability insurance if enrolled in clinical courses.
- Clinical course registration is completed by the department.
- Students enrolled in the M.S. CHRD program need to complete a practicum and an approved internship. These experiences allow students to learn by doing, with active, sound supervision. The practicum and internship experiences carry clock and credit hour completion expectations. For example, for every 3 credits of internship, students are required to complete 20 hours per week of on-site experience. In addition, regular work expectations outside the classroom exist for every credit hour enrolled. Thus, students enrolled in 3 credits of internship or practicum experience will be considered part-time. Students enrolled in 4 credits of internship or 3 credits of practicum plus other courses to total 4 semester credits will be considered full-time.

Additional Admission Requirements for Counseling and Human Resource Development (M.S./M.Ed.)

GRE: Not required

TOEFL: Department requirement of 525 paper-based, 71 Internet-based

Formal Application Process

In addition to applying for Graduate School, applicants must also apply to the CHRD program by April 1 for fall admission or by October 1 for spring admission. Admission is competitive; late applications will not be considered. Students have one calendar year from the time of acceptance to begin taking courses otherwise formal re-application to the CHRD program is required.

The CHRD department requires all applicants to submit the documents below by the appropriate admission deadline:

- CHRD Disclosure Statement
- Resume
- A typed, one-page goal statement discussing your aspirations to the counseling field
- Two completed CHRD Recommendation Forms (do not use the Graduate School reference forms).

Based on the rating score of the applicant's file, the applicant will either be invited to the group screening interview top continue the admissions process or denied admission.

Criminal Background Check Requirement

Applicants who successfully complete the interview will be required to successfully complete and pay for a criminal background check before an official offer of admission is secured.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Curriculum and Instruction (M.Ed.) - Adult and Higher Education Specialization

Program Information

The degree in Curriculum and Instruction (C&I) is designed to meet the needs of individuals who work (or plan to work) in some kind of an instructional capacity. The degree does not lead to a South Dakota teaching certificate nor does it lead to an endorsement on the South Dakota teaching certificate.

Students are able to choose from either a program in which only coursework is required or a program in which they must complete a research project. If a student elects to take only coursework (Plan C), the student must complete a minimum of 35 credit hours in order to graduate. If the research option is chosen, the student must complete a minimum of 32 credit hours including 788 Research Problems.

The C&I degree is structured to allow a great deal of flexibility. It is expected that students will take a mixture of required courses and elective credits, depending on their areas of interest. These courses may be completed with no intention of seeking a degree, or may be used as part of the basis for completing a C&I degree.

Student Engagement and Support Opportunities

The Teaching, Learning, and Leadership Department has several assistantships for which students can apply.

Available Options for Graduate Degrees

Master of Education	Option B
	Option C

Core Requirements

- AHED 711 - Assessment and Program Design Credits: 3
- AHED 720 - Principles of Postsecondary Education Credits: 3
- AHED 755 - Principles of College Teaching Credits: 3
- AHED 788 - Research Problems in Adult Education Credits: 3 (Option B)
- AHED 794 - Internship Credits: 2-6
- EDER 711 - Educational Assessment Credits: 3
- EDER 760 - Informational Literacy Credits: 3
- EDFN 725 - Education in a Pluralistic Society Credits: 3
- EDFN 727 - Group Processes Credits: 3
- EDFN 790 - Seminar Credits: 1
- EDFN 794 - Internship Credits: 1
- HDFS 614 - Adult Development Credits: 3
- Electives: 0-4

Total Credits: 32 (Option B), 35 (Option C)

Additional Admission Requirements for Curriculum and Instruction (M.Ed.)

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

Applicants must provide a resume, goal statement, and two letters of professional reference to Teaching, Learning, and Leadership. Once all material is received, it is reviewed by the Department. Students are assigned an admission status of "unconditional," "conditional" or "not admitted."

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Curriculum and Instruction (M.Ed.) - Early Childhood Education Specialization

Program Information

The degree in Curriculum and Instruction (C&I) is designed to meet the needs of individuals who work (or plan to work) in some kind of an instructional capacity. The degree does not lead to a South Dakota teaching certificate nor does it lead to an endorsement on the South Dakota teaching certificate.

Students are able to choose from either a program in which only coursework is required or a program in which they must complete a research project. If a student elects to take only coursework (Plan C), the student must complete a minimum of 35 credit hours in order to graduate. If the research option is chosen, the student must complete a minimum of 32 credit hours including 788 Research Problems.

The C&I degree is structured to allow a great deal of flexibility. It is expected that students will take a mixture of required courses and elective credits, depending on their areas of interest. These courses may be completed with no intention of seeking a degree, or may be used as part of the basis for completing a C&I degree.

Student Engagement and Support Opportunities

The Teaching, Learning, and Leadership Department has several assistantships for which students can apply.

Available Options for Graduate Degrees

Master of Education Option B
Option C

Core Requirements

Required: 26

- ECE 711 - Child Development Theory and Application Credits: 3
- ECE 792 - Topics (Cognitive Development) Credits: 3
- ECE 795 - Practicum Credits: 1
- EDER 711 - Educational Assessment Credits: 3
- EDER 760 - Informational Literacy Credits: 3
- EDFN 700 - Exceptional Learners Credits: 3
  or EDFN 725 - Education in a Pluralistic Society Credits: 3
- EDFN 730 - Current Issues in Education Credits: 3
- EDFN 747 - Curriculum: Theory Into Practice Credits: 2
- EDFN 750 - Educational Technology Credits: 3
- EDFN 794 - Internship Credits: 1
- EDFN 790 - Seminar Credits: 1

Electives: 6-9 Credits

- ECE 543 - Child Inquiry Credits: 2
- ECE 645 - Contemporary Perspectives in Early Childhood Education Credits: 3
- ECE 676 - Early Childhood Educational Administration and Practices Credits: 3
- EDER 788 - Master's Research Problems/Projects Credits: 3
- HDFS 510 - Parenting Credits: 3
- HDFS 742 - Family Theory and Research Credits: 3

Total Credits: 32 (Option B), 35 (Option C)

Additional Admission Requirements for Curriculum and Instruction (M.Ed.)

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

Applicants must provide a resume, goal statement, and two letters of professional reference to Teaching, Learning, and Leadership. Once all material is received, it is reviewed by the Department. Students are assigned an admission status of "unconditional," "conditional" or "not admitted."

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Curriculum and Instruction (M.Ed.) - Elementary Education Specialization

Program Information

The degree in Curriculum and Instruction (C&I) is designed to meet the needs of individuals who work (or plan to work) in some kind of an instructional capacity. The degree does not lead to a South Dakota teaching certificate nor does it lead to an endorsement on the South Dakota teaching certificate.

Students are able to choose from either a program in which only coursework is required or a program in which they must complete a research project. If a student elects to take only coursework (Plan C), the student must complete a minimum of 35 credit hours in order to graduate. If the research option is chosen, the student must complete a minimum of 32 credit hours including 788 Research Problems.

The C&I degree is structured to allow a great deal of flexibility. It is expected that students will take a mixture of required courses and elective credits, depending on their areas of interest. These courses may be completed with no intention of seeking a degree, or may be used as part of the basis for completing a C&I degree.

Student Engagement and Support Opportunities

The Teaching, Learning, and Leadership Department has several assistantships for which students can apply.

Available Options for Graduate Degrees

Master of Education Option B
Option C

Core Requirements

- ELED 748 - Elementary Curriculum Practicum Credits: 1
- EDER 711 - Educational Assessment Credits: 3
- EDER 760 - Informational Literacy Credits: 3
- EDER 788 - Master's Research Problems/Projects Credits: 3 (Option B)
- EDFN 730 - Current Issues in Education Credits: 3
- EDFN 700 - Exceptional Learners Credits: 3
  or EDFN 725 - Education in a Pluralistic Society Credits: 3
- EDFN 745 - Effective Teaching: Theory Into Practice
- EDFN 747 - Curriculum: Theory Into Practice Credits: 2
- EDFN 750 - Educational Technology Credits: 3
- EDFN 790 - Seminar Credits: 1
- EDFN 794 - Internship Credits: 1
- EPSY 740 - Advanced Educational Psychology Credits: 3
- Elective Credits: 0-6

Total Credits: 32 (Option B), 35 (Option C)

Additional Admission Requirements for Curriculum and Instruction (M.Ed.)

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

Applicants must provide a resume, goal statement, and two letters of professional reference to Teaching, Learning, and Leadership. Once all material is received, it is reviewed by the Department. Students are assigned an admission status of "unconditional," "conditional" or "not admitted."

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Curriculum and Instruction (M.Ed.) - Secondary Education Specialization

Program Description

The degree in Curriculum and Instruction (C&I) is designed to meet the needs of individuals who work (or plan to work) in some kind of an instructional capacity. The degree does not lead to a South Dakota teaching certificate nor does it lead to an endorsement on the South Dakota teaching certificate.

Students are able to choose from either a program in which only coursework is required or a program in which they must complete a research project. If a student elects to take only coursework (Plan C), the student must complete a minimum of 35 credit hours in order to graduate. If the research option is chosen, the student must complete a minimum of 32 credit hours including 788 Research Problems.

The C&I degree is structured to allow a great deal of flexibility. It is expected that students will take a mixture of required courses and elective credits, depending on their areas of interest. These courses may be completed with no intention of seeking a degree, or may be used as part of the basis for completing a C&I degree.

Student Engagement and Support Opportunities

The Teaching, Learning, and Leadership Department has several assistantships for which students can apply.

Available Options for Graduate Degrees

Master of Education Option B
Option C

Core Requirements

- EDER 760 - Informational Literacy Credits: 3
- EDER 711 - Educational Assessment Credits: 3
- EDER 788 - Master's Research Problems/Projects Credits: 3 (Option B)
- EDFN 700 - Exceptional Learners Credits: 3
  or EDFN 725 - Education in a Pluralistic Society Credits: 3
- EDFN 730 - Current Issues in Education Credits: 3
- EDFN 745 - Effective Teaching: Theory Into Practice Credits: 3
- EDFN 747 - Curriculum: Theory Into Practice Credits: 2
- EDFN 750 - Educational Technology Credits: 3
- EDFN 790 - Seminar Credits: 1
- EDFN 794 - Internship Credits: 1
- EPSY 740 - Advanced Educational Psychology Credits: 3
- SEED 748 - Secondary Curriculum Practicum Credits: 1
- Elective Credits: 0-6

Total Credits: 32 (Option B), 35 (Option C)

Additional Admission Requirements for Curriculum and Instruction (M.Ed.)

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

Applicants must provide a resume, goal statement, and two letters of professional reference to Teaching, Learning, and Leadership. Once all material is received, it is reviewed by the Department. Students are assigned an admission status of "unconditional," "conditional" or "not admitted."

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Data Science (M.S.)

Program Information

The SDSU MS in Data Science is a one-year program that provides graduates with the statistical, mathematical, and computational skills needed to meet the large-scale data science challenges of today's professional world. The curriculum incorporates current techniques in statistics, operations research, predictive modeling, data mining, forecasting, big data programming and management, and data visualization. The program's focus is on application and interpretation of modern data analysis techniques of known value in today's professional world, both private and public sector.

Available Options for Graduate Degrees

Master of Science Option C

Core Requirements

Required: 18

- INFS 762 - Data Warehousing and Data Mining (DSU) Credits: 3
- INFS 772 - Programming for Data Analytics (DSU) Credits: 3
- INFS 774 - Big Data Analytics (DSU) Credits: 3
- STAT 700 - Statistical Programming Credits: 3
- STAT 701 - Modern Applied Statistics I Credits: 3
- STAT 702 - Modern Applied Statistics II Credits: 3

Electives: 12

The following courses will be the default elective curriculum beyond the core courses in the MS in Data Science program.

- MATH 575 - Operations Research Credits: 3
- STAT 545 - Nonparametric Statistics Credits: 3
- STAT 551 - Predictive Analytics I Credits: 3
- STAT 560 - Time Series Analysis Credits: 3

The following courses are available to students with appropriate mathematical and statistical prerequisite knowledge.

- MATH 541 - Applied Probability Theory Credits: 3
- MATH 775 - Operations Research II Credits: 3
- STAT 715 - Multivariate Analysis I Credits: 3
- STAT 721 - Statistic Computing/Simulation Credits: 3
- STAT 742 - Spatial Statistics Credits: 3
- STAT 751 - Predictive Analytics II Credits: 3
- STAT 784 - Statistical Inference I Credits: 3
- STAT 785 - Statistical Inference II Credits: 3
- STAT 786 - Regression Analysis I Credits: 3
- STAT 787 - Regression Analysis II Credits: 3
- STAT 792 - Topics Credits: 3

Total Credits: 30

Additional Admission Requirements

GRE: Not required.

TOEFL: Program requirement minimum score of 550 paper-based, 79 internet-based, OR

IELTS: Program requirement minimum score of 6.5

In addition to meeting Graduate School admission requirements, applicants for graduate study for the M.S. in Data Science must have:

- Baccalaureate degree from an institution of higher education with full regional accreditation for that degree.
- The applicant must have an undergraduate grade point average of at least 3.0 on 4.0 scale.
- Transcript should show completion of courses in key areas equivalent to:
  - Database design/programming including familiarity with SQL (STAT 410/510 or equivalent)
  - Understanding of the principles of programming (CSC 150 or INFO 101 or equivalent)

- Understanding of statistical principles (STAT 441/541 or equivalent)

- Students may be required to take undergraduate or foundation classes in order to make up for deficiencies.

- Undergraduate preparatory courses required of entering students include two semesters of calculus, one course in matrix or linear algebra, one introductory course in calculus-based probability and statistics. SDSU courses that would satisfy these requirements would be:
  - MATH 123 Calculus I
  - MATH 125 Calculus II
  - MATH 215 Matrix Algebra OR MATH 315 Linear Algebra
  - STAT 381 Introduction to Probability and Statistics
- Students with other educational backgrounds may be admitted conditionally. They will be required to complete the necessary coursework to eliminate deficiencies in their background during their first semester in the program.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Dietetics (M.S.)

Program Information

Dietetics prepares Registered Dietitian Nutritionists to practice dietetics at an advanced level and/or pursue doctoral study. The program seeks to develop research skills, stimulate independent thought, and provide up-to-date knowledge in foods, nutrition, and food service/business management. This program prepares individuals to integrate and apply the principles ranging from the biomedical sciences, human behavior, and management to design, and to lead effective food, nutrition, health and wellness programs in a variety of settings. This online program will be a degree tailored for credentialed, practicing dietetics professionals who seek to enhance their knowledge in a specific area of dietetics practice or to retool for new career opportunities in dietetics practice.

Course Delivery Format

The program consists of lecture, laboratory, and experiential learning opportunities.

Student Support and Engagement Opportunities

The Department of Health and Nutritional Sciences aims to provide premier academic programs and high-quality services to students. A limited number of research and teaching assistantships and scholarships may be available to qualified graduate students.

Available Options for Graduate Degrees

Master of Science Option A
Option B
Option C

Core Requirements

- HNS 798 - Thesis (Option A) Credits: 6
  or HNS 788 - Master's Research Problems/Projects (Option B) Credits: 3
  or Option C requires a comprehensive written exam.
  The student's option and schedule of courses must be approved by his/her faculty advisor and graduate committee.
- NUTR 734 - Research Methods in Dietetics Credits: 3
- NUTR 735 - Current Trends in Dietetics Practices Credits: 3
- NUTR 760 - Vitamins and Minerals in Human Nutrition Credits: 3
- STAT 541 - Statistical Methods II Credits: 3
- Elective Credits: 18-24

Additional Admission Requirements

GRE: Not required

TOEFL: required score of 550 paper-based, 79-80 Internet-based

IELTS: 6.0

Students must be credentialed as a Registered Dietitian by the Commission on Dietetic Registration (CDR) of the Academy of Nutrition and Dietetics, submitting a copy of a current RD or RDN card as documentation.

General Requirements (Master's Degree)

The student's Option and schedule of courses must be approved by his/her faculty advisor and graduate committee.

See Master's Degree Requirements.

Economics (M.S.)

Program Information

The graduate curriculum in economics prepares students for professions in business and government as well as for further graduate study. The program is built on a core curriculum of economic theory, which consists of courses in advanced microeconomics, advanced macroeconomics, and econometrics, and allows students to design individualized programs in one of the following four areas of emphasis:

- Agricultural Business
- Agricultural and Resource Economics
- Business Economics
- General Economics

The Department of Economics offers an accelerated Master's program, which allows qualified students to study towards a Master's degree while completing their undergraduate degree. By combining course requirements for the Bachelor's and Master's degrees, students enrolled in the accelerated Master's program may be able to complete a Master's degree within five years.

Students may apply for admission into the accelerated Master's program as early as the end of their sophomore year, but must have a GPA of at least 3.5 in Department of Economics courses to be considered for acceptance in the accelerated program. Students interested in the accelerated program should contact the Department of Economics graduate coordinator to obtain application requirements. Application and admission to the Graduate School is required.

Contact the Graduate Coordinator for further information.

Student Support and Engagement Opportunities

The Department of Economics prides itself on providing excellent academic programs and offers high-quality services to students. A limited number of research and teaching assistantships and scholarships may be available to qualified graduate students. The Economics Graduate Student Association (EGSA) supports graduate-student engagement opportunities, as well.

Available Options for Graduate Degrees

Master of Science Option A
Option B

Core Requirements

- ECON 703 - Advanced Macroeconomics Credits: 3
- ECON 704 - Advanced Microeconomics Credits: 3
- ECON 705 - Econometrics Credits: 3
- ECON 707 - Research Methodology in Applied Economics Credits: 2
- ECON 798 - Thesis Credits: 5
  or ECON 788 - Master's Research Problems/Projects Credits: 2
- Approved Electives

Total Required Credits: 30(Option A), 32(Option B)

No converted graduate credit will be granted for ECON 301 Intermediate Microeconomics and ECON 302 Intermediate Macroeconomics.

Additional Admission Requirements

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

The minimum prerequisites for unconditional admission into the program are successful completion of ECON 301, ECON 302, and undergraduate courses in statistics and calculus.

Two letters of reference are required.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

See Master's Degree Requirements

Educational Administration (M.Ed.) - Elementary Education Specialization

Program Information

The M.Ed. degree in Educational Administration is designed to meet the needs of individuals who work (or plan to work) in an administrative capacity. The department of Teaching, Learning, and Leaderships provides professional preparation for those who expect to become qualified administrators in schools where certification is required, and for other institutions, businesses, industries and service-orientated agencies where an administrative program is of value.

The elementary specialization in Educational Administration meets the requirements for endorsement as a principal in South Dakota. Those seeking to complete the requirements for the principalship will have very limited flexibility in the coursework taken. See below for the coursework. These requirements are designed to meet the ELCC Standards as required by law.

The South Dakota State Board of Education requires that in order to be endorsed, individuals must have three years of verified teaching experience on a valid teaching certificate in a K-12 school, one year of which includes classroom experience or direct services to student.

Students are able to choose from either a program in which only coursework is required or a program in which they must complete a research project. If a student elects to take only course work (Plan C), the student must complete a minimum of 35 credit hours in order to graduate. If the research option is chosen, the student must complete a minimum of 32 credit hours including EDER 788 Research Problems (Plan B).

Course Delivery Format

The program can be completed online through the Brookings Campus or face-to-face through West River Graduate Center in Rapid City which also offers coursework in Gillette, Wyoming.

Student Engagement and Support Opportunities

The Teaching, Learning, and Leadership Department has several assistantships for which students can apply.

Available Options for Graduate Degrees

Master of Education	Option B
	Option C

Core Requirements

- EDAD 695 - Practicum Credits: 1
- EDAD 700 - Introduction to School Administration Credits: 2
- EDAD 707 - The Principalship Credits: 2
- EDAD 708 - Elementary Principalship Practicum Credits: 1
- EDAD 715 - Supervision Credits: 3
- EDAD 730 - School Finance Credits: 2
- EDAD 735 - School Law Credits: 3
- EDAD 794 - Internship Credits: 1-6
- EDAD 741 - Community and Public Relations Credits: 2
- EDFN 730 - Current Issues in Education Credits: 3
- EDFN 745 - Effective Teaching: Theory Into Practice Credits: 3
- EDFN 747 - Curriculum: Theory Into Practice Credits: 2
- ELED 748 - Elementary Curriculum Practicum Credits: 1
- EDER 760 - Informational Literacy Credits: 3
- EDFN 790 - Seminar Credits: 1
- Select one of the following:
  - EDFN 700 - Exceptional Learners Credits: 3
  - EDFN 725 - Education in a Pluralistic Society Credits: 3
  - EDFN 750 - Educational Technology Credits: 3

Option B:

- EDER 788 - Master's Research Problems/Projects Credits: 3

Total Credits: 33-41

Additional Admission Requirements for Educational Administration (M.Ed.)

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

Applicants must provide a resumé, goal statement, and two letters of professional reference to Teaching, Learning, and Leadership. Once all material is received, it is reviewed by the Department. Students are assigned an admission status of "unconditional," "conditional" or "not admitted."

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Educational Administration (M.Ed.) - Secondary Education Specialization

Program Information

The M.Ed. degree in Educational Administration is designed to meet the needs of individuals who work (or plan to work) in an administrative capacity. The department of Teaching, Learning, and Leaderships provides professional preparation for those who expect to become qualified administrators in schools where certification is required, and for other institutions, businesses, industries and service-orientated agencies where an administrative program is of value.

The secondary specialization in Educational Administration meets the requirements for endorsement as a principal in South Dakota. Those seeking to complete the requirements for the principalship will have very limited flexibility in the coursework taken. See below for the coursework. These requirements are designed to meet the ELCC Standards as required by law.

The South Dakota State Board of Education requires that in order to be endorsed, individuals must have three years of verified teaching experience on a valid teaching certificate in a K-12 school, one year of which includes classroom experience or direct services to student.

Students are able to choose from either a program in which only coursework is required or a program in which they must complete a research project. If a student elects to take only course work (Plan C), the student must complete a minimum of 35 credit hours in order to graduate. If the research option is chosen, the student must complete a minimum of 32 credit hours including EDER 788 Research Problems (Plan B).

Course Delivery Format

The program can be completed online through the Brookings Campus or face-to-face through West River Graduate Center in Rapid City which also offers coursework in Gillette, Wyoming.

Student Engagement and Support Opportunities

The Teaching, Learning, and Leadership Department has several assistantships for which students can apply.

Available Options for Graduate Degrees

Master of Education	Option B
	Option C

Core Requirements

- EDAD 695 - Practicum Credits: 1
- EDAD 700 - Introduction to School Administration Credits: 2
- EDAD 707 - The Principalship Credits: 2
- EDAD 709 - Secondary Principalship Practicum Credits: 1
- EDAD 715 - Supervision Credits: 3
- EDAD 730 - School Finance Credits: 2
- EDAD 735 - School Law Credits: 3
- EDAD 741 - Community and Public Relations Credits: 2
- EDAD 794 - Internship Credits: 1-6
- EDER 760 - Informational Literacy Credits: 3

- EDFN 730 - Current Issues in Education Credits: 3
- EDFN 745 - Effective Teaching: Theory Into Practice Credits: 3
- EDFN 747 - Curriculum: Theory Into Practice Credits: 2
- EDFN 790 - Seminar Credits: 1
- SEED 748 - Secondary Curriculum Practicum Credits: 1
- Select one of the following:
  - EDFN 700 - Exceptional Learners Credits: 3
  - EDFN 725 - Education in a Pluralistic Society Credits: 3
  - EDFN 750 - Educational Technology Credits: 3

Option B:

- EDER 788 - Master's Research Problems/Projects Credits: 3

Total Credits: 33-41

Additional Admission Requirements for Educational Administration (M.Ed.)

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

Applicants must provide a resumé, goal statement, and two letters of professional reference to Teaching, Learning, and Leadership. Once all material is received, it is reviewed by the Department. Students are assigned an admission status of "unconditional," "conditional" or "not admitted."

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Electrical Engineering (M.S.)

Program Information

The program offers a variety of courses that encompass a broad range of Electrical Engineering areas including: alternative energy and power systems; computer engineering, communications and fiber optics; electronic materials, devices and sensors; nano technology, photovoltaic devices and systems; and signal and image processing. The department's graduate faculty conduct active research in these areas using modern research facilities and equipment.

Program Objectives

The EE graduate program objectives are to equip individuals to

- Discover and disseminate knowledge relevant to the discipline of electrical engineering.
- Provide leadership for increasingly complex roles in electrical engineering and industry.
- Contribute to the advancement of the science of electrical engineering serving regional and national needs.

Course Delivery

A majority of the courses are taught on campus in smart classrooms. The smart classrooms allow for a variety of methods for student engagement and faculty are able to record and post their lectures on-line.

Facilities and Services

With more than $12 million invested in classrooms and laboratories, graduate students benefit from modern lecture rooms and gain valuable experience using state-of-the-art equipment. The recently dedicated modern Daktronics Engineering Hall is home to the Electrical Engineering program with over 15,000 square feet of dedicated research space. The department boasts a 5-bay multi-million dollar clean room, several class one gloveboxes, and nano-characterization labs for developing both organic and inorganic electronics, as well as numerous other labs for research in fiber optics, power and alternative energy systems, and sensors.

Available Options for Graduate Degrees

Master of Science Option A
Option B

Core Requirements

- Coursework from approved track Credits: 13-16
  - MSEE Electronic Materials, Devices, Photovoltaics
    - EE 560 - Sensors and Measurements and Lab Credits: 3
    - EE 562L - Electronic Materials Laboratory Credits: 1
    - EE 735 - Photovoltaics Credits: 3
    - EE 737 - Organic Photovoltaics Credits: 3
  - MSEE Power Systems
    - EE 731 - Advanced Power Electronics Credits: 3
    - EE 731L - Advanced Power Electronics Lab Credits: 1
    - EE 732 - Modeling and Control of Power Electronic Systems Credits: 3
    - EE 732L - Modeling and Control of Power Electronic Systems Lab Credits: 1
    - EE 733 - Advanced Power System Analysis Credits: 3
    - EE 733L - Advanced Power System Analysis Lab Credits: 1
    - EE 734 - Power System Dynamics and Stability Credits: 3
    - EE 734L - Power System Dynamics and Stability Lab Credits: 1
  - MSEE Image & Signal Processing
    - EE 770 - Information and Signal Processing Credits: 3
    - EE 575 - Digital Image Processing Credits: 3
    - EE 792 - Topics: Optical Sensors Credits: 3
    - STAT 560 - Time Series Analysis Credits: 3
      or STAT 742 - Spatial Statistics Credits: 3
      or STAT 786 - Regression Analysis I Credits: 3
    - EE 790 - Seminar Credit: 1
- EE 798 - Thesis (Option A) Credits: 6
  or EE 788 - Master's Research Problems/Projects (Option B) Credits: 2-3
- Electives: 8-17
  - Option A: Elective Credits: 8-11
  - Option B: Elective Credits: 13-17

Total Credits: 30 (Option A), 32 (Option B)

Additional Admission Requirements

GRE: General scores required

TOEFL: Department requirement of 575 paper-based, 90-91 Internet-based

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

English (M.A.)

Program Information

SDSU's English department offers the M.A. degree in English. There are two emphases available to students:

- Studies in Literature
- Studies in Language and Rhetoric

Within these two areas of study, the department offers two options for completing the degree:

- Option A requires twenty-four credit hours of coursework, six credit hours of thesis, a thesis project, and an oral examination. Within this option, the student may write a thesis reflecting traditional scholarship in literature, rhetoric, or linguistics or a thesis with a creative component.
- Option C requires thirty-six credit hours of coursework, a comprehensive written examination, and an oral examination.

Either option will support a variety of educational or professional goals including doctoral study, teaching, technical writing, editing, and publishing. Students generally complete the program in two to three years.

Student Learning Outcomes

Students who complete the English graduate program at South Dakota State University will demonstrate:

- In-depth knowledge of, intellectual curiosity about, and aesthetic appreciation for a wide variety of literary texts and authors representing a diversity of historical, artistic, philosophical, social, and cultural perspectives.
- An understanding of the standard practices, research methodologies, and critical theories that define the discipline of English studies.
- The ability to use these practices, methodologies, and theories to produce sophisticated and original scholarly and/or creative work.
- The ability to synthesize knowledge of literature, history, culture, theory, and criticism to produce insightful and engaging textual analysis and interpretation, both spoken and written.
- Superior critical, analytical, research, and communication skills, as well as an understanding of how to apply these skills within a wide variety of professional, social, and personal contexts.
- A knowledge of and adherence to the professional and ethical standards that define the discipline.
- Excellence in the teaching of writing to undergraduate students (graduate teaching assistants only).
- Continuing professional or educational goals and a plan for achieving them post-degree.

Student Support and Engagement Opportunities

The department offers a number of graduate teaching assistantships for the nine-month academic year. Graduate teaching assistants teach two sections of composition per semester. During some semesters, graduate teaching assistants may have the opportunity to tutor in the writing center in lieu of teaching one section of composition. Graduate teaching assistants receive a stipend, office space, faculty library status, and a two-thirds tuition waiver. Applicants who wish to be considered for a graduate teaching assistantship should indicate their interest in the cover letter submitted to the Graduate School as part of their online application.

Note: Graduate teaching assistants begin their duties in the fall semester of the academic year; therefore, students who wish to be considered for a teaching assistantship must submit their applications on or before April 15. Students applying to begin during the spring semester will not be considered for a graduate teaching assistantship until the following fall semester.

Available Options for Graduate Degrees

Master of Arts	Option A
	Option C

Core Requirements

- ENGL 704 - Introduction to Graduate Studies Credits: 3
- ENGL 705 - Seminar in Teaching Composition Credits: 3 *required for all Teaching Assistants*
- Elective Credits: 24-30 with approval of program advisor
- Reading knowledge of a modern foreign language or two years undergraduate credit in a modern foreign language on the transcript

Total Credits: 30 (Option A), 36 (Option C)

Additional Admission Requirements

To be admitted into the M.A. Program in English, the applicant should have a minimum of 24 semester hours of undergraduate credit in English or receive the consent of the Department Head.

To be considered for unconditional acceptance and to be eligible for a graduate teaching assistantship, applicants must have at least a 3.0 undergraduate GPA and a 3.25 GPA in their undergraduate English courses.

GRE: Not required

TOEFL: Department requirement of 600 paper-based, 100 Internet-based

IELTS: Department requirement of 6.5

In addition to the materials required by the Graduate School, the English department requires the following application materials:

- A one-page cover letter in which the applicant explains his or her interest in and goals for graduate study. In the cover letter, the applicant should indicate whether or not he or she would like to be considered for a graduate teaching assistantship. The applicant may upload this letter while completing the Graduate School's online application.
- An eight- to ten-page scholarly writing sample. This sample must engage in scholarly research and include a works cited page. The applicant may upload this writing sample while completing the Graduate School's online application.
- Two letters of recommendation from faculty at the applicant's undergraduate institution. Letters should come from faculty who are directly familiar with the applicant's academic work. They must address the applicant's scholarly potential and may also speak to his or her potential as a graduate teaching assistant. Letters should come directly from the recommenders, who may submit their letters electronically along with the personal recommendation form provided by the Graduate School.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Geography (M.S.)

Program Information

The Department of Geography offers graduate students the opportunity to earn a Master of Science Degree. The curriculum, organized through formal courses, seminars, internship experiences, and supervised research, is designed to prepare students for positions in such professional areas as planning, remote sensing, geographic information sciences, government service, research, business, and teaching. The program also is designed to provide students with the education needed to pursue further graduate study. Students seeking this degree are expected to select courses that will provide a sound foundation in geography (philosophical, physical and human, and research techniques) supported, if appropriate, by courses outside the department. Students may also seek out opportunities such as the cooperative program with the EROS Data Center and/or internships, generally available with planning districts, governmental agencies, business, and industry.

Course Delivery

Geography is not only a classroom subject but one that also includes laboratory research, fieldwork, and travel, as well as limited online coursework.

Facilities and Services

The department houses the Geospatial Sciences Center of Excellence and produces its own annual Geography Convention, the longest running such event in the United States.

Student Engagement Opportunities

The department provides numerous opportunities for student engagement. For example, the Geography Club is a student organization centered on both academic and social functions. Membership is open to anyone interested. Additionally, the South Dakota State Geography Convention.

Students and faculty regularly travel including attendance at regional and national geography meetings, as well as travel to other parts of the world in pursuit of their individual scholarly interests. SDSU Geography also has a connection with a university in Romania. The exchanges that result from this relationship provide invaluable international experience for students, which is critical in the increasingly globalized world.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B

Core Requirements

- GEOG 710 - Evolution of Geographic Thought Credits: 3
- GEOG 714 - Research and Writing Credits: 3

Additional Admission Requirements

GRE: Required

TOEFL: Department requirement of 550 paper-based, 71 Internet-based

The Department of Geography has listed the following additional admission requirements:

- Submission of Graduate Record Examination (GRE) scores.
- Submission of 1-2 page statement describing applicants' interests in the master's program in Geography at SDSU.
- Submission of two (2) letters of recommendation from persons acquainted with the academic ability and professional competency of the applicant.
- Bestow conditional status on those applicants who have not completed the following courses or their equivalents prior to entering the program:
  GEOG 131 (Physical Geography: Weather & Climate)
  GEOG 132 (Physical Geography: Natural Landscapes)
  GEOG 200 (Human Geography)
  GEOG 382 (Research Methods)

  These courses may be completed pass/fail.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Human Sciences (M.S.) - Adult Development in the Workplace Specialization

Program Contact/Coordinator

Jay Trenhaile
Department of Counseling and Human Development
E-mail: jay.trenhaile@sdstate.edu

Program Information

The goal of the MS specializing in Adult Development in the Workplace graduate program is to provide advanced, professional education and research expertise that focuses on improving individual, family, and community well-being. Students pursuing this degree specialization will be prepared to become knowledgeable training and development specialists in business and industry to ensure the needs of adults are understood and met in the workplace. Students who successfully complete this specialization will earn a Master of Science in Human Sciences specializing in Adult Development in the Workplace.

Course Delivery Format

The department offers coursework through face to face instruction on campus in Brookings with some limited online courses.

Available Options for Graduate Degrees

Master of Science	Option A
	Option C

Core Requirements

- CHRD 716 - Human Resources Management in Business and Industry Credits: 3
- HDFS 510 - Parenting Credits: 3
- HDFS 525 - Family Resiliency Credits: 3
- HDFS 602 - Research and Evaluation in Counseling and Human Development Credits: 3
- HDFS 614 - Adult Development Credits: 3
- HDFS 710 - Program Design, Evaluation, and Implementation Credits: 3
- HDFS 730 - Grant Writing Credits: 3
- HDFS 745 - Work and Family Credits: 3
- HDFS Electives Credits: 12
  - HDFS 798 - Thesis (Option A)
  - HDFS Coursework (Option C)

Total Credits: 36

Additional Admission Requirements

GRE: not required

TOEFL: Department Requirements of 525 paper-based, 71 Internet-based

- STEP 1: Applicant Applies to the Graduate School
  - Apply to the Graduate School at least two months before the FCS/ADW deadline to allow for processing
  - Graduate School applications received after the FCS/ADW deadline will be denied and referred to the next semester
  - The minimum GPA to apply is 2.75, however a 3.0 or higher is desired
  - GRE is not required

- STEP 2: Applicant Applies to the FCS or AWD Program
  - Applicants to the FCS/ADW programs must submit the documents below by April 1 for fall admission or October 1 for spring admission. Late or incomplete applications will be denied.
  - Resume
  - A one page, typed goal statement explaining your professional goals and how completion of this degree will assist you in meeting those goals
  - Three letters of recommendation prepared within the past year; one letter must come from an academic professor.

- STEP 3: Admissions Decision
  - Complete admission files will be reviewed by faculty for an admissions decision. The Graduate School will notify the applicant via email about their admission status.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Human Sciences (M.S.) - Family and Community Services Specialization

Program Contact/Coordinator

Jay Trenhaile
Department of Counseling and Human Development
E-mail: jay.trenhaile@sdstate.edu

Program Information

The goal of the online MS specializing in Family and Community Services is to provide advanced, professional education and research expertise that focuses on improving individual, family, and community well-being. This specialization is delivered entirely online through GPIDEA and is designed to meet the educational needs of military service members and their spouses. Students who successfully complete this specialization will earn a Master of Science in Human Sciences specializing in Family and Community Services.

Course Delivery Format

The online program has been developed by faculty from the Great Plains Interactive Distance Education Alliance (GP-IDEA). Courses will be entirely Internet based and will be taught by faculty within the Alliance (Iowa State University, Kansas State University, Montana State University, North Dakota State University, Oklahoma State University, South Dakota State University, University of Missouri, and University of Nebraska). Courses are offered fall, spring and summer semesters.

Available Options for Graduate Degrees

Master of Science	Option A
	Option C

Core Requirements

- HDFS 501 - Foundations and Principles of Community Service Credits: 3
- HDFS 510 - Parenting Credits: 3
- HDFS 525 - Family Resiliency Credits: 3
- HDFS 605 - Program Administration and Management Credits: 3

- HDFS 610 - Family Resource Management Credits: 3
- HDFS 620 - Family Dynamics Credits: 3
- HDFS 630 - Lifespan Development Credits: 3
- HDFS 635 - Crises Across the Lifespan Credits: 3
- HDFS 640 - Interpersonal Relationships Credits: 3
- HDFS 710 - Program Design, Evaluation, and Implementation Credits: 3
- HDFS Electives Credits: 6
  - HDFS 798 - Thesis (Option A)
  - Elective Coursework (Option C)

Total Credits: 36

Additional Academic Requirements

GRE: not required

TOEFL: Department Requirements of 525 paper-based, 71 Internet-based

- STEP 1: Applicant Applies to the Graduate School
  - Apply to the Graduate School at least two months before the FCS/ADW deadline to allow for processing
  - Graduate School applications received after the FCS/ADW deadline will be denied and referred to the next semester
  - The minimum GPA to apply is 2.75, however a 3.0 or higher is desired
  - GRE is not required

- STEP 2: Applicant Applies to the FCS or AWD Program
  - Applicants to the FCS/ADW programs must submit the documents below by April 1 for fall admission or October 1 for spring admission. Late or incomplete applications will be denied.
  - Resume
  - A one page, typed goal statement explaining your professional goals and how completion of this degree will assist you in meeting those goals
  - Three letters of recommendation prepared within the past year; one letter must come from an academic professor.

- STEP 3: Admissions Decision
  - Complete admission files will be reviewed by faculty for an admissions decision. The Graduate School will notify the applicant via email about their admission status.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Human Sciences (M.S.) - Family and Consumer Sciences Education Specialization

Program Contact/Coordinator

Debra DeBates, Professor
Department of Teaching, Learning, and Leadership
E-mail: Debra.DeBates@sdstate.edu

Program Information

There is a strong demand for family and consumer sciences teachers nationwide. Through the online GPIDEA program, graduates will earn a Master's of Science in Human Sciences with a specialization in Family and Consumer Sciences Education. Student in the program plan curriculum for teaching, create a physical and psychological learning environment, engage students in the learning process, examine the relationship of diverse groups and the educational process, analyze the historical and philosophical underpinnings of FCS, assume professional responsibilities, and apply research to practice.

Accreditation, Licensure, Certification

The programs in Teaching, Learning, and Leadership are accredited by the National Council for Accreditation of Teacher Education (2010 Massachusetts Ave., NW, Suite 500, Washington, D.C. 20036-1023; Phone 202-466-7496). In order to become a licensed/certified family and consumer sciences educator, students may require additional content courses, tests or other individual state requirements.

Course Delivery Format

The online program has been developed by faculty from the Great Plains Interactive Distance Education Alliance (GP-IDEA). Courses will be entirely Internet based and will be taught by faculty within the Alliance (Iowa State University, Kansas State University, Montana State University, North Dakota State University, Oklahoma State University, South Dakota State University, University of Missouri, and University of Nebraska). Courses are offered fall, spring and summer semesters.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- EDFN 730 - Current Issues in Education Credits: 3
- EDFN 792 - Topics Credits: 3
- FCSE 611 - History and Philosophy of Family and Consumer Sciences Credits: 3
- FCSE 721 - Occupational Programs in Family and Consumer Sciences Credits: 3
- FCSE 761 - Advanced Methods and Assessment in Family & Consumer Sciences Education Credits: 3
- Electives: 6-9
  - EDFN 700 - Exceptional Learners Credits: 3
  - EPSY 723 - Adolescent Psychology Credits: 3
  - EDFN 725 - Education in a Pluralistic Society Credits: 3
- Select one of the following: 10-15
  - A - Teacher Preparation:
    - FCSE 595 - Practicum Credits: 1-3
    - FCSE 673 - Supervised Student Teaching in Family and Consumer Sciences Education Credits: 6-9
    - FCSE 751 - Curriculum of Family/Consumer Sciences Education Credits: 3
  - B - Professional Practice:
    - FCSE 792 - Topics - FCS Methods I Credits: 3
    - FCSE 792 - Topics - Supervision of Student Teachers or Administration of SCS Education Programs Credits: 3
    - FCSE 792 - Topics - Advising FCCLA Credits: 3
    - HDFS 602 - Research and Evaluation in Counseling and Human Development Credits: 3
- Select one of the following: 0-6
  - FCSE 798 - Thesis (Option A) Credits: 6
  - FCSE 788 - Master's Research Project (Option B) Credits: 1-3
  - Electives (Option C) Credits: 0-6

Total Credits: 36-45

Additional Admission Requirements

GRE: not required

TOEFL: Department Requirements of 525 paper-based, 71 Internet-based

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Human Sciences (M.S.) - Family Financial Planning Specialization

Program Contact/Coordinator

SooHyun Cho
Department of Consumer Sciences
E-mail: soohyun.cho@sdstate.edu

Program Information

The online M.S. in Human Sciences – Family Financial Planning program will allow students to enhance personal finance knowledge, gain eligibility to sit for the CFP® Certification Examination, increase networking opportunities, and improve career options. Family financial planning is an emerging area with job opportunities in areas related to insurance, real estate, investments, retirement, tax and estate planning. Financial planners are increasingly in demand as Americans seek advisors to help manage their income, assets, and debts.

The curriculum consists of twelve 3-credit courses taken in any order with the Financial Planning Case Study course designed as a capstone to the program. The elective six credit-hours include supervised experiences or projects in family financial planning.

Accreditation, Certification, and Licensure

The Family Financial Planning graduate program is registered by the CERTIFIED FINANCIAL PLANNER™ Board of Standards. CFP® and CERTIFIED FINANCIAL PLANNER™ are federally registered service marks of the CERTIFIED FINANCIAL PLANNER™ Board of Standards, Inc. They are granted by the CFP® Board to those persons who have fulfilled a comprehensive educational requirement, passed the CFP® Certification Examination, satisfied a work experience requirement and agreed to abide by the CFP® Board code of ethical conduct.

- The graduate certificate in Financial Planning does not guarantee a student will pass the CFP® exam.
- In earning the graduate certificate in Financial Planning through the Great Plains IDEA, students receive the education required to take the exam.
- After completing the necessary educational requirements, students work with the CFP Board on examination, experience and ethics requirements for CFP® certification.

Certified Financial Planner™ professionals have the satisfaction of helping people solve their financial problems and reach their financial goals. The CFP Board website at www.cfp.net has extensive CFP® certification information.

Students admitted to the Great Plains IDEA online degree program are advised to obtain the Guide to CFP® Certification. The guide includes an application for the exam, exam fee information, exam procedures and information on the required work experience.

- Certified Financial Planner Board of Standards Inc. owns the marks CFP®, CERTIFIED FINANCIAL PLANNERTM, and CFP (with flame logo)®, which it awards to individuals who successfully complete initial and ongoing certification requirements.
- Great Plains IDEA institutions do not certify individuals to use the CFP®, CERTIFIED FINANCIAL PLANNERTM and CFP (with flame logo)® certification marks. CFP® Certification is granted only by the Certified Financial Planner Board of Standards Inc. to those persons who, in addition to completing an educational requirement such as this CFP Board-Registered Program, have met its ethics, experience and examination requirements.

Course Delivery Format

The online program has been developed by faculty from the Great Plains Interactive Distance Education Alliance (GP-IDEA). Courses will be entirely Internet based and will be taught by faculty within the Alliance (Iowa State University, Kansas State University, Montana State University, North Dakota State University, Oklahoma State University, South Dakota State University, University of Missouri, and University of Nebraska). Courses are offered fall, spring and summer semesters.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- CA 612 - Financial Counseling Credits: 3
- CA 621 - Financial Theory and Research I Credits: 3
- CA 640 - Fundamentals of Family Financial Planning Credits: 3
- CA 660 - Investing for Family's Future Credits: 3
- CA 680 - Insurance Planning for Families Credits: 3
- CA 704 - Estate Planning for Families Credits: 3
- CA 725 - Family, Employment Benefits and Retirement Planning Credits: 3
- CA 735 - Personal Income Taxation Credits: 3
- CA 755 - Financial Planning Case Study Credits: 3

Electives Credits: 9

Coursework for Option C (coursework only) requires 9 credits from the Electives courses listed below. Students choosing Option A (Thesis) or Option B (Research Project) instead of Option C, then choose any remaining credit hours from the electives list.

Select electives from the following list:

- CA 595 - Practicum Credits: 3-6
- CA 645 - Military Personal Financial Readiness Credits: 3
- CA 715 - Housing and Real Estate in FFP Credits: 3
- CA 721 - Financial Theory and Research II Credits: 3
- CA 745 - Professional Practices in Financial Planning Credits: 3
- CA 790 - Seminar Credits: 3
- STAT 541 - Statistical Methods II Credits: 3

Option A:

- CA 798 - Thesis Credits: 6
- Electives: 3

Option B:

- CA 788 - Master's Research Problems/Projects Credits: 3
- Electives: 6

Option C:

- Electives: 9

Total Credits: 36

Additional Admission Requirements

GRE: not required

TOEFL: Department Requirements of 525 paper-based, 71 Internet-based

Students enter the Great Plains IDEA program through application and admission to the South Dakota State University Graduate School. The Graduate School requires a minimum undergraduate GPA of 3.0 for unconditional admission into any program. The program accounts for life experience as a part of conditional admission to the program. Three Letters of Recommendation from persons acquainted with the academic ability or professional competency of the applicant should be sent directly to Dr. Cho at soohyun.cho@sdstate.edu.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Human Sciences (M.S.) - Merchandising Specialization

Program Contact/Coordinator

Susan C. Strickler
Department of Consumer Sciences
E-mail: Susan.Strickler@sdstate.edu

Program Information

The M.S. in Human Sciences specialization in Merchandising provides an understanding of merchandising at every level, with emphasis on current trends in the United States and the global marketplace, factors that will distinguish graduates among their peers. Students can obtain a focus on the merchandising aspect of the business. The additional expertise offered through the merchandising certificate may position individuals for career advancement or a new career in merchandising. Graduates of the program are prepared to work in product development, promotions, and retail management in this ever-expanding industry.

Course Delivery Format

The online program has been developed by faculty from the Great Plains Interactive Distance Education Alliance (GP-IDEA). Courses will be entirely Internet based and will be taught by faculty within the Alliance (Kansas State University, North Dakota State University, Oklahoma State University, South Dakota State University, and University of Nebraska). Courses are offered fall, spring and summer semesters.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- MRCH 510 - Consumer Behavior in Merchandising Credits: 3
- MRCH 520 - Professional Advancement in Merchandising Credits: 3
- MRCH 530 - Product Design, Development, and Evaluation Credits: 3
- MRCH 540 - Promotional Strategies in Merchandising Credits: 3
- MRCH 550 - Retail Theory and Current Practice Credits: 3
- MRCH 610 - History and Contemporary Issues in Trade Credits: 3
- MRCH 620 - International Merchandise Management Credits: 3
- MRCH 630 - Research Methods in Merchandising Credits: 3
- MRCH 640 - Financial Merchandising Implications Credits: 3
- MRCH 650 - Strategic Planning in Merchandising Credits: 3
- 6 credits from the following options (creative component)
  - MRCH 695 - Practicum 1-6 credits and electives for a total of 6 credits
  - MRCH 788 - Master's Research Problems/Projects 1-3 credits and electives for a total of 6 credits
  - MRCH 798 - Thesis 6 credits

    The thesis option is reserved only for those students who are willing and able to travel to SDSU main campus in Brookings, SD several times during their graduate studies.

Total Credits: 36

Additional Admission Requirements

GRE: not required

TOEFL: Department Requirements of 525 paper-based, 71 Internet-based

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Mass Communication (M.M.C.)

Program Information

The Master of Mass Communication (M.M.C.) consists of advanced studies in professional or vocational fields. While it has theoretical underpinnings, the primary purpose is to enhance knowledge and skills for application in professional practice. Fifty percent or more of the courses must be skills-based. This degree targets mid-career professionals in journalism, advertising and public relations and builds on students' current levels of experience and skills making them more marketable in their fields. The Masters of Mass Communication prepares students for the increasingly competitive workforce and changing disciplines in mass communications.

Student Learning Outcomes

- Understand and apply the principles and laws of freedom of speech and press for the country in which the institution that invites ACEJMC is located, as well as receive instruction in and understand the range of systems of freedom of expression around the world, including the right to dissent, to monitor and criticize power, and to assemble and petition for redress of grievances;
- Demonstrate an understanding of the history and role of professionals and institutions in shaping communications;
- Demonstrate an understanding of gender, race, ethnicity, sexual orientation and, as appropriate, other forms of diversity in domestic society in relation to mass communications;
- Demonstrate an understanding of the diversity of peoples and cultures and of the significance and impact of mass communications in a global society;
- Understand concepts and apply theories in the use and presentation of images and information;
- Demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness and diversity;
- Think critically, creatively and independently;
- Conduct research and evaluate information by methods appropriate to the communications professions in which they work;
- Write correctly and clearly, in forms and styles appropriate for the communications professions, audiences and purposes they serve;
- Critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style and grammatical correctness;
- Apply basic numerical and statistical concepts;
- Apply tools and technologies appropriate for the communications professions in which they work.

Course Delivery Format

All courses for the M.M.C. program are delivered online.

Available Options for Graduate Degrees

Master of Mass Communication	Option B
	Option C

Core Requirements

- MCOM 705 - Introduction to Master of Mass Communication Credits: 3
- MCOM 710 - Cross-Platform Storytelling Credits: 3
- MCOM 730 - Media Law Case Studies Credits: 3
- MCOM 746 - Cross-Platform Campaigns Credits: 3
- MCOM 786 - Conducting Professional Research Credits: 3
- MCOM 788 - Master's Research Problems/Projects Credits: 2 (Option B)
- Electives: 15 (Option B), 21 (Option C)

  Select from the following list of courses. Other courses may be selected with prior approval.
  - MCOM 513 - International Media Credits: 3
  - MCOM 519 - Women in Media Credits: 3
  - MCOM 574 - Media Administration and Management Credits: 3
  - MCOM 615 - Opinion Writing Credits: 3
  - MCOM 653 - Mass Communications Teaching Methods Credits: 1-4 (3 credits required)
  - MCOM 742 - Health Campaigns Credits: 3
  - MCOM 760 - Social Marketing for Health and Behavioral Change Credits: 3

- MCOM 785 - Health Journalism Credits: 3
- MCOM 791 - Independent Study Credits: 1-3
- MCOM 794 - Internship Credits: 1-3

Total Credits: 32 (Option B), 36 (Option C)

Additional Admission Requirements

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

IELTS: 6.5

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Mathematics (M.S.)

Program Information

The focus of the M.S. in Mathematics Program is the development of sophisticated mathematical models and their implementation on high performance computing platforms. The curriculum features a balance of application, computation, and theory with particular emphasis in the areas of operations research, computational science, and the development of probabilistic and deterministic models. Areas of faculty and graduate student research activity include computational biology, computational finance, molecular dynamics simulation, operations research, optimization, and Ramsey theory. The program is particularly effective at preparing graduates to work in business, industry, or government as well as preparing students to continue on to the CSS Ph.D. or other Ph.D. program.

Student Support and Engagement Opportunities

The department has graduate research and teaching assistantships and fellowships are available for a number of qualified applicants.

Facilities and Services

The department offices are located in Architecture, Mathematics and Engineering 209. The Math Help Center, located in AME 292 and in the Biostress Basement 0020, provides free walk-in tutoring for students in several undergraduate courses.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- During the first year, complete one of the sequences listed below and pass the corresponding comprehensive exam*:
  - *Students Beginning Fall of Odd Years - Select one sequence*
    MATH 575 - Operations Research Credits: 3
    and MATH 775 - Operations Research II Credits: 3
    or
    MATH 571 - Numerical Analysis I Credits: 3
    and MATH 774 - Advanced Scientific Computation Credits: 3
  - *Students Beginning Fall of Even Years - Select one sequence*
    MATH 742 - Partial Differential Equation Credits: 3
    and MATH 732 - Ordinary Differential Equations : 3
    or
    MATH 571 - Numerical Analysis I Credits: 3
    and MATH 771 - Numerical Analysis II Credits: 3
- MATH 798 - Thesis (Option A) Credits: 5
  or MATH 788 - Research Paper (Option B) Credits: 2
  or Approved Electives (Option C)
- Additional electives as needed to complete Option requirements

Total Credits: 30 (Option A), 32 (Option B), 35 (Option C)

Additional Admission Requirements

GRE: Not required

TOEFL: For the Master's program, a department requirement of 550 paper-based, 79-80 Internet-based

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Mathematics (M.S.) - Statistics Specialization

Program Information

The Department of Mathematics and Statistics is a large, diverse, and active organization. The department's mission is to provide excellent instruction, conduct high-quality research and scholarly activity, and prepare graduates and provide mathematical and statistical services that are both regionally relevant and internationally competitive. The department offer students the opportunity to pursue master's and doctoral level graduate studies in a collegial environment with small class sizes and high faculty-student interaction and research activity.

The focus of the M.S. in Mathematics Program is the development of sophisticated mathematical models and their implementation on high performance computing platforms. The curriculum features a balance of application, computation, and theory with particular emphasis in the areas of operations research, computational science, and the development of probabilistic and deterministic models. Areas of faculty and graduate student research activity include computational biology, computational finance, molecular dynamics simulation, operations research, optimization, and Ramsey theory. The program is particularly effective at preparing graduates to work in business, industry, or government as well as preparing students to continue on to the CSS PhD or other PhD program.

Student Support and Engagement Opportunities

The department has graduate research and teaching assistantships and fellowships are available for a number of qualified applicants.

Facilities and Services

The department offices are located in Architecture, Mathematics and Engineering 209. The Math Help Center, located in AME 292 and in the Biostress Basement 0020, provides free walk-in tutoring for students in several undergraduate courses.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

Mathematics with a Specialization in Statistics

Complete one of the core sequences listed for math degree and one of the core sequences listed for the statistics degree, and pass the two corresponding comprehensive exams*.

- Math Sequences - *Fall of Odd Years*
  - MATH 575 - Operations Research Credits: 3
    and MATH 775 - Operations Research II Credits: 3
  - MATH 571 - Numerical Analysis I Credits: 3
    and MATH 774 - Advanced Scientific Computation Credits: 3
- Math Sequences - *Fall of Even Years*
  - MATH 742 - Partial Differential Equation Credits: 3
    and MATH 732 - Ordinary Differential Equations : 3
  - MATH 571 - Numerical Analysis I Credits: 3
    and MATH 771 - Numerical Analysis II Credits: 3
- Statistics Sequences
  - *Statistical Inference*: STAT 784 - Statistical Inference I Credits: 3
    and STAT 785 - Statistical Inference II Credits: 3
  - *Regression*: STAT 786 - Regression Analysis I Credits: 3
    and STAT 787 - Regression Analysis II Credits:

- MATH 798 - Thesis (Option A) Credits: 5
  or MATH 788 - Research Paper (Option B) Credits: 2
  or Approved Electives (Option C)
- Additional electives as needed to complete Option requirements

Total Credits: 30 (Option A), 32 (Option B), 35 (Option C)

Additional Admission Requirements

GRE: Not required

TOEFL: For the Master's program, a department requirement of 550 paper-based, 79-80 Internet-based

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Mechanical Engineering (M.S.)

Program Information

The Mechanical Engineering Department offers courses for the degree Master of Science in Engineering. Also, course offerings can be used in co-major or minor programs for students of other departments. The graduate program in mechanical engineering concentrates on advanced study, including design and research, in such areas as thermofluid science, solid mechanics and dynamics, and industrial and quality control engineering. Students are encouraged to broaden their education by participating in supporting programs in established departments such as mathematics, computer science and other fields of engineering.

Available Options for Graduate Degrees

Master of Science Option A
Option B
Option C

Core Requirements

- ME 7XX Courses with ME Prefix Credits: 6
- Select one of the following:
  - Option A:
    - ME 798 - Thesis Credits: 1-7 (6 credits required)
    - Electives: 18
  - Option B:
    - ME 788 - Master's Research Problems/Projects Credits: 1-9 (2 credits required)
    - Electives: 24
  - Option C:
    - Electives: 29

Total Credits: 30 (Option A), 32 (Option B), 35 (Option C)

Additional Admission Requirements

GRE: Not required

TOEFL: Department requirement of 525 paper based, 71 Internet-based

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

See Master's Degree Requirements.

Nursing (M.S.) - Clinical Nursing Leadership Specialization

Program Information

The Master's of Science, Nursing major program prepares professional leaders with specialized knowledge and skills to meet the nation's needs in clinical practice, nursing administration, and nursing education. The aim of the program is to prepare nurses to practice at an advanced level in nursing as a nurse educator, administrator, or clinician which includes clinical nurse leader.

Program Objectives

The graduate of the Master of Science in Nursing program will:

- Demonstrate evidence based practice and lifelong learning.
- Serve South Dakota and the region in nursing administration, nurse education, or in roles as clinical nurse leaders.
- Serve leadership roles in healthcare.
- Incorporate knowledge and theories from nursing and other supportive disciplines into advanced nursing practice.
- Display competence within the legal scope of practice for the chosen specialization.
- Evaluate, conduct, and utilize research within advanced nursing practice.
- Integrate cultural learning into nursing practice to effectively tailor health care to the diverse lifeways of clients.
- Seek to decrease health disparities among populations by addressing socioeconomic, political or cultural determinants of health.
- Use leadership, administration, and teaching strategies to improve nursing practice and health care delivery.
- Assume accountability to influence health policy, improve health care delivery, address the diversity of health care needs, and advance the nursing profession.
- Contribute to the advancement of the science of nursing serving rural and underserved populations.

Accreditation, Certification, and Licensure

Accreditation

The master's degree in nursing at South Dakota State University is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791.

Licensure

Students must provide evidence of professional registration by submitting a copy of the most current RN license.

Certification

After completing the program of study, graduates may be eligible to complete certification through several professional organizations.

Upon completion of the M.S. in Nursing - Clinical Nursing Leadership Specialization - Clinical Nurse Leader Emphasis, students may be eligible for the following certifications:

National Certification Eligibility	Certifying Body
Clinical Nurse Leader (CNL)* *requires completion of minimum of 400 total clinical hours (300 of which must be in practice in the CNL role during a clinical immersion experience).	Commission on Nurse Certification (CNC) http://www.aacn.nche.edu/cnc/pdf/resources.pdf

Upon Completion of the M.S. in Nursing - Clinical Nursing Leadership Specialization - Nurse Administrator Emphasis, students may be eligible for the following certifications:

National Certification Eligibility	Certifying Body

Nurse Executive - Board Certified (NE-BS)* *requires candidate to have held an administrative position at the nurse executive level, OR a faculty position teaching graduate students nursing administration, OR a nursing management or executive consultation position, for at least 24 months full time equivalent in the last 5 years.	American Nurses Credentialing Center (ANCC) http://www.nursecredentialining.org/#
Nurse Executive - Advanced Board Certified (NEA-BC)* *requires candidate to have held an administrative position at the nurse executive level, OR a faculty position teaching graduate students nursing administration, for at least 24 months full time equivalent in the last 5 years.	American Nurses Credentialing Center (ANCC) http://www.nursecredentialining.org/#
Certified Nurse Manager and Leader (CNML)* *requires 2 years of experience (minimum of 1,040 hours per year) in a nurse manager role.	American Organization of Nurse Executives (AONE) http://www.aone.org
Certified in Executive Nursing Practice (CENP)* *requires 2 years of experience in an executive nursing role.	American Organization of Nurse Executives (AONE) http://www.aone.org

Available Options for Graduate Degrees

Master of Science Option A
Option B
Option C

Core Requirements

Clinical Nursing Leadership Specialization: ***Nurse Administrator Emphasis***

Prepares graduates to assume leadership positions in health care agencies utilizing concepts and theories from nursing management and health administration. This graduate demonstrates skills in personnel management and budgetary resources.

- NURS 615 - Foundations of Advanced Nursing Credits: 3
- NURS 626 - Research in Nursing and Health Care Credits: 3
- NURS 670 - Health Policy, Legislation, Economics and Ethics Credits: 3
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 750 - Transformational Leadership in Nursing Credits: 3
- NURS 860 - Health Operations and Financial Management for Nurse Managers Credits: 3
- NURS 760 - Health Promotion and Disease Prevention Across the Lifespan Credits: 3
- NURS 774 - Nurse Administrator: Practicum Credits: 5
- Electives (as approved by academic advisor) - Credits: 0-9 *
- Select one of the following options:
  - Option A
    - NURS 798 - Thesis Credits: 5
    - Electives Credits: 0
  - Option B
    - NURS 788 - Problems in Nursing Research Credits: 2
    - Electives Credits: 4
  - Option C
    - Electives Credits: 9

Total Credits: 31 (Option A), 32 (Option B), 35 (Option C)

Clinical Nursing Leadership Specialization: ***Clinical Nurse Leader Emphasis***

Prepares graduates for coordination of care and clinical leadership in all health care settings. This graduate demonstrates skills in managing microsystems of care and is prepared to implement outcomes-based practice and quality improvement strategies.

- NURS 615 - Foundations of Advanced Nursing Credits: 3
- NURS 623 - Pathophysiology Across the Lifespan - Application to Advanced Practice Nursing Credits: 4
- NURS 626 - Research in Nursing and Health Care Credits: 3
- NURS 631 - Advanced Assessment Across the Lifespan Credits: 4
- NURS 631L - Advanced Assessment - Lifespan Clinical Laboratory Credits: 0
- NURS 645 - CNL I: Improvement Science: A Microsystem Approach Credits: 2-5 (5 credits required)
- NURS 646 - CNL II: Clinical Immersion and Capstone Project Credits: 1-6 (6 credits required)
- NURS 670 - Health Policy, Legislation, Economics and Ethics Credits: 3
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 760 - Health Promotion and Disease Prevention Across the Lifespan Credits: 3
- NURS 860 - Health Operations and Financial Management for Nurse Managers Credits: 3
- PHA 645 - Pharmacotherapeutics Across the Lifespan: Application to Advanced Practice Credits: 2-4 (2 credits required)

Total Credits: 39 (Option C)

For additional information, refer to the Graduate Nursing Department webpage.

Additional Admissions Requirements for Master of Science in Nursing

GRE: Not required

TOEFL: Department requirement of 600 paper-based, 100 Internet-based, OR

IELTS: 7.0 total band

In addition to meeting basic requirements for admission to the Graduate School, applicants for graduate study in nursing must have:

1. Bachelor's degree in nursing from an NLNAC or CCNE accredited program with an upper division major in nursing with a "B" average (3.0 or higher on a 4.0 point grading system).
2. Current licensure as an RN or eligibility for licensure.
3. 1500 hours of documented nursing practice experience prior to first clinical lab/practicum (N631).
4. Completed approved statistical methods course with a grade of 'C' or higher within the past 5 years.
5. Completed application to the Graduate Nursing program. These documents can be obtained at Graduate Nursing Program.

Total enrollment in the Master of Science in Nursing program may vary depending upon available clinical facilities and qualified faculty. Applicants are selected competitively from those qualified for the master's program. Applicants should check with the Graduate Nursing office for application deadlines.

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the Graduate Nursing Department. Items 3-6 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Healthcare Providers
4. Professional liability insurance
5. Influenza vaccine
6. TB test

See Master's Degree Requirements.

Nursing (M.S.) - Family Nurse Practitioner Specialization

Program Information

Graduates of this program are prepared to deliver evidence-based direct patient care at an advanced practice level to individuals across the lifespan in primary care settings.

Program Objectives

The graduate of the Master of Science in Nursing program will:

- Demonstrate evidence based practice and lifelong learning.
- Serve South Dakota and the region in nursing administration, nurse education, or in roles as clinical nurse leaders.
- Serve leadership roles in healthcare.
- Incorporate knowledge and theories from nursing and other supportive disciplines into advanced nursing practice.
- Display competence within the legal scope of practice for the chosen specialization.
- Evaluate, conduct, and utilize research within advanced nursing practice.
- Integrate cultural learning into nursing practice to effectively tailor health care to the diverse lifeways of clients.
- Seek to decrease health disparities among populations by addressing socioeconomic, political or cultural determinants of health.
- Use leadership, administration, and teaching strategies to improve nursing practice and health care delivery.
- Assume accountability to influence health policy, improve health care delivery, address the diversity of health care needs, and advance the nursing profession.
- Contribute to the advancement of the science of nursing serving rural and underserved populations.

Accreditation, Certification, and Licensure

Accreditation

The master's degree in nursing at South Dakota State University is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791.

Licensure

Students must provide evidence of professional registration by submitting a copy of the most current RN license.

Certification

After completing the program of study, graduates may be eligible to complete certification through several professional organizations.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- NURS 615 - Foundations of Advanced Nursing Credits: 3
- NURS 623 - Pathophysiology Across the Lifespan - Application to Advanced Practice Nursing Credits: 4
- NURS 626 - Research in Nursing and Health Care Credits: 3
- NURS 631 - Advanced Assessment Across the Lifespan Credits: 4
- NURS 631L - Advanced Assessment - Lifespan Clinical Laboratory Credits: 0
- NURS 670 - Health Policy, Legislation, Economics and Ethics Credits: 3
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 760 - Health Promotion and Disease Prevention Across the Lifespan Credits: 3
- NURS 765 - Family Nurse Practitioner Practicum I Credits: 7 (3, 4)
- NURS 771 - Family Nurse Practitioner Practicum II Credits: 7
- NURS 776 - Family Nurse Practitioner III - Small Group Instruction Credits: 3
- NURS 777 - Family Nurse Practitioner: Practicum III Credits: 3-9 (9 credits required)
- Select one of the following options:
  - Option A: NURS 798 - Thesis Credits: 5
  - Option B: NURS 788 - Problems in Nursing Research Credits: 2
  - Option C: Coursework Only
- PHA 645 - Pharmacotherapeutics Across the Lifespan: Application to Advanced Practice Credits: 2-4 (4 credits required)

Total Credits: 58 (Option A), 55 (Option B), 53 (Option C)

For additional information, refer to the Graduate Nursing Department webpage.

Additional Admissions Requirements for Master of Science in Nursing

GRE: Not required

TOEFL: Department requirement of 600 paper-based, 100 Internet-based, OR

IELTS: 7.0 total band

In addition to meeting basic requirements for admission to the Graduate School, applicants for graduate study in nursing must have:

1. Bachelor's degree in nursing from an NLNAC or CCNE accredited program with an upper division major in nursing with a "B" average (3.0 or higher on a 4.0 point grading system).
2. Current licensure as an RN or eligibility for licensure.
3. 1500 hours of documented nursing practice experience prior to first clinical lab/practicum (N631).
4. Completed approved statistical methods course with a grade of 'C' or higher within the past 5 years.
5. Completed application to the Graduate Nursing program. These documents can be obtained at Graduate Nursing Program.

Total enrollment in the Master of Science in Nursing program may vary depending upon available clinical facilities and qualified faculty. Applicants are selected competitively from those qualified for the master's program. Applicants should check with the Graduate Nursing office for application deadlines.

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the Graduate Nursing Department. Items 3-7 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Healthcare Providers
4. ACLS certification
5. Professional liability insurance
6. Influenza vaccine
7. TB test

See Master's Degree Requirements.

Nursing (M.S.) - Nurse Educator Specialization

Program Information

The program prepared graduates to utilize theories of teaching and learning in a variety of settings with emphasis on nursing education. The graduate demonstrates the ability to plan, implement and evaluate nursing education offerings.

Program Objectives

The graduate of the Master of Science in Nursing program will:

- Demonstrate evidence based practice and lifelong learning.
- Serve South Dakota and the region in nursing administration, nurse education, or in roles as clinical nurse leaders.
- Serve leadership roles in healthcare.

- Incorporate knowledge and theories from nursing and other supportive disciplines into advanced nursing practice.
- Display competence within the legal scope of practice for the chosen specialization.
- Evaluate, conduct, and utilize research within advanced nursing practice.
- Integrate cultural learning into nursing practice to effectively tailor health care to the diverse lifeways of clients.
- Seek to decrease health disparities among populations by addressing socioeconomic, political or cultural determinants of health.
- Use leadership, administration, and teaching strategies to improve nursing practice and health care delivery.
- Assume accountability to influence health policy, improve health care delivery, address the diversity of health care needs, and advance the nursing profession.
- Contribute to the advancement of the science of nursing serving rural and underserved populations.

Accreditation, Certification, and Licensure

Accreditation

The master's degree in nursing at South Dakota State University is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791.

Licensure

Students must provide evidence of professional registration by submitting a copy of the most current RN license.

Certification

After completing the program of study, graduates may be eligible to complete certification through several professional organizations.

Graduate Students may be eligible for certification after completing their program of study.

Upon completion of the M.S. in Nursing - Nurse Educator Specialization, students may be eligible for the following certifications:

National Certification Eligibility	Certifying Body
Certified Nurse Educator* *Individuals must meet eligibility requirements before they can take the CNE examination. An active registered nurse license is necessary. Students must also have a master's or doctoral degree in nursing and full-time experience in a nurse faculty role within the past five years. If the college degree emphasized on nursing instruction, individuals will need two years of experience in a nurse faculty role. Four years of experience is required if the graduate nursing degree did not emphasize on education.	National League for Nursing (NLN) http://www.nln.org/index.cfm

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- NURS 615 - Foundations of Advanced Nursing Credits: 3
- NURS 623 - Pathophysiology Across the Lifespan - Application to Advanced Practice Nursing Credits: 4
- NURS 626 - Research in Nursing and Health Care Credits: 3
- NURS 631 - Advanced Assessment Across the Lifespan Credits: 4
- NURS 631L - Advanced Assessment - Lifespan Clinical Laboratory Credits: 0
- NURS 670 - Health Policy, Legislation, Economics and Ethics
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 710 - Curriculum Development in Nursing Credits: 3
- NURS 720 - Technology-Based Instruction for Nurse Educators Credits: 3
- NURS 760 - Health Promotion and Disease Prevention Across the Lifespan Credits: 3
- NURS 778 - Nurse Educator Practicum Credits: 5
- NURS 795 - Practicum Credits: 3 (in Advanced Health Concepts for Nurse Educators)
- NURS 788 - Problems in Nursing Research Credits: 1-2 (2 credits required) (Option B)
  or NURS 798 - Thesis Credits: 1-7 (5 credits required) (Option A)
- PHA 645 - Pharmacotherapeutics Across the Lifespan: Application to Advanced Practice Credits: 2-4 (2 credits required)

Total Credits: 44 (Option A), 41 (Option B), 39 (Option C)

For additional information, refer to the Graduate Nursing Department webpage.

Additional Admissions Requirements for Master of Science in Nursing

GRE: Not required

TOEFL: Department requirement of 600 paper-based, 100 Internet-based, OR

IELTS: 7.0 total band

In addition to meeting basic requirements for admission to the Graduate School, applicants for graduate study in nursing must have:

1. Bachelor's degree in nursing from an NLNAC or CCNE accredited program with an upper division major in nursing with a "B" average (3.0 or higher on a 4.0 point grading system).
2. Current licensure as an RN or eligibility for licensure.
3. 1500 hours of documented nursing practice experience prior to first clinical lab/practicum (N631).
4. Completed approved statistical methods course with a grade of 'C' or higher within the past 5 years.
5. Completed application to the Graduate Nursing program. These documents can be obtained at Graduate Nursing Program.

Total enrollment in the Master of Science in Nursing program may vary depending upon available clinical facilities and qualified faculty. Applicants are selected competitively from those qualified for the master's program. Applicants should check with the Graduate Nursing office for application deadlines.

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the Graduate Nursing Department. Items 3-7 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Healthcare Providers
4. ACLS certification
5. Professional liability insurance
6. Influenza vaccine
7. TB test

See Master's Degree Requirements.

Nutrition and Exercise Sciences (M.S.) - Dietetics and Nutrition Specialization

Program Information

The M.S. in Nutrition and Exercise Sciences provides an opportunity to specialize in Dietetics and Nutrition, Nutritional Sciences or Exercise Science. Students are prepared for careers in clinical, industry, or research fields. A partial list includes clinical dietitians, public health nutritionists, research dietitians, clinical exercise physiology, strength and conditioning, research assistants or coordinators, instructors, or public health officials.

Courseload Information

Students enrolled in six or more state-supported credits within a given semester will be charged the current special discipline fee.

Student Support and Engagement Opportunities

The Department of Health and Nutritional Sciences aims to provide premier academic programs and high-quality services to students. A limited number of research and teaching assistantships and scholarships may be available to qualified graduate students.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B

Core Requirements

Nutrition and Exercise Sciences Core Requirements

- Advanced Research Methods Course Credits: 3
  Graduate students must consult with their advisors prior to registration.
  - HNS 783 - Research Methods in Health and Nutritional Sciences Credits: 3
    or NUTR 782 - Epidemiology Credits: 3
- Advanced Statistics Course Credits: 3
  Graduate students must consult with their advisors prior to registration.
  - HSC 631 - Biostatistics I Credits: 3
    or HSC 731 - Biostatistics II Credits: 3
    or STAT 541 - Statistical Methods II Credits: 3
    or STAT 582 - Statistics for Physical Science Credits: 3

Dietetics and Nutrition Specialization Requirements

- HNS 790 - Seminar Credits: 1
- HNS 794 - Internship Credits: 1-7 (2 credits required)
- HNS 795 - Practicum Credits: 1-9 (3 credits required)
- NUTR 702 - Macronutrients in Human Nutrition Credits: 3
- NUTR 715 - Public Health Nutrition Credits: 3
- NUTR 760 - Vitamins and Minerals in Human Nutrition Credits: 3
- Select one of the following options:
  - Option A:
    - HNS 798 - Thesis Credits: 1-7 (5 credits required)
    - Electives: 4
  - Option B:
    - HNS 788 - Master's Research Problems/Projects Credits: 1-7 (3 credits required)
    - Electives: 12

Total Credits: 30 (Option A), 36 (Option B)

Additional Admission Requirements

GRE: Required

TOEFL: required score of 550 paper-based, 79-80 Internet-based

IELTS: 6.0

Letter of application stating to include the following: primary area of interest (dietetics, exercise science, nutrition, etc.); desired research focus; long-term goals outlining career goals; interest in assistantship (teaching or research); reason(s) for attending graduate school; current professional certifications and credentials; an interview (in person or via phone) is highly encouraged but not required.

Master's Nutritional Sciences Admission Requirements:

Entering students for the Master's degree will be required to have a Bachelor's degree in dietetics, exercise science, nutrition, biology, chemistry, epidemiology, or other related field from an accredited institution. Students with other educational backgrounds may be admitted conditionally. They will be required to complete the necessary coursework to eliminate deficiencies in their background during their first semester in the program.

Prerequisites for the Master's degree include STAT 281 or equivalent, NUTR 315, CHEM 106/108 or CHEM 112/114 or equivalent, BIO 221, BIOL 325, and PE 350 or equivalent for students in the Exercise Science Specialization.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Nutrition and Exercise Sciences (M.S.) - Exercise Science Specialization

Program Information

The M.S. in Nutrition and Exercise Sciences provides an opportunity to specialize in Dietetics and Nutrition, Nutritional Sciences or Exercise Science. Students are prepared for careers in clinical, industry, or research fields. A partial list includes clinical dietitians, public health nutritionists, research dietitians, clinical exercise physiology, strength and conditioning, research assistants or coordinators, instructors, or public health officials.

Courseload Information

Students enrolled in six or more state-supported credits within a given semester will be charged the current special discipline fee.

Student Support and Engagement Opportunities

The Department of Health and Nutritional Sciences aims to provide premier academic programs and high-quality services to students. A limited number of research and teaching assistantships and scholarships may be available to qualified graduate students.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B

Core Requirements

Nutrition and Exercise Sciences Core Requirements

- Advanced Research Methods Course Credits: 3
  Graduate students must consult with their advisors prior to registration.
  - HNS 783 - Research Methods in Health and Nutritional Sciences Credits: 3
    or NUTR 782 - Epidemiology Credits: 3
- Advanced Statistics Course Credits: 3
  Graduate students must consult with their advisors prior to registration.
  - HSC 631 - Biostatistics I Credits: 3
    or HSC 731 - Biostatistics II Credits: 3
    or STAT 541 - Statistical Methods II Credits: 3
    or STAT 582 - Statistics for Physical Science Credits: 3

Exercise Science Specialization Requirements

- HNS 790 - Seminar Credits: 1 (2 credits required)
- PE 550 - Clinical Exercise Physiology Credits: 3
- PE 750 - Advanced Exercise Physiology Credits: 3
- PE 751 - Laboratory Techniques in Exercise Physiology Credits: 2
- PE 751L - Techniques in Exercise Physiology Laboratory Credits: 0
- PE 755 - Applied Exercise Physiology Credits: 3
- Select one of the following options:
  - Option A:
    - HNS 798 - Thesis Credits: 1-7 (5 credits required)
    - Electives: 6

- Option B:
  - HNS 788 - Master's Research Problems/Projects Credits: 1-7 (3 credits required)
  - Electives: 14

Total Credits: 30 (Option A), 36 (Option B)

Additional Admissions Requirements

GRE: Required

TOEFL: required score of 550 paper-based, 79-80 Internet-based

IELTS: 6.0

Letter of application stating to include the following: primary area of interest (dietetics, exercise science, nutrition, etc.); desired research focus; long-term goals outlining career goals; interest in assistantship (teaching or research); reason(s) for attending graduate school; current professional certifications and credentials; an interview (in person or via phone) is highly encouraged but not required.

Master's Nutritional Sciences Admission Requirements:

Entering students for the Master's degree will be required to have a Bachelor's degree in dietetics, exercise science, nutrition, biology, chemistry, epidemiology, or other related field from an accredited institution. Students with other educational backgrounds may be admitted conditionally. They will be required to complete the necessary coursework to eliminate deficiencies in their background during their first semester in the program.

Prerequisites for the Master's degree include STAT 281 or equivalent, NUTR 315, CHEM 106/108 or CHEM 112/114 or equivalent, BIO 221, BIOL 325, and PE 350 or equivalent for students in the Exercise Science Specialization.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Nutrition and Exercise Sciences (M.S.) - Nutritional Sciences Specialization

Program Information

The M.S. in Nutrition and Exercise Sciences provides an opportunity to specialize in Dietetics and Nutrition, Nutritional Sciences or Exercise Science. Students are prepared for careers in clinical, industry, or research fields. A partial list includes clinical dietitians, public health nutritionists, research dietitians, clinical exercise physiology, strength and conditioning, research assistants or coordinators, instructors, or public health officials.

Courseload Information

Students enrolled in six or more state-supported credits within a given semester will be charged the current special discipline fee.

Student Support and Engagement Opportunities

The Department of Health and Nutritional Sciences aims to provide premier academic programs and high-quality services to students. A limited number of research and teaching assistantships and scholarships may be available to qualified graduate students.

Available Options for Graduate Degrees

Master of Science Options A
Options B

Core Requirements

Nutrition and Exercise Sciences Core Requirements

- Advanced Research Methods Course Credits: 3
  Graduate students must consult with their advisors prior to registration.
  - HNS 783 - Research Methods in Health and Nutritional Sciences Credits: 3
    or NUTR 782 - Epidemiology Credits: 3
- Advanced Statistics Course Credits: 3
  Graduate students must consult with their advisors prior to registration.
  - HSC 631 - Biostatistics I Credits: 3
    or HSC 731 - Biostatistics II Credits: 3
    or STAT 541 - Statistical Methods II Credits: 3
    or STAT 582 - Statistics for Physical Science Credits: 3

Nutritional Sciences Specialization Requirements

- HNS 790 - Seminar Credits: 1 (2 credits required)
- NUTR 522 - Advanced Human Nutrition Credits: 4
- NUTR 760 - Vitamins and Minerals in Human Nutrition Credits: 3
- NUTR 761 - Nutrition and Aging Credits: 3
- Select one of the following options:
  - Option A:
    - HNS 798 - Thesis Credits: 1-7 (5 credits required)
    - Electives: 7
  - Option B:
    - HNS 788 - Master's Research Problems/Projects Credits: 1-7 (3 credits required)
    - Electives: 15

Total Credits: 30 (Option A), 36 (Option B)

Additional Admissions Requirements

GRE: Required

TOEFL: required score of 550 paper-based, 79-80 Internet-based

IELTS: 6.0

Letter of application stating to include the following: primary area of interest (dietetics, exercise science, nutrition, etc.); desired research focus; long-term goals outlining career goals; interest in assistantship (teaching or research); reason(s) for attending graduate school; current professional certifications and credentials; an interview (in person or via phone) is highly encouraged but not required.

Master's Nutritional Sciences Admission Requirements:

Entering students for the Master's degree will be required to have a Bachelor's degree in dietetics, exercise science, nutrition, biology, chemistry, epidemiology, or other related field from an accredited institution. Students with other educational backgrounds may be admitted conditionally. They will be required to complete the necessary coursework to eliminate deficiencies in their background during their first semester in the program.

Pre-requisites for the Master's degree include STAT 281 or equivalent, NUTR 315, CHEM 106/108 or CHEM 112/114 or equivalent, BIO 221, BIOL 325, and PE 350 or equivalent for students in the Exercise Science Specialization.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Operations Management (M.S.)

Program Information

The Master of Science degree in Operations Management (MSOM), offered through the Jerome J. Lohr College of Engineering, is a program for professionals interested in expanding their ability to manage technical functions in an organization as the next logical step in their career path.

Students may elect to pursue the traditional thesis route under Option A: this is valuable for individuals who anticipate future graduate work toward achieving the terminal degree in a related field. Most students select the research/design paper route under Option B: this requirement generally takes the form of a project in collaboration with local or regional industry to solve a problem or to improve a system or process. A third option, Option C, is a non-thesis program that provides more coursework in lieu of the research component. Option C requires approval of the faculty advisor.

Regardless of the option selected, the student works with his/her Major Advisor to develop the program of study plan, make consistent progress toward completion of

the degree, and to show proficiency in integrating and applying management concepts through the Final Oral Exam.

Course Delivery

Program coursework is delivered on campus, with limited coursework offered online.

Available Options for Graduate Degrees

Master of Science Option A
Option B
Option C

Core Requirements

- OM/GE 569 - Project Management Credits: 2-3*
- OM 660 - Operations Management Credits: 3*
- OM 670 - Research Methods in Management Credits: 3
- OM 690 - Seminar Credits: 1-3*

**OM 569, OM 660, and OM 670 are part of a professional development certificate*

Select one (1) course from each topic area:

- Resources
  - CHRD 716 - Human Resources Management in Business and Industry Credits: 3
  - CSC 740 - Management Information Systems Credits: 3
  - ECON 610 - Financial Management Credits: 3
  - GE 603 - Designing the Work Place for Production Credits: 3
  - OR approved elective
- Operations
  - GE 650 - Manufacturing Systems Management Credits: 3
  - ME 761 - Operations Research Credits: 3
  - ME 760 - Quality Control Credits: 3
  - OR approved elective
- Analysis
  - OM 767 - Decision Theory Credits: 3
  - STAT 541 - Statistical Methods II Credits: 3
  - STAT 582 - Statistics for Physical Science Credits: 3
  - OR approved elective
- OM/GE 798 - Thesis (Option A) Credits: 5-7
  or OM/GE 788 - Master's Research Problems/Project (Option B) Credits: 2-3
- Electives:
  - Option A: 6-7
  - Option B: 13-14
  - Option C: 18-19

Total Credits: 30 (Option A), 32 (Option B), 36 (Option C)

Additional Admissions Requirements

GRE: Not required (recommended)

TOEFL: Operations Management requirement of 575 minimum paper-based, 90-91 Internet-based

Application must include a written statement of how the MSOM program is aligned with your professional development plans (1000 word limit).

Refer to the Construction and Operations Management Department Graduate Program page information for specific details.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Plant Science (M.S.)

Program Information

The Plant Science Department is an integrated department that includes programs in crop production, entomology, horticulture, plant biotechnology, plant breeding, plant pathology, precision farming, soils, water management, and weed science. The primary goals of the department are to conduct research in these areas, to transmit the results to the public, and to help prepare students for an occupation in these disciplines and to become productive members of a community. Graduate training includes classroom instruction, teaching experience, seminars designed to refine oral and written skills, and meaningful experience in laboratory and field research techniques. Departmental diversity encourages collaborations among disciplines and research programs that support this graduate training.

Course Delivery

The program coursework is available on campus, in classroom and laboratory settings, as well as field-based settings.

Facilities and Services

The department is housed in seven buildings across campus. These buildings provide research and teaching laboratories, greenhouses, seed house facilities and access to the functional genomics core facility. The on and off-campus facilities also include the SDSU Seed Testing Laboratory, SDSU Plant Diagnostics Clinic, Seed Certification, and Foundation Seed Stocks Division, which operates as services for the public. In addition, the department conduct research at four research farms near campus and four research stations across the state. The Field Specialists are housed in seven regional extension offices across the state.

Student Engagement Opportunities

Numerous opportunities are available for part-time employment, scholarships, and work-study programs. The Arboriculture Club, Agronomy and Conservation Club, or Horticulture Club offer opportunities for fellowship, leadership, and career planning. The Department has nationally recognized crops, horticulture, and soils judging teams.

Available Options for Graduate Degrees

Master of Science Option A
Option B

Core Requirements

M.S. students required to have 2 credits of Graduate Seminar, one oral and one in poster format. All students are required to have teaching experience.

- Enrollment in PS 781 - Plant Science Graduate Seminar (over two different semesters)
- Enrollment in PS 792 - Topics Teaching Experience (1 credit required)

Total Credits: 30 (Option A), 32 (Option B)

Additional Admission Requirements

GRE: recommended, but not required

TOEFL: minimum requirement of 560 paper-based, 83 Internet-based

IELTS: minimum total score of 6.0

Students must be accepted by an advisor before admission is granted.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Public Health (M.P.H.)

Program Coordinator/Contact

Mary Beth Fishback
College of Pharmacy
Avera Health and Science Center #249; Box 2202C
605-688-6347
http://sdstate.edu/mph

Program Information

The Master of Public Health (M.P.H.) degree program is a collaborative degree offering of South Dakota State University and the University of South Dakota. The M.P.H. degree is the most widely recognized professional credential for leadership and practice in public health. As outlined by the Council on Education for Public Health, which accredits M.P.H. programs, the M.P.H. curriculum covers the five core areas of public health education:

- Biostatistics
- Epidemiology
- Health Services Administration
- Social and Behavioral Sciences
- Environmental Health

Course Delivery Format

Coursework is provided through distance delivery (online, DDN, etc.) using lecture formats and asynchronous presentations.

Student Engagement and Support Opportunities

The program offers student engagement through research and practice opportunities. Ongoing partnerships exist with entities such as the South Dakota Area Health Education Center (AHEC), Indian Health Services, and the South Dakota Department of Health.

Facilities and Services

The Master of Public Health (M.P.H.) degree program is an interdisciplinary graduate program of the Graduate School, involving departments and colleges across the university.

Available Options for Graduate Degrees

Master of Public Health Option C

Core Requirements

(Instruction of some courses shared between USD and SDSU campuses)

Required Courses: 36

- BIOL 720 - Biostatistics Credits: 3 (USD)
- HSAD 770 - Advanced Health Care Management Credits: 3 (USD)
- HSC 733 - Environmental Health Credits: 3
- HSC 760 - Program Evaluation Credits: 3
- OCTH 733 - Promotion of Health and Prevention of Disability Credits: 3 (USD)
- PUBH 710 - Epidemiology Credits: 3 (USD)
- PUBH 720 - Public Health Practice (COM) Credits: 3
- PUBH 730 - Public Health Project (COM) Credits: 6
- PUBH 740 - Rural Health Policies and Education Credits: 3 (USD)
- PUBH 750 - Social and Behavioral Sciences in Public Health Credits: 3 (USD)
- SPCM 540 - Health Communication Credits: 3 (USD)

Electives: 6

Select from the following choices:

- BIOL 567 - Parasitology Credits: 3
- BIOS 663 - Advanced Concepts in Infectious Disease Credits: 6
- HSC 533 - Occupational Health Credits: 3
- HSC 785 - Advanced Epidemiology Credits: 3
- NUTR 660 - Maternal and Child Nutrition Credits: 3
- NUTR 761 - Nutrition and Aging Credits: 3
- NURS 760 - Health Promotion and Disease Prevention Across the Lifespan Credits: 3
- PHA 741 - Public Health and Wellness Credits: 2
- PHA 752 - Drugs of Abuse and Addiction Credits: 2
- PHA 753 - Women and Children's Health Credits: 2

Electives offered at USD:

- ADS 754 - Public Policy and Addiction Credits: 3
- CPHD 601 - Introduction to Bioinformatics Credits: 3
- CPHD 610 - Experimental Design and Analysis Credits: 3
- EDER 860 - Advanced Statistics I Credits: 3
- EDER 861 - Advanced Statistics II Credits: 3
- HSAD 710 - Advanced Strategic Management of Health Care Orgs Credits: 3
- HSAD 740 - Advanced Health Care Systems Credits: 3
- HSC 575 - Process and Outcomes Evaluation Credits: 3
- PSYC 514 - Drugs and Behavior Credits: 3
- PSYC 778 - Survey Research Methods Credits: 3
- SOC 510 - Methods of Social Research Credits: 3
- SOCW 640 - Diversity and Social Justice Credits: 3

Total Credits: 42 (Option C)

Additional Admission Requirements

1. Successful completion of a baccalaureate degree or an equivalent degree from an institution with full regional accreditation for that degree.
2. Through no specific major is required, adequate undergraduate preparation in social, health, or biological sciences is recommended.
3. A minimum undergraduate cumulative GPA of 3.0 on conferred degree and/or graduate cumulative GPA of 3.0 or better, based on a 4.0 scale, on all graduate coursework. Each institution may admit students on conditional or provisional status per university policy.
4. Complete the Graduate School application along with the $35 application fee.
5. Statement of purpose for studying Public Health (include career plans relative to the MPH.).
6. Two letters of recommendation are required.
7. Successfully complete a criminal background check upon acceptance.

Sociology (M.S.)

Program Information

Masters students receive advanced training in theory, methods, and the practical application of sociological knowledge. At South Dakota State University, master's students may choose from two academic tracks: thesis, and non-thesis options. Students traveling down the thesis and non-thesis tracks take advanced courses in sociological theory and methods; only the details vary. Students opting for the applied option specialize in community development. The thesis and non-thesis options are detailed in A Guidebook to the Thesis and Non-Thesis Masters Programs in Sociology. Information on graduate assistantships is also available.

Available Options for Graduate Degrees

Master of Science Option A
Option B
Option C

Core Requirements

- SOC 701 - The Research Process Credits: 3
- SOC 702 - Sociological Inquiry Credits: 3
- SOC 709 - Evaluation Research Credits: 3
- SOC 790 - Seminar Credits: 1
- SOC Research and Theory Elective Credits: 6-12
  - Option A Credits: 6
  - Option B Credits :6
  - Option C Credits: 12

- SOC Elective Credits: 9-13
  - Option A Credits: 9
  - Option B Credits: 13
  - Option C Credits: 13
- SOC 788 - Master's Research Problems/Projects (Option B) Credits: 3
- SOC 798 - Thesis (Option A) Credits: 5

Credits: 30 (Option A), 32 (Option B), 35 (Option C)

Additional Admission Requirements

GRE: Required

TOEFL: Department requirement of 100 Internet-based

IELTS: 7.0

Each applicant should have two signed letters of recommendation from individuals familiar with the student's academic record as part of the graduate school application process. In addition, we highly recommend that interested applicants submit a writing sample (past term paper for example) and a personal statement. The personal statement should outline the applicant's academic goals and describe how those goals connect with SDSU faculty expertise and interests.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Sociology (M.S.) - Community Development Specialization

Program Information

The Community Development specialization provides students the opportunity to study with leading educators and researchers from several different universities representing a diversity of fields including Community and Regional Planning, Architecture, Sociology, Native American Studies, Economics and Natural Resources. This program is designed for people doing community development work in non-profit organizations, colleges, communities, community organizations and governments. The program welcomes those working in all areas to help communities and regions build their capacity for an inclusive, sustainable future; those who volunteer their time and resources to support community; and most of all those with a passion for working toward a brighter future and a willingness to share their experience and wisdom with others via the Internet community. A student guide to the program is located at: www.sdstate.edu/cee/degrees/upload/GPIDEA-Community-Development-Student-Guide.pdf

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

Required:

- CD 600 - Orientation to Community Development Study Credits: 2
- CD 601 - Organizing for Community Change Credits: 3
- CD 602 - Community and Regional Economic Policy and Analysis Credits: 3
- CD 603 - Community Natural Resource Management Credits: 3
- CD 604 - Community Analysis Credits: 3
- CD 605 - Principles and Strategies of Community Change Credits: 3
- Select one of the following options:
  *Electives will be determined in consultation with the advisor.
  - Option A
    - SOC 798 - Thesis Credits: 5
    - Electives Credits: 14
  - Option B
    - SOC 791 - Independent Study Credits: 2
    - SOC 794 - Internship and Written Report Credits: 3
    - Electives Credits: 14
  - Option C
    - Electives Credits: 23

Total Credits: 36 (Options A & B), 40 (Option C)

Additional Admission Requirements

See Distance Education for further information.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Sport and Recreation Studies (M.S.)

Program Information

The Sport and Recreation Studies program is designed to prepare students for careers in sport and recreation administration and/or to improve their knowledge and expertise as coaches and teachers in leadership positions. The goals of the program are to provide students with knowledge and experiences which improve the depth and breadth of professional competency, enhance written and oral communication, promote an appreciation for the ways research can inform practice and/or prepare them for advanced study at the doctorate level.

Student Support and Engagement Opportunities

The Department of Health and Nutritional Sciences aims to provide premier academic programs and high-quality services to students. A limited number of research and teaching assistantships and scholarships may be available to qualified graduate students.

Available Options for Graduate Degrees

Master of Science	Option A
	Option B
	Option C

Core Requirements

- EDFN 727 - Group Processes Credits: 3
- HNS 783 - Research Methods in Health and Nutritional Sciences Credits: 3
- HNS 798 - Thesis Credits: 5 (Option A)
  or HNS 788 - Master's Research Problems/Projects Credits: 3 (Option B)
  or Approved Electives (Option C)
- PE 732 - Analyses and Strategies of Teaching and Supervision of PE and Sports Credits: 3
- PE 742 - Psychological Aspects of Sport and Exercise Credits: 3
- PE 770 - Advanced Administration of Interschool Athletics Credits: 2
- PE 771 - Current Trends in HPER and Athletics Credits: 3
- PE 772 - Financial Aspects of Sport Management Credits: 3
- RECR 515 - Recreation and Sport Facility Management Credits: 3
  or PE 705 - Sports Medicine Credits: 3
- Additional electives taken as needed to complete program option. Credits 0-8

Total Credits: 30 (Option A), 32 (Option B), 35 (Option C)

Additional Admission Requirements

GRE: Not required

TOEFL: required score of 550 paper-based, 79-80 Internet-based

IELTS: 6.0

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Statistics (M.S.)

Program Information

The focus of the M.S. in Statistics Program is the development of sophisticated statistical models and their implementation on high performance computing platforms. The curriculum features a balance of application, computation, and theory with particular emphasis in the areas of biostatistics/informatics and analytics. Areas of faculty and graduate student research activity include bioinformatics, biostatistics, business and financial analytics, forensic statistics, and general statistics. The program is particularly effective at preparing graduates to work in business, industry, or government as well as preparing students to continue on to the CSS Ph.D. or other Ph.D. program.

Student Support and Engagement Opportunities

The department has graduate research and teaching assistantships and fellowships are available for a number of qualified applicants.

Facilities and Services

The department offices are located in Harding Hall. The Math Help Center, located in Harding Hall 128 and in the Biostress Basement 0020, provides free walk-in tutoring for students in several undergraduate courses.

Available Options for Graduate Degrees

Master of Science Option A
Option B
Option C

Core Requirements

Statistics

Take the two following Core Statistics sequences and pass the corresponding comprehensive exams*:

- Statistical Inference: STAT 784 - Statistical Inference I Credits: 3
  and STAT 785 - Statistical Inference II Credits: 3
- Regression: STAT 786 - Regression Analysis I Credits: 3
  and STAT 787 - Regression Analysis II Credits:
- STAT 798 - Thesis (Option A) Credits: 5
  or STAT 788 - Research Paper (Option B) Credits: 2
  or Approved Electives (Option C)
- Additional electives as needed to complete Option requirements

Total Credits: 30 (Option A), 32 (Option B), 35 (Option C)

Additional Admission Requirements

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Wildlife and Fisheries Sciences (M.S.) - Fisheries Sciences

Program Information

SDSU has an extensive graduate program in wildlife and fisheries sciences. The Department of Natural Resource Management offers graduate programs in both Biological Science and Wildlife and Fisheries Sciences. Both degree programs award M.S. and Ph.D. degrees.

Wildlife and Fisheries Sciences

The M.S. degree program in Wildlife and Fisheries Sciences is intended to educate students for management-level positions with state and federal agencies, private companies, and for the pursuit of higher academic degrees. By using specifically identified coursework and mentoring, we strive to assist students in developing their intellectual capabilities in working with natural resources and people. In addition, each student must propose and conduct an original scientific investigation. Placement rates for M.S. graduates into positions as fisheries biologists, wildlife biologists, and other natural resource positions with state and federal agencies is extremely high.

Biological Sciences

Students interested in careers in ecology, environmental science, and range science often utilize the Biological Sciences M.S. degree programs.

Student Learning Outcomes

- Be knowledgeable regarding biological systems at a level appropriate to a M.S. degree holder.
- Be able to effectively express themselves orally and in written form.
- Understand the scientific method of solving problems.
- Be computer and statistically capable.
- Be specialized in some area of wildlife or fisheries, but still be broadly based in knowledge.
- Be able to conduct scholarly research.
- Understand the relationships between biological information and socioeconomic factors.
- Demonstrate professional development, especially in regard to the need for continued learning after their degree program.
- Develop a concern and feeling for the natural resources of the world.

Certification

Certification is available through the American Fisheries Society and The Wildlife Society.

Course Delivery Format

The Wildlife and Fisheries Sciences graduate program is primarily an on-campus program. However, field research may require extended time periods away from campus.

Facilities and Services

The department is housed within the Northern Plains Biostress Laboratory at SDSU. The Department houses the Oak Lake Biological Field Station and also hosts the South Dakota Cooperative Fish and Wildlife Research Unit, the National Wetlands Inventory, and the South Dakota GAP Analysis Project.

Available Options for Graduate Degrees

Master of Science Option A

Core Requirements

Students are expected to take departmental coursework as well as courses in statistical methods and graduate seminars.

Additional Admission Requirements

GRE: Required

TOEFL: Department Requirement of 525 paper-based, 71 Internet-based

Admission to all degree programs requires that a faculty member from the department agrees to serve as the major advisor.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Wildlife and Fisheries Sciences (M.S.) - Wildlife Sciences

Program Information

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Wildlife and Fisheries Sciences

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- Be able to conduct scholarly research.
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Available Options for Graduate Degrees

Master of Science Option A

Core Requirements

Students are expected to take departmental coursework as well as courses in statistical methods and graduate seminars.

Additional Admission Requirements

GRE: Required

TOEFL: Department Requirement of 525 paper-based, 71 Internet-based

Admission to all degree programs requires that a faculty member from the department agrees to serve as the major advisor.

General Requirements (Master's Degree)

Graduate students should consult with their advisor before registering for graduate work.

For additional information refer to the Master's Degree Requirements.

Doctoral Degrees

Agricultural, Biosystems and Mechanical Engineering (Ph.D.)

Program Information

The Ph.D. in Agricultural, Biosystems and Mechanical Engineering shares a common core between the department of Agricultural and Biosystems Engineering and department of Mechanical Engineering. All students will be required to complete 14 credits of core course work shown below. Core courses will provide a broad foundation covering basic graduate concepts in A.B.M.E., compliance and research ethics. Several core courses are unique in the nation and make this program novel and highly integrated. Elective coursework will provide students with the opportunity for greater depth in a topical area and will usually be directly related to their dissertation research topic. Students entering with a Bachelor's degree must complete 90 credits (30 coursework and 60 dissertation) and students entering with a master's degree must complete 60 credits (20 coursework and 40 dissertation).

Students who undertake this graduate degree normally have as their goal a better understanding of the current theories, principles, issues, and problems in agricultural, biological and mechanical systems. Graduate studies improve the student's ability to think critically and creatively, and to synthesize, analyze, and integrate ideas for decision-making and problem solving.

This program offers students an opportunity to undertake research and advanced study in specialization areas such as:

- biorenewable energy and bioresource conversion technologies,
- engineering of advanced precision agriculture systems used in production agriculture,
- natural resources engineering for utilization and conservation of soil and water resources, and
- advanced manufacturing and quality control technologies focused on composition, properties, and integrity of materials.

Course Delivery Format

The program engages students in lecture, laboratory, and in hands-on, field-based learning experiences.

Student Engagement and Support Opportunities

Financial assistance in the form of research assistantships and project assistantships is available on a highly competitive basis.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

- ABE 763 - Instrumentation Credits: 3
- ABME 790 - Seminar Credits: 1
- ABME 792 - Topics (Experimental Design and Project Management for ABME) Credits: 3
- ABME 898D - Dissertation Credits: 40 (60 Hour Plan), 60 (90 Hour Plan)
- GSR 601 - Research Regulations Compliance Credits: 1
- ME 735 - Modeling and Simulation Credits: 3
- ME 735L - Modeling and Simulation Laboratory Credits: 0
- STAT 541 - Statistical Methods II Credits: 3
- Electives Credits: 6 (60 Hour Plan), 16 (90 Hour Plan) (*Selected by the individual with committee approval.*)

Additional Admission Requirements

GRE: Not required

TOEFL: Score of 550 paper-based, 79 Internet-based

IELTS: 5.5

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Animal Science (Ph.D.)

Program Information

The Department of Animal Science offers graduate programs leading to the Master of Science and Doctor of Philosophy degrees in Animal Science, or the Doctor of Philosophy degree in Biological Sciences. Faculty and graduate students are actively involved in basic and/or applied research in the fields of nutrition, reproductive physiology, muscle biology, animal breeding, meat science, and animal production.

With the multi-disciplinary approaches towards production efficiency, product enhancement, and natural resources management, graduate students gain strong skill sets. The graduate programs are administered in collaboration with the Departments of Animal Science, Dairy Science, Veterinary and Biomedical Sciences, and Agricultural and Biosystems Engineering. The Department is committed to providing graduate students with quality educational and research experiences and preparing them to meet the challenges of a competitive job market upon graduation.

This program allows for considerable latitude in the education and training of students. Identification of a major professor with resources to support the student's thesis project is required for unconditional acceptance into the program. An advisory committee will be formed for each student. The advisory committee will work with the student to design a unique and individualized plan of study to meet the interests and needs of the student. While the training of most students is largely directed to a single discipline represented within one of the participating departments, cross-discipline training is available and encouraged**.**

Facilities

Training and experience in research methods are among the most important facets of a well-rounded graduate student education. Excellent facilities and large herds and flocks of livestock are available for Animal Science research at South Dakota State University. To ensure continued access to modern research facilities in the future, a major effort is underway to renovate or replace livestock production research facilities. A facility for ruminant nutrition is presently under construction, and funding has recently been approved for a new swine research facility. A new facility for sheep physiology and management research is in the planning stages. Renovation of off-campus research facilities is also a priority. Plans are also being implemented for on-campus construction of multi-departmental facilities to house research related to environmental stress of plants and animals.

Student Engagement and Support Opportunities

The department conducts cutting edge research that creates opportunities for graduate students. Qualified students may apply for a Graduate Research Assistant position and the Darwin Britzman Graduate Assistant Scholarship.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

- AS 790 - Seminar Credits: 2
- Courses offered:
  - AS 711 - Ruminology Credits: 3
  - AS 712 - Ruminant Nutrition Credits: 3
  - AS 720 - Advanced Selection of Domestic Animals Credits: 3
  - AS 730 - Endocrinology Credits: 3
  - AS 732 - Advanced Physiology of Reproduction Credits: 3
  - AS 734 - Protein and Energy Nutrition Credits: 3
  - AS 736 - Monogastric Nutrition Credits: 3
  - AS 740 - Metabolism Credits: 3
  - AS 750 - Animal Growth and Development Credits: 3

- AS 753 - Research Topics in Meat Science Credits: 3
- DS 731 - Laboratory Techniques in Dairy Science Credits: 3
- PS 756 - Quantitative Genetics Credits: 3
- STAT 541 - Statistical Methods II Credits: 3
- STAT 761 - Design of Experiments I Credits: 3
- VET 523 - Advanced Mammalian Physiology Credits: 4

Develop a plan of study and a research proposal by the end of the first year.

Additional Admission Requirements

GRE: Not required

TOEFL: required score of 550 paper-based, 79-80 Internet-based

Two letters of reference, a letter of interest and intent, and a resume.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Biochemistry (Ph.D.)

Program Information

The Department's biochemistry faculty research programs focus on the chemistry and biochemistry of cell membranes, multi-scale modeling of signal transduction in macromolecular assemblies, development of FRET imaging technologies to measure the location and dynamics of direct protein interactions, biophysical chemistry underlying cell-surface control of leukocyte function, structural biology, proteomics, protein function, the cellular biochemistry of disease and cancer, and photo-biochemistry.

This program is unique in that a student can chose their dissertation research over a broad range of research projects available in the Department or in the laboratories of participating program faculty at Sanford Research and the Avera Research Institute in Sioux Falls, SD. The partnerships with the biomedical research programs at Sanford Research and the Avera Research Institute also provide a unique opportunity for research that translation basic science into clinical treatments that directly impact patient treatment. For additional information about these options student should review the descriptions of current faculty research interests at chembiochem.sdatete.edu.

Research Instrumentation

The Department is equipped with modern instrumentation core facilities to support its research program. These facilities are readily available to graduate students for "hands-on" experience after successfully completing a short training course.

- **NMR core facility** includes 600, 400, and 200 MHz solution FT-NMR spectrometers and 400, 300, 100 MHz wide-bore solid-state NMR spectrometers
- **Core campus mass spectrometry facility** consists of a 7T ESI FTMS; a high-resolution magnetic sector mass spectrometer with EI and CI sources and GC, HPLC, pyrolysis and fast-atom bombardment capabilities, a MALDI-TOF mass spectrometer; a Eksigent/Thermo LTQ ESI LC-MS/SM dedicated to "bottom-up" proteomics studies and an Applied Biosystems SCIEX QTRAP ESI LC-MS/MS dedicated to small molecule and metablomics characterizations; and a Varian GCMS.
- **Core campus proteomics facility** has all the necessary equipment to prepare samples for mass-spectrometry-based proteomics characterizations.
- **Optical Spectroscopy lab** containing 2 FT-IR spectrometer with far-IR capabilities; time-resolved spectrofluorometer; atomic absorption and diode-array UV-Vis spectrophotometers.
- **Powder x-ray diffractometer**
- The Department is home to multiple state of the art fluorescence microscopes for the analysis of biochemical reactions involving purified molecules and within living cells. These instruments including spinning disk confocal microscope, total internal reflection fluorescence (TIRF) microscopy, targeted photo-bleaching, instrumentation of for ensemble and single molecule Fluorescence Resonance Energy Transfer (FRET) experiments and fluorescence correlation spectroscopy, and optogenetics capabilities. The department also houses cell/tissue culture facilities, large- and small-scale protein purification equipment and biophysical characterization capabilities including an Isothermal Titration Calorimetry. Campus computer facilities (including a Beowulf supercomputer cluster) are readily available. Individual groups maintain their own system for molecular modeling, word processing or data manipulation. Direct, on-line computer access to chemical and biochemical literature databases such as *Chemical Abstracts* and *Web of Science* are provided by the Department.
- In addition to these departmental resources, individual research groups also maintained instrumentation including supercritical fluid chromatography and extraction, for FRET microscopy, laser light scattering, and computational chemistry. Campus super-computer facilities and on-line computer access to Web of Science, Chemical Abstracts Services and other on-line information sources are readily available.

Facilities

The Department is housed in the newly constructed Avera Health Science Center South and newly renovated Avera Health and Science Center North. Combined, these connected facilities provide 100,000 sq. ft. of research and instructional space.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

The core coursework (16 credits of coursework and 2 credits of laboratory rotations) covering basic concepts in biochemistry and research ethics provides disciplinary breadth and a foundation for a student's plan of study. To support the interdisciplinary nature of the planned dissertation research project and provide depth in a subspecialty within the field 9 credits of elective coursework are chosen by the student and their graduate advisory. The remaining credits in the 60-90 credit plan of study are dissertation research. Students must develop their program of study in consultation with their graduate research advisor and graduate advisory committee during the first semester in residence.

Required:

- BIOS 662 - Advanced Molecular and Cellular Biology Credits: 6
- CHEM 705 - Principles of Biochemistry Credits: 2-5 (3 credits required)
- CHEM 760 - Laboratory Rotations in Biochemistry Credits: 2
- CHEM 767 - Biophysical Chemistry Credits: 3
- CHEM 790 - Seminar Credits: 1 (3 credits required)
- CHEM 898D - Dissertation - Ph.D. Credits: 1-12 (63 credits required)
- GSR 601 - Research Regulations Compliance Credits: 1

Electives: 9

Courses may be selected from STEM disciplines (e.g. BIOL, BIOS, CHEM, MATH, or STAT prefixes)

For students entering with a master's degree, the proposed curriculum will consist of 60 credits total. The student's graduate advisory committee will assess the academic transcripts and approve a combination of coursework and dissertation credit that ensures that the all degree requirements are met.

Candidacy Examinations

The Department uses a cumulative examination process as its written candidacy (comprehensive) examination for the doctorate in Chemistry or Biochemistry. A student must pass a total of 5 cumulative examinations in at least 3 subdisciplines over a period of two calendar years (24 possible tests). The oral candidacy (comprehensive) exam takes place within 6 months of completion of the cumulative exams. For this examination students are required to develop an original research proposal, written and defend it orally. In order to successfully defend such a proposal the student must be able to integrate their course work into a research environment, and its defense reflects that expectation.

Additional Admission Requirements

International students wishing to be considered for an assistantship should submit a complete application no later than March 15 for Fall admission and October 1 for Spring admission.

GRE: General and subject score are recommended but not required

TOEFL: Score of 580 paper-based, 92-93 Internet-based

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Biological Sciences (Ph.D.)

Program Information

This is a cooperative program leading to the Doctor of Philosophy degree in Biological Sciences. Departments that cooperate in the program are Agricultural and Biosystems Engineering, Animal Science, Biology and Microbiology, Dairy Science, Health and Nutrition Science, Natural Resource Management, Plant Science, and Veterinary and Biomedical Sciences at South Dakota State University. The masters and doctoral programs in Biological Sciences allow for considerable latitude in the education and training of students. The plan of study can be designed to meet the interests and individual needs of the student. While the training of most students is largely directed to a single discipline represented within one of the participating departments, cross-discipline training is available. Generally, identification of a major professor with resources to support the student's dissertation project is required for unconditional acceptance into the program. Therefore, interested persons should make application for program admission well in advance of the anticipated date of enrollment. Please refer to each departmental section for a listing of the graduate faculty and details regarding the areas of study offered in this program. Inquiries should be made directly to the department representing the discipline of interest. Specializations are available in the following areas:

- Agricultural and Biosystems Engineering
- Biology
- Dairy Science
- Food Science
- Microbiology
- Molecular Biology
- Plant Molecular Biology
- Plant Science
- Veterinary Microbiology
- Veterinary Pathobiology

Biological Sciences Program Objectives

Graduates of the Doctor of Philosophy in Biological Sciences will:

- Have a thorough understanding and knowledge of biological principles related to the chosen discipline
- Demonstrate the ability to conduct innovative research to create new knowledge
- Demonstrate the ability to write grant proposals to secure research funding
- Utilize appropriate statistical methods to make inferences from research
- Write a coherent dissertation and submit one or more manuscripts to a scientific journal
- Understand and articulate the potential applications of basic research
- Demonstrate the ability to use ethics in decision making and planning
- Demonstrate information literacy for science-based decision making and lifetime learning
- Be prepared to enter into careers related to research and development or academic institutions.
- Contribute to the advancement of science in the discipline

Course Delivery

Biological Sciences courses are delivered face-to-face and enhanced with web-based instruction. Online delivery may be offered for specific courses.

Facilities and Services

A variety of outstanding laboratories, green houses, McCrory Gardens and Arboretum, livestock units, and field stations are available for education and research. Many Biological Sciences faculty hold appointments in the South Dakota Agricultural Experiment Station.

Available Options for Graduate Degrees

Doctor of Philosophy:	60 Credit Plan
	90 Credit Plan

Core Requirements

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

- XXX 790 or 890 Seminar Credit: 1 - Selected with advisory committee approval
- GSR 601 - Research Regulations Compliance Credit: 1
- Minimum of 3 credits of STAT courses numbered 500-level or higher
- XXX 898D Dissertation Credits: 30-40 - Students are required to present a seminar on their dissertation

Additional Admission Requirements

GRE: Not a general requirement, but individual departments may require GRE

TOEFL: required score of 525 paper-based, 71 Internet-based

(Individual departments may have different requirements for GRE and TOEFL.)

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Biological Sciences (Ph.D.) - Agricultural and Biosystems Engineering Specialization

Program Information

Graduate work in the Department of Agricultural and Biosystems Engineering leads to Master of Science in Agricultural and Biosystems Engineering and Doctor of Philosophy in Biological Sciences degrees. The Ph.D. in Biological Sciences with a specialization in Agricultural and Biosystems Engineering shares a common core with several other departments. The core requirements are defined in this Catalog in the Biological Sciences (Ph.D.) section. Additional classes are selected by the individual with the approval of the committee.

Students who undertake graduate studies in Agricultural and Biosystems Engineering normally have as their goal a better understanding of the current theories, principles, issues, and problems in agricultural and biological systems. Graduate studies improve the student's ability to think critically and creatively, and to synthesize, analyze, and integrate ideas for decision-making and problem solving.

The department offers students an opportunity to undertake research and advanced study in specialization areas such as machine vision, food and biomaterial processing, physical properties of biological materials, natural resource engineering, structures, indoor environment, waste management and machine design.

Course Delivery Format

The program engages students in lecture, laboratory, and in hands-on, field-based learning experiences.

Facilities and Services

The Agricultural and Biosystems Engineering Department is housed in the Agricultural Engineering Building. The entire building is dedicated to undergraduate instruction and research and outreach projects that support the engineering needs of production agriculture, natural resource conservation, and value added processing of the food and fiber produced in the region. Additional research and outreach projects take place at multiple field locations in the region. There are almost 17000 square feet of space dedicated to industry-sponsored student design projects and cutting edge research, including a full fabrication shop and two computer labs to support these efforts. The department is also home to the Water Resources Institute, dedicated to the proper stewardship of the state's water resources.

Student Engagement and Support Opportunities

Many students participate in activities such as designing and building the Quarter-scale tractor, internships, and research projects. Other ABE opportunities are available via our student branch of the American Society of Agricultural and Biological Engineers (ASABE). In addition, engineering opportunities are available via organizations such as Society of Women Engineers, Engineers Without Borders, and others. The most outstanding students are honored by induction into the ABE honorary society of Alpha Epsilon and engineering honor societies such as Tau Beta Pi.

Available Options for Graduate Degrees

Doctor of Philosophy 60 Credit Plan

90 Credit Plan

Core Requirements

For details see specific program: Biological Sciences (Ph.D.).

- ABE 771 - Graduate Seminar Credits: 1
- ABE 791 - Independent Study Credits: 1-3
- ABE 898D - Dissertation Credits: 30 for 60 hr plan/45 for 90 hr plan
- GSR 601 - Research Regulations Compliance Credits: 1
- Minimum of 3 credits of STAT courses numbered 500-level or higher
- Electives selected by the individual with committee approval

Additional Admission Requirements

GRE: Not required

TOEFL: Score of 550 paper-based, 79 Internet-based

IELTS: 5.5

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Biological Sciences (Ph.D.) - Biology Specialization

Program Information

The Department of Biology and Microbiology provides students with a wide range of opportunities for advanced study. The graduate faculty offer expertise and graduate student advisement in subdisciplines from molecular biology through ecology. Faculty members are very successful in obtaining extramural funds to support graduate student projects. Graduate students have modern research laboratories, equipment and field research sites available to carry out their research projects. The learning environment, scholarly excellence and quality of teaching are areas of strength in the department's Graduate Program.

Available Options for Graduate Degrees

Doctor of Philosophy 60 Credit Plan
90 Credit Plan

Core Requirements

For details see specific program: Biological Sciences (Ph.D.).

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

- XXX 790 or 890 Seminar Credit: 1 - Selected with advisory committee approval
- GSR 601 - Research Regulations Compliance Credit: 1
- Minimum of 3 credits of STAT courses numbered 500-level or higher
- XXX 898D Dissertation Credits: 30-40 - Students are required to present a seminar on their dissertation

Ph.D. Graduation Requirements

- Yearly evaluation (research progress + coursework)
- Comprehensive written exam (mid-program)
- Comprehensive oral exam (defense of written exam/research progress) (mid-program)
- Oral presentation of Dissertation (public) during last semester of program
- Oral defense of Dissertation (committee) during last semester of program
- Dissertation completion

Additional Admission Requirements

GRE: Scores ranking above the 50th percentile will strengthen the case for admission

TOEFL: Score of 575 paper-based, 90 Internet based

IELTS: 6.5

At least two letters of reference or Personal References must be sent to the Department. A personal statement that includes a description of the applicants involvement in research, the applicants research interest, and career goals is also required.

Retention in the program is dependent on formation of a committee and completion of review matrix by the end of the first year. In ensuing years, students must have a committee meeting and complete review annually.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Biological Sciences (Ph.D.) - Dairy Science Specialization

Program Information

The Dairy Science Department provides research opportunities leading to Masters and PhD degrees. SDSU is one of two universities in the US with a Dairy Science Program that offers Dairy Production and Manufacturing majors. It is equipped with excellent laboratories, and a state of the art dairy processing plant which has the capability of processing fluid milk, cheese, butter, ice cream, concentrated and dried products, and other products. It also has a dairy research and training facility where a herd of 300 Holstein and Brown Swiss cattle for teaching and research is maintained. Metabolism and surgical facilities in the Animal Science Complex, and specialized laboratory equipment the Genomics Lab and other departments on campus, including, Veterinary and Biomedical Sciences, and Health and Nutritional Sciences Programs are also available. Graduate students accepted in the program will have opportunities to utilize these facilities to develop basic and/or applied research programs in dairy product processing, microbiology, chemistry, food safety, dairy cattle nutrition, metabolism, breeding, microbiology of the rumen, immunology, and management, while interacting with well qualified faculty. The SDSU Dairy Science Program, in collaboration with the Food Science and Nutrition Program at the University of Minnesota and the Food Science and Human Nutrition Program at Iowa State University, is the Midwest Dairy Foods Research Center. This provides graduate students in the manufacturing area a unique opportunity to be involved with current issues and research needs.

Student Engagement and Support Opportunities

An application to the graduate program serves as an application for a graduate assistantship. Qualified applicants may be eligible for financial aid in the form of departmental research assistantships for masters and doctoral students. Graduate assistants pay one-third the resident tuition per credit, per semester for tuition and fees. The department also offers some limited scholarships for qualified students.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

For details see specific program: Biological Sciences (Ph.D.).

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

- XXX 790 or 890 Seminar Credit: 1 - Selected with advisory committee approval
- GSR 601 - Research Regulations Compliance Credit: 1
- Minimum of 3 credits of STAT courses numbered 500-level or higher
- XXX 898D Dissertation Credits: 30-40 - Students are required to present a seminar on their dissertation

Additional Admission Requirements

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

At least two letters of reference and a personal statement that includes a description of the applicants' involvement in research, the applicants research interest, and career goals will be required.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Biological Sciences (Ph.D.) - Food Science Specialization

Program Information

The Food Science program offers excellent opportunities for graduate level coursework and research leading to academic or industry careers in Food Science. Graduate students receive advanced preparation related to food processing, product development, and food safety. Food Science is a multi-disciplinary program that is administered by the Department of Dairy Science, but may also include such diverse areas as animal science, food grain processing, and agricultural & biosystems engineering.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

For details see specific program: Biological Sciences (Ph.D.).

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

- XXX 790 or 890 Seminar Credit: 1 - Selected with advisory committee approval
- GSR 601 - Research Regulations Compliance Credits: 1
- Minimum of 3 credits of STAT courses numbered 500-level or higher
- XXX 898D Dissertation Credits: 30-40 - Students are required to present a seminar on their dissertation
- Electives as needed to reach 60 or 90 credits

Additional Admission Requirements

GRE: Not required

TOEFL: Department requirement of 550 paper-based, 79-80 Internet-based

At least two letters of reference and a personal statement that includes a description of the applicants' involvement in research, the applicants research interest, and career goals will be required.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Biological Sciences (Ph.D.) - Microbiology Specialization

Program Information

The Department of Biology and Microbiology provides students with a wide range of opportunities for advanced study. The graduate faculty offer expertise and graduate student advisement in subdisciplines from molecular biology through ecology. Faculty members are very successful in obtaining extramural funds to support graduate student projects. Graduate students have modern research laboratories, equipment and field research sites available to carry out their research projects. The learning environment, scholarly excellence and quality of teaching are areas of strength in the department's Graduate Program.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

For details see specific programs: Biological Sciences (Ph.D.).

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

- XXX 790 or 890 Seminar Credit: 1 - Selected with advisory committee approval
- GSR 601 - Research Regulations Compliance Credit: 1
- Minimum of 3 credits of STAT courses numbered 500-level or higher
- XXX 898D Dissertation Credits: 30-40 - Students are required to present a seminar on their dissertation

Ph.D. Graduation Requirements

- Yearly evaluation (research progress + coursework)
- Comprehensive written exam (mid-program)
- Comprehensive oral exam (defense of written exam/research progress) (mid-program)
- Oral presentation of Dissertation (public) during last semester of program
- Oral defense of Dissertation (committee) during last semester of program
- Dissertation completion

Additional Admission Requirements

GRE: Scores ranking above the 50th percentile will strengthen the case for admission

TOEFL: Score of 575 paper-based, 90 Internet based

IELTS: 6.5

At least two letters of reference or Personal References must be sent to the Department. A personal statement that includes a description of the applicants involvement in research, the applicants research interest, and career goals is also required.

Retention in the program is dependent on formation of a committee and completion of review matrix by the end of the first year. In ensuing years, students must have a committee meeting and complete review annually.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Biological Sciences (Ph.D.) - Molecular Biology Specialization

Program Information

The Department of Biology and Microbiology provides students with a wide range of opportunities for advanced study. The graduate faculty offer expertise and graduate student advisement in subdisciplines from molecular biology through ecology. Faculty members are very successful in obtaining extramural funds to support graduate student projects. Graduate students have modern research laboratories, equipment and field research sites available to carry out their research projects. The learning environment, scholarly excellence and quality of teaching are areas of strength in the department's Graduate Program.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

For details see specific programs: Biological Sciences (Ph.D.).

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

- XXX 790 or 890 Seminar Credit: 1 - Selected with advisory committee approval
- GSR 601 - Research Regulations Compliance Credit: 1
- Minimum of 3 credits of STAT courses numbered 500-level or higher
- XXX 898D Dissertation Credits: 30-40 - Students are required to present a seminar on their dissertation

Ph.D. Graduation Requirements

- Yearly evaluation (research progress + coursework)
- Comprehensive written exam (mid-program)
- Comprehensive oral exam (defense of written exam/research progress) (mid-program)
- Oral presentation of Dissertation (public) during last semester of program
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- Dissertation completion

Additional Admission Requirements

GRE: Scores ranking above the 50th percentile will strengthen the case for admission

TOEFL: Score of 575 paper-based, 90 Internet based

IELTS: 6.5

At least two letters of reference or Personal References must be sent to the Department. A personal statement that includes a description of the applicants involvement in research, the applicants research interest, and career goals is also required.

Retention in the program is dependent on formation of a committee and completion of review matrix by the end of the first year. In ensuing years, students must have a committee meeting and complete review annually.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Biological Sciences (Ph.D.) - Plant Molecular Biology Specialization

Program Information

The Plant Science Department is an integrated department that includes programs in crop production, entomology, horticulture, plant biotechnology, plant breeding, plant pathology, precision farming, soils, water management, and weed science. The primary goals of the department are to conduct research in these areas, to transmit the results to the public, and to help prepare students for an occupation in these disciplines and to become productive members of a community. Graduate training includes classroom instruction, teaching experience, seminars designed to refine oral and written skills, and meaningful experience in laboratory and field research techniques. Departmental diversity encourages collaborations among disciplines and research programs that support this graduate training.

Course Delivery

The program coursework is available on campus, in classroom and laboratory settings, as well as field-based settings.

Facilities and Services

The department is housed in seven buildings across campus. These buildings provide research and teaching laboratories, greenhouses, seed house facilities and access to the functional genomics core facility. The on and off-campus facilities also include the SDSU Seed Testing Laboratory, SDSU Plant Diagnostics Clinic, Seed Certification, and Foundation Seed Stocks Division, which operates as services for the public. In addition, the department conduct research at four research farms near campus and four research stations across the state. The Field Specialists are housed in seven regional extension offices across the state.

Student Engagement Opportunities

Numerous opportunities are available for part-time employment, scholarships, and work-study programs. The Arboriculture Club, Agronomy and Conservation Club, or Horticulture Club offer opportunities for fellowship, leadership, and career planning. The Department has nationally recognized crops, horticulture, and soils judging teams.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

For details see specific programs: Biological Sciences (Ph.D.).

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study. In addition, the student will successfully complete:

- XXX 790 or 890 Seminar Credit: 1 - Selected with advisory committee approval
- GSR 601 - Research Regulations Compliance Credit: 1
- Minimum of 3 credits of STAT courses numbered 500-level or higher
- XXX 898D Dissertation Credits: 30-40 - Students are required to present a seminar on their dissertation

Additional Admission Requirements

GRE: recommended, but not required

TOEFL: minimum requirement of 560 paper-based, 83 Internet-based

IELTS: minimum total score of 6.0

Students must be accepted by an advisor before admission is granted.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Biological Sciences (Ph.D.) - Plant Science Specialization

Program Information

The Plant Science Department is an integrated department that includes programs in crop production, entomology, horticulture, plant biotechnology, plant breeding, plant pathology, precision farming, soils, water management, and weed science. The primary goals of the department are to conduct research in these areas, to transmit the results to the public, and to help prepare students for an occupation in these disciplines and to become productive members of a community. Graduate training includes classroom instruction, teaching experience, seminars designed to refine oral and written skills, and meaningful experience in laboratory and field research techniques. Departmental diversity encourages collaborations among disciplines and research programs that support this graduate training.

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Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

For details see specific programs: Biological Sciences (Ph.D.).

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study. In addition, the study will successfully complete:

- XXX 790 or 890 Seminar Credit: 1 - Selected with advisory committee approval
- GSR 601 - Research Regulations Compliance Credit: 1
- Minimum of 3 credits of STAT courses numbered 500-level or higher
- XXX 898D Dissertation Credits: 30-40 - Students are required to present a seminar on their dissertation

Additional Admission Requirements

GRE: recommended, but not required

TOEFL: minimum requirement of 560 paper-based, 83 Internet-based

IELTS: minimum score of 6.0

Students must be accepted by an advisor before admission is granted.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Biological Sciences (Ph.D.) - Veterinary Microbiology Specialization

Program Information

Graduate education in the Department of Veterinary and Biomedical Science is focused on the one health concept, with major emphasis in infectious diseases of food-producing domestic species and zoonotic diseases. Research projects range from basic (mechanistic) to applied science. The interaction of service, discovery, and education that takes place within the Department of Veterinary and Biomedical Sciences results in new knowledge, timely information, and students prepared for careers that make a difference for animals and people alike.

The Department of Veterinary and Biomedical Sciences offers degrees in both Masters of Science and Doctor of Philosophy. The PhD program is offered as a Doctorate in Biological Sciences and requires either 90 credits beyond a BS degree, or 60 credits beyond an MS from either a Canadian or American University.

Accreditation

American Association of Veterinary Laboratory Diagnosticians Accreditation

Facilities and Services

- Animal Disease Research and Diagnostic Laboratory
- Food Safety Microbiology Laboratory
- Food Emergency Response Network

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

For details see specific programs: Biological Sciences (Ph.D.).

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

- XXX 790 or 890 Seminar Credit: 1 - Selected with advisory committee approval
- GSR 601 - Research Regulations Compliance Credit: 1
- Minimum of 3 credits of STAT courses numbered 500-level or higher
- XXX 898D Dissertation Credits: 30-40 - Students are required to present a seminar on their dissertation

Research in pursuit of the dissertation requirement is expected to address a question of fundamental scientific importance and is expected to generate data of publication quality.

Additional Admission Requirements

GRE: Not required

TOEFL: Department requirement of 525 paper-based, 71 Internet-based

Admission to the program is dependent upon admission to the SDSU Graduate School and identification of a suitable mentor. Applicants are not accepted into the program unless an assistantship can be provided. Funding for assistantships comes from a variety of sources including the South Dakota Agricultural Experiment Station, federal granting agencies, and the animal health product industry. Those interested are encouraged to contact the Department to identify opportunities.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Biological Sciences (Ph.D.) - Veterinary Pathobiology Specialization

Program Information

Graduate education in the Department of Veterinary and Biomedical Science is focused on the one health concept, with major emphasis in infectious diseases of food-producing domestic species and zoonotic diseases. Research projects range from basic (mechanistic) to applied science. The interaction of service, discovery, and education that takes place within the Department of Veterinary and Biomedical Sciences results in new knowledge, timely information, and students prepared for careers that make a difference for animals and people alike.

The Department of Veterinary and Biomedical Sciences offers degrees in both Masters of Science and Doctor of Philosophy. The PhD program is offered as a Doctorate in Biological Sciences and requires either 90 credits beyond a BS degree, or 60 credits beyond an MS from either a Canadian or American University.

Accreditation

American Association of Veterinary Laboratory Diagnosticians Accreditation

Facilities and Services

- Animal Disease Research and Diagnostic Laboratory
- Food Safety Microbiology Laboratory
- Food Emergency Response Network

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

For details see specific programs: Biological Sciences (Ph.D.).

The student, major advisor and Advisory Committee select the discipline specific emphasis area of the biological sciences. The courses will be identified on the student's Plan of Study no later than the end of the first year of study.

- XXX 790 or 890 Seminar Credit: 1 - Selected with advisory committee approval
- GSR 601 - Research Regulations Compliance Credit: 1
- Minimum of 3 credits of STAT courses numbered 500-level or higher
- XXX 898D Dissertation Credits: 30-40 - Students are required to present a seminar on their dissertation

Research in pursuit of the dissertation requirement is expected to address a question of fundamental scientific importance and is expected to generate data of publication quality.

Additional Admission Requirements

GRE: Not required

TOEFL: Department requirement of 525 paper-based, 71 Internet-based

Admission to the program is dependent upon admission to the SDSU Graduate School and identification of a suitable mentor. Applicants are not accepted into the program unless an assistantship can be provided. Funding for assistantships comes from a variety of sources including the South Dakota Agricultural Experiment Station, federal granting agencies, and the animal health product industry. Those interested are encouraged to contact the Department to identify opportunities.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Chemistry (Ph.D.)

Program Information

The Department's chemistry faculty research programs fall into the thematic focus areas of environmental chemistry and green chemistry, chemical sensor development, organic synthesis, materials chemistry, natural products chemistry, and chemical education. Within these multidisciplinary and interdisciplinary focus areas, students can select research projects that involve the traditional subdisciplines of chemistry; analytical, biochemistry, inorganic, organic and physical. Currently active research projects in the Department focus on various aspects of analytical chemistry, drug discover and delivery, synthesis or photoactive materials including polymers, materials chemistry and self assembly, chromatography, the chemistry of cell membranes, environmental and green chemistry, chemistry of climate change, photo-physical chemistry, natural products synthesis, biophysical chemistry, computational chemistry, and solid-state NMR. For additional information student should review the descriptions of current faculty research interests at chembiochem.sdstate.edu.

Research Instrumentation

The Department is equipped with modern instrumentation core facilities to support its research program. These facilities are readily available to graduate students for "hands-on" experience after successfully completing a short training course.

- **NMR core facility** includes 600, 400, and 200 MHz solution FT-NMR spectrometers and 400, 300, 100 MHz wide-bore solid-state NMR spectrometers
- **Core campus mass spectrometry facility** consists of a 7T ESI FTMS; a high-resolution magnetic sector mass spectrometer with EI and CI sources and GC, HPLC, pyrolysis and fast-atom bombardment capabilities, a MALDI-TOF mass spectrometer; a Eksigent/Thermo LTQ ESI LC-MS/SM dedicated to "bottom-up" proteomics studies and an Applied Biosystems SCIEX QTRAP ESI LC-MS/MS dedicated to small molecule and metablomics characterizations; and a Varian GCMS.
- **Core campus proteomics facility** has all the necessary equipment to prepare samples for mass-spectrometry-based proteomics characterizations.
- **Optical Spectroscopy lab** containing 2 FT-IR spectrometer with far-IR capabilities; time-resolved spectrofluorometer; atomic absorption and diode-array UV-Vis spectrophotometers.
- **Powder x-ray diffractometer**
- The Department is home to multiple state of the art fluorescence microscopes for the analysis of biochemical reactions involving purified molecules and within living cells. These instruments including spinning disk confocal microscope, total internal reflection fluorescence (TIRF) microscopy, targeted photo-bleaching, instrumentation of for ensemble and single molecule Fluorescence Resonance Energy Transfer (FRET) experiments and fluorescence correlation spectroscopy, and optogenetics capabilities. The department also houses cell/tissue culture facilities, large- and small-scale protein purification equipment and biophysical characterization capabilities including an Isothermal Titration Calorimetry. Campus computer facilities (including a Beowulf supercomputer cluster) are readily available. Individual groups maintain their own system for molecular modeling, word processing or data manipulation. Direct, on-line computer access to chemical and biochemical literature databases such as *Chemical Abstracts* and *Web of Science* are provided by the Department.
- In addition to these departmental resources, individual research groups also maintained instrumentation including supercritical fluid chromatography and extraction, for FRET microscopy, laser light scattering, and computational chemistry. Campus super-computer facilities and on-line computer access to Web of Science, Chemical Abstracts Services and other on-line information sources are readily available.

Facilities

The Department is housed in the newly constructed Avera Health Science Center South and newly renovated Avera Health and Science Center North. Combined, these connected facilities provide 100,000 sq. ft. of research and instructional space.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

Students are required to complete 21 credits of course work that includes 12 credits of core coursework and 9 credits specific to the research project, and 3 credit hours of seminar. The remaining credits in the 60-90 credit plan of study are dissertation research. Students must develop their program of study in consultation with their graduate research advisor and graduate advisory committee during the first semester in residence.

- CHEM 707 - Chemical Communication Skills Credits: 2
- Select 4 of the following 5 courses:
  - CHEM 701 - Advanced Organic Chemistry I Credits: 3
  - CHEM 703 - Advanced Physical Chemistry Credits: 3
  - CHEM 704 - Advanced Inorganic Chemistry Credits: 3
  - CHEM 705 - Principles of Biochemistry Credits: 2-5
  - CHEM 706 - Advanced Analytical Chemistry Credits: 3
- CHEM 790 - Seminar Credits: 1 (3 credits required for 90 Credit Plan only)
- Research Credits: 9 (9 credits required for 90 Credit Plan only)
- CHEM 898D - Dissertation - Ph.D. Credits: 1-12 (46-66 credits required based on 60 or 90 Credit Plan)

Candidacy Examinations

The Department uses a cumulative examination process as its written candidacy (comprehensive) examination for the doctorate in Chemistry or Biochemistry. A student must pass a total of 5 cumulative examinations in at least 3 subdisciplines over a period of two calendar years (24 possible tests). The oral candidacy (comprehensive) exam takes place within 6 months of completion of the cumulative exams. For this examination students are required to develop an original research proposal, written and defend it orally. In order to successfully defend such a proposal the student must be able to integrate their course work into a research environment, and its defense reflects that expectation.

Additional Admission Requirements

International students wishing to be considered for an assistantship should submit a complete application no later than March 15 for Fall admission and October 1 for Spring admission.

GRE: General and subject score are recommended but not required

TOEFL: Score of 580 paper-based, 92-93 Internet-based

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Civil Engineering (Ph.D.)

Program Information

The program is designed to provide breadth and depth within the civil engineering main sub-disciplines including structural, environmental, transportation, geotechnical, hydraulic, and water resources engineering. The department's graduate faculty members conduct research in the fields of bridge engineering, earthquake engineering, traffic operations and safety, transportation infrastructure, breaking waves and river hydraulics, fate and transport of contaminants, water/wastewater treatment processes and biological filtration, and soil stability and deep foundations.

Program Objectives

The PhD program's objectives are to prepare graduates to:

- Generate and disseminate new discovery in civil engineering disciplines
- Develop resilient civil engineering infrastructure to withstand man-made and natural hazards
- Advance sustainable civil engineering systems to serve the needs of future generations and preserve natural resources

Course Delivery Format

The majority of the courses will be taught on campus in a classroom setting. Some courses will be offered through the "Access Grid" system in collaboration with other regental institutions in the state of South Dakota.

Facilities and Services

The Department of Civil and Environmental Engineering is home for state-of-the-art experimental and research facilities. The Lohr Structures Laboratory is a 400 square meters high-bay/strong-floor structural testing facility that is configured to accommodate large-and full-scale test specimens. The Fluid Mechanics Laboratory has a 25-m-long, 0.90-m-wide and 0.75-m-deep research flume which can be used either as an open channel or as a wave tank. The HDR Environmental Laboratory is designed to perform three major functions: Teaching, Analysis, and Research. The research area of the HDR laboratory contains space for graduate work, a ventilated room for biological research, and an area with a high ceiling to accommodate pilot plant work. In addition, the materials, geotechnical, and asphalt laboratories are equipped with basic and advanced testing equipment which can support experimental research.

Student Engagement and Support Opportunities

Students seeking a PhD degree in civil engineering will be conducting research in their area of interest under the mentorship of highly qualified and dedicated faculty. Research and teaching assistantships will be offered to qualified students. Students will also be expected to engage in scholarly activities through publishing of peer-reviewed journal papers and dissemination of research results at national conferences.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan

Core Requirements

Required Courses:

- CEE 790 - Seminar Credits: 3
- CEE 898D - Dissertation Credits: 36

Emphasis Required Core (select from Non-Environmental Emphasis or Environmental Emphasis)

- Non-Environmental Emphasis:
  - EM 741 - Finite Element Analysis Credits: 3
  - CEE 749 - Geotechnical Testing Credits: 3
  - CEE 749L - Geotechnical Testing Lab Credits: 0
- Environmental Emphasis:
  - CEE 725 - Biological Principles of Environmental Engineering Credits: 3
  - CEE 726 - Physical and Chemical Principles of Environmental Engineering Credits: 3
  - CEE 726L - Physical and Chemical Principles of Environmental Engineering Laboratory Credits: 0

Supporting Electives Credits: 15

Total Credits: 60

Additional Admission Requirements

GRE: General scores required

TOEFL: Department requirement of 575 paper-based, 90-91 Internet-based

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Computational Science and Statistics (Ph.D.)

Program Information

The CSS Ph.D. Program is designed to train students to integrate computational and statistical methodologies to formulate, model, analyze, and solve research problems of interest to the natural, physical, and social sciences, including biology, chemistry, physics, engineering, geography/GIS, pharmacy, medicine, economics, and finance. Broadly speaking, the program has strong research components in biostatistics, bioinformatics, and computational methods. More specifically, the program leads to research in a variety of areas that may include: artificial neural networks and fuzzy logic modeling, biological modeling, bioinformatics, biostatistics, computational biology, computational chemistry, computational mathematics, computational statistics, computational physics, computational finance, computer science, data visualization and data mining, ecological modeling, spatial-temporal data modeling, and transport processes.

Available Options for Graduate Degrees

Doctor of Philosophy 60 Credit Plan

Core Requirements

- Pass qualifying exams over emphasis-area-specific preparatory courses Credits: 0-12
- CSS 890 - Seminar in Computational Science and Statistics (must be taken three times for credit) Credits: 3
- Dissertation Support Elective Credits: 6-12
- CSS 898 - Thesis/Dissertation Credits: 27-45

For further details about program requirements review the department's webpage and the program handbook online.

Additional Graduation Requirements

- Must pass a qualifying exam based on the core sequence of the student's emphasis area.
- Must pass written and oral comprehensive exams, as designed by the student's advisory committee.

Additional Admission Requirements

GRE: Not required

TOEFL: Department requirement of 575 paper-based, 90 Internet-based

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Electrical Engineering (Ph.D.)

Program Information

The program offers a variety of courses that encompass a broad range of Electrical Engineering areas including: alternative energy and power systems; computer engineering, communications and fiber optics; electronic materials, devices and sensors; nano technology, photovoltaic devices and systems; and signal and image processing. The department's graduate faculty conduct active research in these areas using modern research facilities and equipment.

Program Objectives

The EE graduate program objectives are to equip individuals to

- Discover and disseminate knowledge relevant to the discipline of electrical engineering.
- Provide leadership for increasingly complex roles in electrical engineering and industry.
- Contribute to the advancement of the science of electrical engineering serving regional and national needs.

Course Delivery

A majority of the courses are taught on campus in smart classrooms. The smart classrooms allow for a variety of methods for student engagement and faculty are able to record and post their lectures on-line. Additionally, some courses are offered remotely via "Access Grid" in collaboration with other Ph.D. granting institutions in the state.

Facilities and Services

With more than $12 million invested in classrooms and laboratories, graduate students benefit from modern lecture rooms and gain valuable experience using state-of-the-art equipment. The recently dedicated modern Daktronics Engineering Hall is home to the Electrical Engineering program with over 15,000 square feet of dedicated research space. The department boasts a 5-bay multi-million dollar clean room, several class one gloveboxes, and nano-characterization labs for developing both organic and inorganic electronics, as well as numerous other labs for research in fiber optics, power and alternative energy systems, and sensors.

Available Options for Graduate Degrees

Doctor of Philosophy 60 Credit Plan

Core Requirements

- EE 7XX Elective Credits: 9
- EE 790 - Seminar Credits: 3
- Additional Supporting Elective Credits: 12
- EE 898D - Dissertation Credits: 36

Total Credits: 60

Additional Admission Requirements

GRE: General scores required

TOEFL: Department requirement of 575 paper-based, 90-91 Internet-based

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Geospatial Science and Engineering (Ph.D.)

Program Information

The Geospatial Science and Engineering (GSE) Ph.D. is an interdisciplinary program that combines advanced coursework with cutting-edge research to advance the field of geospatial sciences. The focus is on transforming geospatial data into relevant information through acquisition, processing, characterization, analysis, and modeling in order to understand geographic patterns, processes, and relationships at scales ranging from landscapes to the globe. To achieve these aims, the geospatial sciences integrate the geographic disciplines of cartography, geodesy, geographic information systems, and remote sensing with elements of mathematics, statistics, the natural sciences, the social sciences, and engineering. The resulting array of geospatial concepts, methods, technologies, and datasets are used to address a wide range of pertinent questions about the functioning of the biosphere and its implications for sustainability of natural resources, agricultural productivity, biodiversity, environmental quality, and human welfare in a rapidly-changing world.

The program consists of faculty from the Geospatial Sciences Center of Excellence (http://globalmonitoring.sdstate.edu), and the Image Processing Laboratory in the department of Electrical Engineering & Computer Science (http://iplab2out.sdstate.edu/). Other participating departments include Agricultural & Biosystems Engineering, Civil & Environmental Engineering, Geography, and Natural Resource Management. Current faculty research interests include quantitative remote sensing, sensor design and calibration, land cover and land use change, geography, hydrology, landscape ecology, climate change, and fire science as well as applications of geospatial technologies in agriculture, meteorology, natural resource management, public health, and other fields. The program seeks highly motivated students with strong backgrounds in the geospatial sciences or a closely-related field to complement these efforts.

Course Delivery

Program coursework is offered in classroom, laboratory, and field-based settings.

Facilities and Services

The program facilities are housed in various locations on campus at SDSU, including the Geospatial Sciences Center of Excellence in Wecota Hall and the Image Processing Laboratory in Daktronics Engineering Hall, as well at the United States Geological Survey's Center for Earth Resources Observation and Science near Baltic, South Dakota.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Students may declare a specialization in Remote Sensing Geography or Remote Sensing Engineering; or elect to pursue a degree in interdisciplinary geospatial science.

Core Requirements

- GSE 740 - Introduction to Geospatial Science and Engineering Credits: 3
- GSE 790 - Seminar in Geospatial Science and Engineering Credits: 3
- Specialization Coursework Credits: 6
- Supporting Coursework Credits: 12-15
- GSE 898 - Dissertation Credits: 36

Additional Admission Requirements

Admission to the GSE program is competitive and limited by the availability of personnel, facilities, and funding necessary to provide quality graduate education. GSE is an interdisciplinary program with participating faculty members from several departments. The scope of the geospatial sciences is broad, and individual faculty members will only advise students within their particular area of specialization. Financial support for students is provided by individual faculty members through their research grants or other funding sources. Students can also bring their own funding, which could be obtained through a fellowship program or through the support of their employer. For these reasons, the application process is highly competitive, and meeting the minimum standards does not guarantee admission. In particular, the critical criterion for admission into the PhD program is that a GSE faculty member must agree to serve as the student's advisor.

Before applying to the program, prospective students are strongly encouraged to contact individual faculty to identify prospective advisors, discuss their research interests and educational goals, and determine if graduate research assistantships are available. Prospective students may also contact Dr. Michael Wimberly, the program coordinator, for additional information.

All applications must meet the admission criteria of the Graduate School before being accepted into the GSE program, and formal offers of graduate assistantships will not be made until students have been officially accepted by the Graduate School.

GRE: Required

TOEFL: Score of 525 paper-based, 71 Internet-based

Two letters of recommendation from persons acquainted with the academic ability and professional competency of the applicant should be sent directly to the GSE graduate coordinator.

Applicants must provide a written describing their research interests and academic goals in pursuing a Ph.D. and identifying one or more faculty members as potential advisors. The letter of intent should be submitted with the other application materials.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Geospatial Science and Engineering (Ph.D.) - Remote Sensing Engineering Specialization

Program Information

The Geospatial Science and Engineering (GSE) Ph.D. is an interdisciplinary program that combines advanced coursework with cutting-edge research to advance the field of geospatial sciences. The focus is on transforming geospatial data into relevant information through acquisition, processing, characterization, analysis, and modeling in order to understand geographic patterns, processes, and relationships at scales ranging from landscapes to the globe. To achieve these aims, the geospatial sciences integrate the geographic disciplines of cartography, geodesy, geographic information systems, and remote sensing with elements of mathematics, statistics, the natural sciences, the social sciences, and engineering. The resulting array of geospatial concepts, methods, technologies, and datasets are used to address a wide range of pertinent questions about the functioning of the biosphere and its implications for sustainability of natural resources, agricultural productivity, biodiversity, environmental quality, and human welfare in a rapidly-changing world.

The program consists of faculty from the Geospatial Sciences Center of Excellence (http://globalmonitoring.sdstate.edu), and the Image Processing Laboratory in the department of Electrical Engineering & Computer Science (http://iplab2out.sdstate.edu/). Other participating departments include Agricultural & Biosystems Engineering, Civil & Environmental Engineering, Geography, and Natural Resource Management. Current faculty research interests include quantitative remote sensing, sensor design and calibration, land cover and land use change, geography, hydrology, landscape ecology, climate change, and fire science as well as applications of geospatial technologies in agriculture, meteorology, natural resource management, public health, and other fields. The program seeks highly motivated students with strong backgrounds in the geospatial sciences or a closely-related field to complement these efforts.

Course Delivery

Program coursework is offered in classroom, laboratory, and field-based settings.

Facilities and Services

The program facilities are housed in various locations on campus at SDSU, including the Geospatial Sciences Center of Excellence in Wecota Hall and the Image Processing Laboratory in Daktronics Engineering Hall, as well at the United States Geological Survey's Center for Earth Resources Observation and Science near Baltic, South Dakota.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

- GSE 740 - Introduction to Geospatial Science and Engineering Credits: 3
- GSE 790 - Seminar in Geospatial Science and Engineering Credits: 1
- Specialization Coursework Credits: 6
- Supporting Coursework Credits: 12-15
- GSE 898 - Dissertation Credits: 36

Additional Admission Requirements

Admission to the GSE program is competitive and limited by the availability of personnel, facilities, and funding necessary to provide quality graduate education. GSE is an interdisciplinary program with participating faculty members from several departments. The scope of the geospatial sciences is broad, and individual faculty members will only advise students within their particular area of specialization. Financial support for students is provided by individual faculty members through their research grants or other funding sources. Students can also bring their own funding, which could be obtained through a fellowship program or through the support of their employer. For these reasons, the application process is highly competitive, and meeting the minimum standards does not guarantee admission. In particular, the critical criterion for admission into the PhD program is that a GSE faculty member must agree to serve as the student's advisor.

Before applying to the program, prospective students are strongly encouraged to contact individual faculty to identify prospective advisors, discuss their research interests and educational goals, and determine if graduate research assistantships are available. Prospective students may also contact Dr. Michael Wimberly, the program coordinator, for additional information.

All applications must meet the admission criteria of the Graduate School before being accepted into the GSE program, and formal offers of graduate assistantships will not be made until students have been officially accepted by the Graduate School.

GRE: Required

TOEFL: Score of 525 paper-based, 71 Internet-based

Two letters of recommendation from persons acquainted with the academic ability and professional competency of the applicant should be sent directly to the GSE graduate coordinator.

Applicants must provide a written describing their research interests and academic goals in pursuing a Ph.D. and identifying one or more faculty members as potential advisors. The letter of intent should be submitted with the other application materials.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Geospatial Science and Engineering (Ph.D.) - Remote Sensing Geography Specialization

Program Information

The Geospatial Science and Engineering (GSE) Ph.D. is an interdisciplinary program that combines advanced coursework with cutting-edge research to advance the field of geospatial sciences. The focus is on transforming geospatial data into relevant information through acquisition, processing, characterization, analysis, and modeling in order to understand geographic patterns, processes, and relationships at scales ranging from landscapes to the globe. To achieve these aims, the geospatial sciences integrate the geographic disciplines of cartography, geodesy, geographic information systems, and remote sensing with elements of mathematics, statistics, the natural sciences, the social sciences, and engineering. The resulting array of geospatial concepts, methods, technologies, and datasets are used to address a wide range of pertinent questions about the functioning of the biosphere and its implications for sustainability of natural resources, agricultural productivity, biodiversity, environmental quality, and human welfare in a rapidly-changing world.

The program consists of faculty from the Geospatial Sciences Center of Excellence (http://globalmonitoring.sdstate.edu), and the Image Processing Laboratory in the department of Electrical Engineering & Computer Science (http://iplab2out.sdstate.edu/). Other participating departments include Agricultural & Biosystems Engineering, Civil & Environmental Engineering, Geography, and Natural Resource Management. Current faculty research interests include quantitative remote sensing, sensor design and calibration, land cover and land use change, geography, hydrology, landscape ecology, climate change, and fire science as well as applications of geospatial technologies in agriculture, meteorology, natural resource management, public health, and other fields. The program seeks highly motivated students with strong backgrounds in the geospatial sciences or a closely-related field to complement these efforts.

Course Delivery

Program coursework is offered in classroom, laboratory, and field-based settings.

Facilities and Services

The program facilities are housed in various locations on campus at SDSU, including the Geospatial Sciences Center of Excellence in Wecota Hall and the Image Processing Laboratory in Daktronics Engineering Hall, as well at the United States Geological Survey's Center for Earth Resources Observation and Science near Baltic, South Dakota.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

- GSE 740 - Introduction to Geospatial Science and Engineering Credits: 3
- GSE 790 - Seminar in Geospatial Science and Engineering Credits: 1
- Specialization Coursework Credits: 6
- Supporting Coursework Credits: 12-15
- GSE 898 - Dissertation Credits: 36

Additional Admission Requirements

Admission to the GSE program is competitive and limited by the availability of personnel, facilities, and funding necessary to provide quality graduate education. GSE is an interdisciplinary program with participating faculty members from several departments. The scope of the geospatial sciences is broad, and individual faculty members will only advise students within their particular area of specialization. Financial support for students is provided by individual faculty members through their research grants or other funding sources. Students can also bring their own funding, which could be obtained through a fellowship program or through the support of their employer. For these reasons, the application process is highly competitive, and meeting the minimum standards does not guarantee admission. In particular, the critical criterion for admission into the PhD program is that a GSE faculty member must agree to serve as the student's advisor.

Before applying to the program, prospective students are strongly encouraged to contact individual faculty to identify prospective advisors, discuss their research interests and educational goals, and determine if graduate research assistantships are available. Prospective students may also contact Dr. Michael Wimberly, the program coordinator, for additional information.

All applications must meet the admission criteria of the Graduate School before being accepted into the GSE program, and formal offers of graduate assistantships will not be made until students have been officially accepted by the Graduate School.

GRE: Required

TOEFL: Score of 525 paper-based, 71 Internet-based

Two letters of recommendation from persons acquainted with the academic ability and professional competency of the applicant should be sent directly to the GSE graduate coordinator.

Applicants must provide a written describing their research interests and academic goals in pursuing a Ph.D. and identifying one or more faculty members as potential advisors. The letter of intent should be submitted with the other application materials.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Nursing (Ph.D.)

Program Information

The Doctor of Philosophy in Nursing prepares nurse scientists to assume roles as health care researchers, faculty, and health care administrators with an emphasis on health promotion and disease prevention in under-served and rural populations. The PhD program will educate nurse scientists in academic, research, practice and policy issues in urban, rural, frontier, and reservation areas.

Program Objectives

The graduate of the Doctor of Philosophy in Nursing program will demonstrate the following:

- Discover and disseminate knowledge relevant to the discipline of nursing with a focus on health promotion and disease prevention in underserved and rural populations.
- Provide leadership for increasingly complex roles in nursing research, practice, and education and/or healthcare organizations.
- Develop theoretical frameworks of phenomena related to nursing science.
- Provide leadership for the analysis and resolution of ethical healthcare issues in an interdisciplinary context.
- Integrate cultural learning into nursing practice to effectively tailor healthcare to the diverse lifeways of clients.
- Seek to decrease health disparities among populations by addressing socioeconomic-political-cultural determinants of health.

- Contribute to the advancement of the science of nursing serving rural and underserved populations.

Accreditation, Certification, and Licensure

Licensure

Students who are Registered Nurses must provide evidence of professional registration by submitting a copy of the most current RN license. International students who are Registered Nurses must provide evidence of national registration in good standing in their home country.

Course Delivery

Nursing courses are delivered face-to-face and enhanced with web-based instruction. Online course delivery is also offered for specified courses. Courses are offered fall, spring and summer semesters. Selected nursing and elective courses are available in summer semesters.

Curriculum Plans

Nurse scientists are prepared with a foundation in research methods and statistics to develop proposals, study, analyze, and solve healthcare problems among those who carry an excess burden of illness. The doctoral program requires a minimum of 60 credits post master's for graduation. Four and five year Curriculum Plans are the most common, although a three year plan is available.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

- HSC 631 - Biostatistics I Credits: 3
- HSC 731 - Biostatistics II Credits: 3
- NURS 615 - Foundations of Advanced Nursing Credits: 3 **
- NURS 670 - Health Policy, Legislation, Economics and Ethics Credits: 3**
- NURS 675 - Cultural Competence in Health Care Credits: 3 **
- NURS 810 - Doctoral Seminar Credits: 1 (3 credits required)
- NURS 815 - Philosophical Basis for Nursing Inquiry Credits: 3
- NURS 820 - Theory Development in Nursing Credits: 3
- NURS 825 - Qualitative Research Methods in Nursing Credits: 3
- NURS 830 - Quantitative Methods in Nursing Research Credits: 3
- NURS 835 - Ethical Issues Influencing Practice and Research in Health Credits: 2
- NURS 840 - Health Promotion Theory and Research in Underserved Populations Credits: 3 **
- NURS 845 - Measurement and Instrument Evaluation in Health Sciences Research Credits: 3 **
- NURS 895 - Practicum Credits: 1-3 (3 credits required)
- NURS 898 - Dissertation - PhD Credits: 19-22
- Electives Credits: 12-15 (60 Credit Plan), 27-30 (90 Credit Plan)
  *Must include one additional statistics or research methods course. Methods or statistics will be found in the title. Graduate students must consult with their advisors prior to registration.

** Courses required to be completed only as part of the 90 Credit Plan.

Additional Admission Requirements

GRE: Not required

TOEFL: Score of 600 paper-based, 100 Internet-based

IELTS: 7.0 total band

1. Current RN licensure. (International students who are nurses are required to show proof of current licensure/registration as a Registered Nurse (or equivalent), in good standing, in their home country, and maintain that licensure throughout the duration of the program.)
2. Bachelor's degree in nursing from an accredited program
3. Master's degree in nursing or a related field of study from an accredited program
4. Minimum GPA of 3.3 in master's coursework.
5. Completed application to both SDSU Graduate School and the SDSU College of Nursing- Graduate Nursing Program.
6. Example of scholarly written work.
7. Interview with graduate faculty.

Students who are licensed practitioners are required to show proof of personal liability insurance at the $1 million/ $5 million OR $1 million/ $3million level if appropriate during the time they are engaging with human subjects in dissertation research.

Applicants should check with the Graduate Nursing office for application deadlines.

General Requirements

Registration is completed by the Graduate Nursing Department. Items 3-5 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Health Providers
4. Influenza vaccine
5. TB test

See Doctor of Philosophy Degree Requirements.

Nutrition and Exercise Sciences (Ph.D.)

Program Information

The Ph.D. in Nutrition and Exercise Sciences will prepare graduates for careers as researchers in healthcare settings, government, industry, corporations, and universities. The research and teaching emphasizes molecular and biochemical nutrition, nutrigenomics, epidemiology, nutrition issues in developing countries, obesity prevention and behavior nutrition.

Courseload Information

Students enrolled in six or more state-supported credits within a given semester will be charged the current special discipline fee.

Student Support and Engagement Opportunities

The Department of Health and Nutritional Sciences aims to provide premier academic programs and high-quality services to students. A limited number of research and teaching assistantships and scholarships may be available to qualified graduate students.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan	(Must have previously completed a Master's in Nutrition or a related field)

Core Requirements

- GSR 601 - Research Regulations Compliance Credits: 1
- HNS 790 - Seminar Credits: 1 (3 credits required)
- NUTR 702 - Macronutrients in Human Nutrition Credits: 3
- NUTR 760 - Vitamins and Minerals in Human Nutrition Credits: 3
- Advanced Research Methods
- Course Advanced Statistics Course

Total Credits: 60 (30 departmental courses and 30 electives)

Additional Admissions Requirements

GRE: Required

TOEFL: required score of 550 paper-based, 79-80 Internet-based

IELTS: 6.0

Letter of application stating to include the following: primary area of interest (nutrition, food science, etc.); desired research focus; long-term goals outlining career goals; interest in assistantship (teaching or research); reason(s) for attending graduate school; current professional certifications and credentials; an interview (in person or via phone) is highly encouraged but not required.

PhD Nutritional Sciences Admission Requirements:

Entering students for the PhD degree will usually have a Master's degree in dietetics, exercise science, nutrition, biology, chemistry, epidemiology, or other related field from an approved accredited institution. In those cases where applicants do not have a Master's degree, departmental requirements will apply, either requiring completion of a Master's degree or permitting an individual to move directly into a doctoral program.

Prerequisites for PhD degree include Master's degree in a health related field (nutrition, dietetics, exercise physiology, public health, etc), NUTR 422/522 or equivalent, STAT 541 or equivalent, or biochemistry.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Pharmaceutical Sciences (Ph.D.)

Program Information

The Department of Pharmaceutical Sciences offers courses and research opportunities in pharmaceutical and biomedical sciences to fulfill the requirements for the Doctor of Philosophy (Ph.D.) degree in Pharmaceutical Sciences. The Department also offers a curriculum and research opportunity for combination Doctor of Pharmacy (Pharm.D.)/Ph.D. degrees in Pharmaceutical Sciences. The core courses, along with the concentration in a major area of research, provide a valuable broad background of preparation for an academic or industrial career. The major objective of the program is to provide the student an opportunity to gain high quality graduate education and research experience.

Student Learning Outcomes

Graduates of the Ph.D. in Pharmaceutical Sciences will:

- Demonstrate knowledge in the pharmaceutical and biomedical sciences.
- Carry out research/creative activities with skill and competence.
- Provide high quality professional communication in both the written and verbal forms.
- Demonstrate professionalism and ethical conduct.
- Possess the necessary skills for careers in academia and industry.

Facilities and Services

The graduate programs are housed in the recently constructed Avera Health and Science Center, a first-class educational and research facility on the Brookings campus. The Avera Health and Science Center has enabled the College to incorporate new teaching strategies into the curriculum that will lead to pharmacy graduates that are better prepared to provide patient care utilizing modern technology and a team-based approach. The facility has modern research laboratories that support our growing research program.

Student Engagement and Support Opportunities

Graduate students may choose to take part in Peer Mentoring or get involved with the College's Honorary societies and other student organizations.

Available Options for Graduate Degrees

Doctor of Philosophy 90 Credit Option

Core Requirements

- PHA 820 - Advanced Concepts in Medicinal Chemistry Credits: 3
- PHA 840 - Advanced Concepts in Pharmacology Credits: 3
- PHA 846 - Techniques in Pharmaceutical Research Credits: 3
- PHA 847 - Grant Writing and Academic Development Credits: 3
- PHA 859 - Advanced Concepts in Pharmaceutics Credits: 3
- PHA 890 - Seminar Credits: 2 *
- PHA 898 - Dissertation Credits: 50
- STAT 541 - Statistical Methods II Credits: 3
- Electives Credits: 20

Total Credits: 90

* The first credit will be taken at the early stage of the program and the second will be taken at the later stage of the program.

Additional Admission Requirements

GRE: General GRE required

TOEFL: Minimum score of 550 paper-based, 79 Internet-based

Students will need to complete the application form through the Internet by visiting this link. The application fees of $35.00 can be paid via credit card, online, or by mailing a check or money order to the graduate school (see the address below) with the rest of the application materials (see below). No application will be processed until the application fee is paid. After submitting an application, send the following documents by post to the graduate school.

- **Letters of Recommendation** Two personal reference letters from people acquainted with the academic ability and professional competence of the applicant are required.
- **Official Transcripts** Transcripts from all undergraduate and graduate coursework, provisional or degree certificates for all degrees held must be evaluated course by course by World Education Services (www.wes.org) or Educational Credential Evaluators (www.ece.org). **Please request that the evaluation be sent directly to the Graduate School (see address listed below).** International students must have completed four years of post-secondary education and must hold a Bachelor's degree before applications will be reviewed by the Graduate School or respective department.
- **TOEFL/GRE Scores** Test of English as a Foreign Language (TOEFL) scores are required of all International students. Minimum scores of 550 paper-based, 213 computer-based, 79 Internet-based or above is required. The International English Language Testing System (IELTS) band score is also acceptable (6.0 or higher). No minimum score is set for GRE test. The Institutional Code for SDSU is 6653.
- **A Statement of Personal Goals and Philosophy** The statement should be brief and no more than one page.
- **Financial Support** All admitted students will be supported by a teaching or research assistantship from the department. No financial support statement is needed from applicants.
- **Physical Examination Record** A record of two (2) immunizations for measles and two (2) for rubella is only required after the applicant is admitted to the program.

Application package must be received by the graduate school before **April 15**:

Graduate School
South Dakota State University
Administration Bldg 130
Box 2201
Brookings, SD 57007-1998

For more information on applying to the Ph.D. in Pharmaceutical Sciences visit www.sdstate.edu/pha/phd/howtoapplyphd.cfm.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Plant Science (Ph.D.)

Program Information

The Plant Science Department is an integrated department that includes programs in crop production, entomology, horticulture, plant biotechnology, plant breeding, plant pathology, precision farming, soils, water management, and weed science. The primary goals of the department are to conduct research in these areas, to transmit the results to the public, and to help prepare students for an occupation in these disciplines and to become productive members of a community. Graduate training includes classroom instruction, teaching experience, seminars designed to refine oral and written skills, and meaningful experience in laboratory and field research techniques. Departmental diversity encourages collaborations among disciplines and research programs that support this graduate training.

Course Delivery

The program coursework is available on campus, in classroom and laboratory settings, as well as field-based settings.

Facilities and Services

The department is housed in seven buildings across campus. These buildings provide research and teaching laboratories, greenhouses, seed house facilities and access to the functional genomics core facility. The on and off-campus facilities also include the SDSU Seed Testing Laboratory, SDSU Plant Diagnostics Clinic, Seed Certification, and Foundation Seed Stocks Division, which operates as services for the public. In addition, the department conduct research at four research farms near campus and four research stations across the state. The Field Specialists are housed in seven regional extension offices across the state.

Student Engagement Opportunities

Numerous opportunities are available for part-time employment, scholarships, and work-study programs. The Arboriculture Club, Agronomy and Conservation Club, or Horticulture Club offer opportunities for fellowship, leadership, and career planning. The Department has nationally recognized crops, horticulture, and soils judging teams.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

Ph.D. students required to have 3 credits of Graduate Seminar, at least one oral and one in poster format. All students are required to have at least one teaching experience during their Ph.D. program.

- Enrollment in PS 781 - Plant Science Graduate Seminar (over three different semesters)
- Enrollment in PS 792 - Topics Teaching Experience (1 credit required)

Additional Admission Requirements

GRE: recommended, but not required

TOEFL: minimum requirement of 560 paper-based, 83 Internet-based

IELTS: minimum total score of 6.0

Students must be accepted by an advisor before admission is granted.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Sociology (Ph.D.)

Program Information

The Ph.D. program in Sociology is designed to prepare students for professional careers in teaching, research and creative activity in academic, government and related areas. Students are encouraged to identify areas of interest that connect with faculty areas of expertise and interest. Students seeking admission must have an approved Master's degree, (thesis option), not necessarily in Sociology. If a thesis in a closely related field is not in evidence, Ph.D. students will be required to complete SOC 701 and SOC 702 in their first year of coursework Ph.D. program credits.

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan

Core Requirements

- SOC 710 - Research Methods Credits: 3
- SOC 711 - Qualitative Research Methods Credits: 3
- SOC 712 - Sociological Theory I Credits: 3
- SOC 713 - Sociological Theory II Credits: 3
- SOC 790 - Seminar (Orientation to Graduate Study) Credits: 1
- Statistics Coursework Credits: 6
- Select 6 credits from the following:
  STAT 541 - Statistical Methods II Credits: 3
  or STAT 545 - Nonparametric Statistics Credits: 3
  and
  SOC 792 - Topics ("Statistics" in title) Credits: 3
  or SOC 794 - Internship ("Statistics" in title) Credits: 3
- SOC 898D - Dissertation Credits: 18
- Electives Credits: 23

Credits: 60

Additional Admission Requirements

GRE: Required

TOEFL: Department requirement of 100 Internet-based

IELTS: 7.0

Doctor of Philosophy: Students seeking entrance must have an approved Bachelor's and Master's degree, (thesis option), not necessarily in Sociology. Each applicant should have 2 signed letters of recommendation from individuals familiar with the student's academic record.

It is required that applicants also include a writing sample and personal statement. The personal statement should identify the student's academic goals and describe how those goals fit with the faculty expertise and interests.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Wildlife and Fisheries Sciences (Ph.D.)

Program Information

SDSU has an extensive graduate program in wildlife and fisheries sciences. The Department of Natural Resource Management offers graduate programs in both Biological Science and Wildlife and Fisheries Sciences. Both degree programs award M.S. and Ph.D. degrees.

Wildlife and Fisheries Sciences

The Ph.D. degree program in Wildlife and Fisheries Sciences is intended to educate students for upper-level management, research and administrative positions with state and federal agencies, and private companies. Academic career opportunities also exist for Ph.D. graduates in all the Departmental disciplines, preparing students for the responsibilities of teaching, research, and service, required for faculty positions with universities and colleges. By building on the

educational foundation that students obtain from B.S. and M.S. degree work, we endeavor to raise them to a higher intellectual plateau. While coursework is involved, this educational experience is primarily based on research and mentoring. This degree requires original thought and research contributions, synthesis and development of information, and contributions to the world and its natural resources.

Biological Sciences

Students interested in careers in ecology, environmental science, and range science often utilize the Biological Sciences Ph.D. degree programs. Refer to the Biological Sciences (Ph.D.) page for more information about the specifications required for these degree programs.

Student Learning Outcomes

- Be knowledgeable regarding biological systems at a level appropriate to a Ph.D. degree holder.
- Be able to effectively express themselves orally and in written form.
- Understand the scientific method of solving problems.
- Be computer and statistically capable.
- Be specialized in some area of wildlife or fisheries, but still be broadly based in knowledge.
- Be able to conduct scholarly research.
- Understand the relationships between biological information and socioeconomic factors.
- Demonstrate professional development, especially in regard to the need for continued learning after their degree program.
- Develop a concern and feeling for the natural resources of the world.

Certification

Certification is available through the American Fisheries Society and The Wildlife Society.

Course Delivery Format

The Wildlife and Fisheries Sciences graduate program is primarily an on-campus program. However, field research may require extended time periods away from campus.

Facilities and Services

The department is housed within the Northern Plains Biostress Laboratory at SDSU. The Department houses the Oak Lake Biological Field Station and also hosts the South Dakota Cooperative Fish and Wildlife Research Unit, the National Wetlands Inventory, and the South Dakota GAP Analysis Project

Available Options for Graduate Degrees

Doctor of Philosophy	60 Credit Plan
	90 Credit Plan

Core Requirements

Students must be proficient in departmental offerings, statistical methods, and computer application. Courses and experience are also required in college-level teaching and graduate and Ph.D. seminars.

Additional Admission Requirements

GRE: Required

TOEFL: Department Requirement of 525 paper-based, 71 Internet-based

Admission to all degree programs requires that a faculty member from the department agrees to serve as the major advisor.

General Requirements (Ph.D.)

Graduate students must consult with their advisor before registering for graduate work.

For additional information refer to the Doctor of Philosophy Degree Requirements.

Professional Doctoral Degree

Doctor of Nursing Practice (D.N.P.) (Post Master to D.N.P. - NPs, CRNAs, CNSs, and CNMs)

Program Information

The Doctor of Nursing Practice prepares advanced practice nurses to transform clinical practice as expert clinicians and leaders with a special focus on rural and under-served populations.

Program Objectives

The graduate of the Doctor of Nursing Practice program will:

- Analyze significant practice issues with the theoretical and scientific underpinnings of knowledge-based practice
- Employ advanced clinical judgment to assess, design, deliver and evaluate evidence-based care of individuals in complex health and illness situations
- Apply a broad system perspective to design, implement and evaluate culturally congruent policies and practices to improve care for a diverse population
- Lead health care inter-professional and intra-professional teams to transform care
- Initiate ethically sound practice changes to address complex interwoven organization, population, fiscal and policy trends
- Demonstrate proficiency in the use of information technology to improve health care within systems
- Implement evidence-based clinical prevention and health promotion activities to improve the health of populations

Accreditation, Certification, and Licensure

Accreditation

The Doctor of Nursing Practice at South Dakota State University is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791.

Licensure

Students must provide evidence of professional registration by submitting a copy of the most current RN license.

Course Delivery

Nursing courses are delivered face-to-face and enhanced with web-based instruction. Online course delivery is also offered for specified courses. Courses are offered fall, spring and summer semesters. Selected nursing and elective courses are available in summer semesters.

Facilities and Services

The College of Nursing provides world-class facilities and a variety of students services and programs for graduate student engagement.

- Simulation Lab
- Honor Societies

Purpose of the DNP Program

To prepare APNs to transform clinical practice as expert clinicians and leaders with a special focus on rural and underserved populations.

The program is open to registered nurses with a Master's Degree in nursing with CNP, CRNA, CNS, and CNM. The program is designed for part-time study (including summers), and requires a 29-37 course credits. The program is delivered through an executive delivery model in Sioux Falls that includes online components.

Available Options for Graduate Degrees

Post Master Doctor of Nursing Practice 28-36 Credits

Core Requirements

- HSC 631 - Biostatistics I Credits: 3
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 750 - Transformational Leadership in Nursing Credits: 3
- NURS 835 - Ethical Issues Influencing Practice and Research in Health Credits: 2
- NURS 850 - Philosophical and Theoretical Foundations for Evidence-Based Care Credits: 3
- NURS 855 - Translational Research in Health Care Credits: 3
- NURS 860 - Health Operations and Financial Management for Nurse Managers Credits: 3
- NURS 875 - DNP Practicum Credits: 1-8 (0-8 credits required)
- NURS 880 - DNP Project Credits: 1-8 (8 credits required)

Total Credits: 28-36

For additional information, refer to the Graduate Nursing Department webpage.

Additional Admissions Requirements for Post Master to Doctor of Nursing Practice

In addition to meeting the Graduate School admission requirements, applicants for graduate study for the Post Master to Doctor of Nursing Practice (who possess current certification as a Nurse Practitioner, CRNA, CNM or CNS) must have:

1. Current RN licensure.
2. National certification as a Nurse Practitioner (Nurse Anesthetist, Nurse Midwife or Clinical Nurse Specialist)..
3. Master's degree in nursing with a (Nurse Practitioner, Nurse Anesthetist, Nurse Midwife or Clinical Nurse Specialist) focus from an NLNAC or CCNE accredited program with a minimum cumulative 3.3 GPA.
4. Completed application to both SDSU Graduate School and the SDSU College of Nursing - Graduate Nursing Program.
5. Submit written response to questions regarding educational goals, scholarly practice interests, and desired practice career.
6. Completed an approved statistical methods course with a grade of 'C' or higher within the past 5 years.
7. Interview with graduate faculty and/or graduate admissions committee member(s).

Total enrollment in the Doctor of Nursing Practice program may vary depending upon available clinical facilities and qualified faculty. Applicants are selected competitively from those qualified for the program. Applicants should check with the Graduate Nursing office for application deadlines.

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the Graduate Nursing Department. Items 3-7 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Healthcare Providers
4. ACLS certification
5. Professional liability insurance
6. Influenza vaccine
7. TB test

Doctor of Nursing Practice (D.N.P.) - Family Nurse Practitioner Specialization (B.S.N. to D.N.P.)

Program Information

The Doctor of Nursing Practice prepares advanced practice nurses to transform clinical practice as expert clinicians and leaders with a special focus on rural and under-served populations.

Program Objectives

The graduate of the Doctor of Nursing Practice program will:

- Analyze significant practice issues with the theoretical and scientific underpinnings of knowledge-based practice
- Employ advanced clinical judgment to assess, design, deliver and evaluate evidence-based care of individuals in complex health and illness situations
- Apply a broad system perspective to design, implement and evaluate culturally congruent policies and practices to improve care for a diverse population
- Lead health care inter-professional and intra-professional teams to transform care
- Initiate ethically sound practice changes to address complex interwoven organization, population, fiscal and policy trends
- Demonstrate proficiency in the use of information technology to improve health care within systems
- Implement evidence-based clinical prevention and health promotion activities to improve the health of populations

Accreditation, Certification, and Licensure

Accreditation

The Doctor of Nursing Practice at South Dakota State University is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791.

Licensure

Students must provide evidence of professional registration by submitting a copy of the most current RN license.

Certification

After completing the program of study, graduates may be eligible to complete certification through several professional organizations.

National Certification Eligibility	Certifying Body
Family Nurse Practitioner Specialization	ANCC and AANP certification examinations American Nurses Credentialing Center (ANCC) http://www.nursecredentialining.org/# American Academy of Nurse Practitioners www.aanpcertification.org/

Course Delivery

Nursing courses are delivered face-to-face and enhanced with web-based instruction. Online course delivery is also offered for specified courses. Courses are offered fall, spring and summer semesters. Selected nursing and elective courses are available in summer semesters.

Facilities and Services

The College of Nursing provides world-class facilities and a variety of students services and programs for graduate student engagement.

- Simulation Lab
- Honor Societies

Available Options for Graduate Degrees

Bachelor's to Doctor of Nursing Practice 78-81 Credits

Core Requirements

- HSC 631 - Biostatistics I Credits: 3
- NURS 615 - Foundations of Advanced Nursing Credits: 3
- NURS 623 - Pathophysiology Across the Lifespan - Application to Advanced Practice Nursing Credits: 4
- NURS 626 - Research in Nursing and Health Care Credits: 3
- NURS 631 - Advanced Assessment Across the Lifespan Credits: 4
- NURS 631L - Advanced Assessment - Lifespan Clinical Laboratory Credits: 0
- NURS 670 - Health Policy, Legislation, Economics and Ethics Credits: 3
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 750 - Transformational Leadership in Nursing Credits: 3
- NURS 760 - Health Promotion and Disease Prevention Across the Lifespan Credits: 3
- NURS 765 - Family Nurse Practitioner Practicum I Credits: 7 (3, 4)
- NURS 771 - Family Nurse Practitioner Practicum II Credits: 7 (3,4)
- NURS 776 - Family Nurse Practitioner III - Small Group Instruction Credits: 3
- NURS 777 - Family Nurse Practitioner: Practicum III Credits: 3-9 (9 credits required)
- NURS 835 - Ethical Issues Influencing Practice and Research in Health Credits: 2
- NURS 850 - Philosophical and Theoretical Foundations for Evidence-Based Care Credits: 3
- NURS 855 - Translational Research in Health Care Credits: 3
- NURS 860 - Health Operations and Financial Management for Nurse Managers Credits: 3
- NURS 875 - DNP Practicum Credits: 1-8 (0-3 credits required)
- NURS 880 - DNP Project Credits: 1-8 (8 credits required)
- PHA 645 - Pharmacotherapeutics Across the Lifespan: Application to Advanced Practice Credits: 2-4 (4 credits required)

Total Credits: 78-81

For additional information, refer to the Graduate Nursing Department webpage.

Additional Admission Requirements for Bachelor's to Doctor of Nursing Practice

GRE: Not required

TOEFL: Score of 600 paper-based, 100 Internet-based, OR

IELTS: 7.0 total band

In addition to meeting the Graduate School admission requirements, applicants for graduate study for the Bachelor's to Doctor of Nursing Practice must have:

1. Current RN licensure.
2. Bachelor's degree in nursing from an NLNAC or CCNE Accredited program with a minimum cumulative 3.3 GPA.
3. 1500 hours of documented nursing practice experience prior to the first clinical lab.
4. Completed application to both SDSU Graduate School and the SDSU College of Nursing - Graduate Nursing Program.
5. Submit written response to questions regarding educational goals, scholarly practice interest and desired practice career.
6. Completed an approved statistical methods course with a grade of 'C' or higher within the past 5 years.
7. Interview with graduate faculty and/or graduate admissions committee member(s).

Total enrollment in the Doctor of Nursing Practice program may vary depending upon available clinical facilities and qualified faculty. Applicants are selected competitively from those qualified for the program. Applicants should check with the Graduate Nursing office for application deadlines.

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the

Graduate Nursing Department. Items 3-7 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Healthcare Providers
4. ACLS certification
5. Professional liability insurance
6. Influenza vaccine
7. TB test

Doctor of Nursing Practice (D.N.P.) - Family Nurse Practitioner Specialization (Post Master to D.N.P.)

Program Information

The Doctor of Nursing Practice prepares advanced practice nurses to transform clinical practice as expert clinicians and leaders with a special focus on rural and under-served populations. The program is open to registered nurses with a Master's Degree in Nursing (non-clinical focus) from a NLNAC or CCNE accredited program. The program is designed for part-time study (including summers). The program has executive delivery model in Sioux Falls that includes online components.

The program is open to registered nurses with a Master's Degree in Nursing (non-clinical focus) from a NLNAC or CCNE accredited program. The program is designed for part-time study (including summers). The program has executive delivery model in Sioux Falls that includes online components.

Program Objectives

The graduate of the Doctor of Nursing Practice program will:

- Analyze significant practice issues with the theoretical and scientific underpinnings of knowledge-based practice
- Employ advanced clinical judgment to assess, design, deliver and evaluate evidence-based care of individuals in complex health and illness situations
- Apply a broad system perspective to design, implement and evaluate culturally congruent policies and practices to improve care for a diverse population
- Lead health care inter-professional and intra-professional teams to transform care
- Initiate ethically sound practice changes to address complex interwoven organization, population, fiscal and policy trends
- Demonstrate proficiency in the use of information technology to improve health care within systems
- Implement evidence-based clinical prevention and health promotion activities to improve the health of populations

Accreditation, Certification, and Licensure

Accreditation

The Doctor of Nursing Practice at South Dakota State University is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791.

Licensure

Students must provide evidence of professional registration by submitting a copy of the most current RN license.

Certification

After completing the program of study, graduates may be eligible to complete certification through several professional organizations.

National Certification Eligibility	Certifying Body
Family Nurse Practitioner Specialization	ANCC and AANP certification examinations American Nurses Credentialing Center (ANCC) http://www.nursecredentialining.org/# American Academy of Nurse Practitioners
	www.aanpcertification.org/

Course Delivery

Nursing courses are delivered face-to-face and enhanced with web-based instruction. Online course delivery is also offered for specified courses. Courses are offered fall, spring and summer semesters. Selected nursing and elective courses are available in summer semesters.

Facilities and Services

The College of Nursing provides world-class facilities and a variety of students services and programs for graduate student engagement.

- Simulation Lab
- Honor Societies

Available Options for Graduate Degrees

Post Master to Doctor of Nursing Practice 66-69 Credits

Core Requirements

- HSC 631 - Biostatistics I Credits: 3
- NURS 623 - Pathophysiology Across the Lifespan - Application to Advanced Practice Nursing Credits: 4 *
- NURS 631 - Advanced Assessment Across the Lifespan Credits: 4 *
- NURS 631L - Advanced Assessment - Lifespan Clinical Laboratory Credits: 0 *
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 750 - Transformational Leadership in Nursing Credits: 3
- NURS 765 - Family Nurse Practitioner Practicum I Credits: 7 (3, 4)
- NURS 771 - Family Nurse Practitioner Practicum II Credits: 7 (3, 4)
- NURS 776 - Family Nurse Practitioner III - Small Group Instruction Credits: 3
- NURS 777 - Family Nurse Practitioner: Practicum III Credits: 3-9 (9 credits required)
- NURS 835 - Ethical Issues Influencing Practice and Research in Health Credits: 2
- NURS 850 - Philosophical and Theoretical Foundations for Evidence-Based Care Credits: 3
- NURS 855 - Translational Research in Health Care Credits: 3
- NURS 860 - Health Operations and Financial Management for Nurse Managers Credits: 3
- NURS 875 - DNP Practicum Credits: 1-8 (0-3 credits required)
- NURS 880 - DNP Project Credits: 1-8 (8 credits required)
- PHA 645 - Pharmacotherapeutics Across the Lifespan: Application to Advanced Practice Credits: 2-4 * (4 credits required)

Total Credits: 66-69

* Students who have not previously completed either NURS 623, NURS 631 or PHA 645 OR equivalent coursework within the previous five years, will be required to complete those courses as part of this program option. All previous coursework will need to be evaluated for equivalency and approved by the Associate Dean for Graduate Nursing in order to be included on the student's Plan of Study.

For additional information, refer to the Graduate Nursing Department webpage.

Additional Admissions Requirements for Post Master to Doctor of Nursing Practice

In addition to meeting the Graduate School admission requirements, applicants for graduate study for the Post Master to Doctor of Nursing Practice (who possess a Master's Degree in a related field AND a Bachelor's Degree in Nursing) must have:

1. Current RN licensure.
2. Bachelor degree in nursing from an NLNAC or CCNE Accredited program with a minimum cumulative 3.3 GPA.
3. 1500 hours of documented nursing practice experience prior to the first clinical course.
4. Master's degree in a related field with a minimum cumulative 3.3 GPA.

5. Completed application to both SDSU Graduate School and the SDSU College of Nursing - Graduate Nursing Program.
6. Submit written response to questions regarding educational goals, scholarly practice interests and desired practice career.
7. Completed an approved statistical methods course within the past 5 years.
8. Interview with graduate faculty.

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the Graduate Nursing Department. Items 3-7 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Healthcare Providers
4. ACLS certification
5. Professional liability insurance
6. Influenza vaccine
7. TB test

Doctor of Nursing Practice (D.N.P.) - Family Psychiatric and Mental Health Nurse Practitioner Specialization (B.S.N. to D.N.P.)

Program Information

The Doctor of Nursing Practice prepares advanced practice nurses to transform clinical practice as expert clinicians and leaders with a special focus on rural and under-served populations. The Family Psychiatric and Mental Health Nurse Practitioner Specialization is offered in partnership with the University of Missouri-Columbia Sinclair School of Nursing. Students are prepared to deliver advanced primary mental health care to adults and are eligible for the ANCC psychiatric nurse practitioner examination.

Program Objectives

The graduate of the Doctor of Nursing Practice program will:

- Analyze significant practice issues with the theoretical and scientific underpinnings of knowledge-based practice
- Employ advanced clinical judgment to assess, design, deliver and evaluate evidence-based care of individuals in complex health and illness situations
- Apply a broad system perspective to design, implement and evaluate culturally congruent policies and practices to improve care for a diverse population
- Lead health care inter-professional and intra-professional teams to transform care
- Initiate ethically sound practice changes to address complex interwoven organization, population, fiscal and policy trends
- Demonstrate proficiency in the use of information technology to improve health care within systems
- Implement evidence-based clinical prevention and health promotion activities to improve the health of populations

Accreditation, Certification, and Licensure

Accreditation

The Doctor of Nursing Practice at South Dakota State University is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791.

Licensure

Students must provide evidence of professional registration by submitting a copy of the most current RN license.

Certification

After completing the program of study, graduates may be eligible to complete certification through several professional organizations.

National Certification Eligibility	Certifying Body
Family Psychiatric and Mental Health Nurse Practitioner Specialization	ANCC psychiatric nurse practitioner examination American Nurses Credentialing Center (ANCC) http://www.nursecredentialining.org/#

Course Delivery

Nursing courses are delivered face-to-face and enhanced with web-based instruction. Online course delivery is also offered for specified courses. Courses are offered fall, spring and summer semesters. Selected nursing and elective courses are available in summer semesters.

The College of Nursing has agreements for distance education and hybrid courses with the University of Missouri-Kansas City for Neonatal Nurse Practitioner courses, and the University of Missouri-Columbia for Family Psychiatric and Mental Health Nurse Practitioner, Pediatric Nurse Practitioner, and Pediatric Clinical Nurse Specialist courses. Students in these specializations receive their degree from SDSU.

Facilities and Services

The College of Nursing provides world-class facilities and a variety of students services and programs for graduate student engagement.

- Simulation Lab
- Honor Societies

Available Options for Graduate Degrees

Bachelor's to Doctor of Nursing Practice 84.5 Credits

Core Requirements

- HSC 631 - Biostatistics I Credits: 3
- NURS 615 - Foundations of Advanced Nursing Credits: 3
- NURS 623 - Pathophysiology Across the Lifespan - Application to Advanced Practice Nursing Credits: 4
- NURS 626 - Research in Nursing and Health Care Credits: 3
- NURS 631 - Advanced Assessment Across the Lifespan Credits: 4
- NURS 631L - Advanced Assessment - Lifespan Clinical Laboratory Credits: 0
- NURS 670 - Health Policy, Legislation, Economics and Ethics Credits: 3
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 750 - Transformational Leadership in Nursing Credits: 3
- NURS 760 - Health Promotion and Disease Prevention Across the Lifespan Credits: 3
- NURS 835 - Ethical Issues Influencing Practice and Research in Health Credits: 2
- NURS 850 - Philosophical and Theoretical Foundations for Evidence-Based Care Credits: 3
- NURS 855 - Translational Research in Health Care Credits: 3
- NURS 860 - Health Operations and Financial Management for Nurse Managers Credits: 3
- NURS 875 - DNP Practicum Credits: 1-8 (1 credit required)
- NURS 880 - DNP Project Credits: 1-8 (8 credits required)
- PHA 645 - Pharmacotherapeutics Across the Lifespan: Application to Advanced Practice Credits: 2-4 (4 credits required)

University of Missouri - Columbia courses:

- N7087 - Leadership and Technology Institute++ (*one week, on-campus seminar)* Credits: 1
- N8610 - Diagnostics & Psychopharmacology for Mental Health Nurses ++ Credits:3.5
- N8620 - Brief Individual Psychotherapy for Mental Health Nurses ++ Credits:3.5
- N8640 - Group Therapy and Social Skills Training ++ Credits:3.5
- N8660 - Mental Health Nursing Interventions for Families ++ Credits: 3.5
- N8680 - Pediatric Mental Health Assessment & Treatment ++ Credits: 3.5

- N8920 - Quality, Safety & Performance Outcomes ++ Credits: 3
- N9070 – DNP Clinical Residency ++ Credits: 8
- N9087 – Leadership & Transformational Role Institute ++ *(one week, on-campus seminar)* Credits: 2

Total Credits: 84.5 (SDSU = 53; University of Missouri = 31.5)

++ Courses offered online by the Sinclair School of Nursing, University of Missouri - Columbia

On-campus requirement at the University of Missouri for clinical and Institute courses. Dates are posted on the University of Missouri Sinclair School of Nursing site.

University of Missouri coursework subject to change – contact the SDSU Graduate Nursing Department for updated information.

For additional information, refer to the Graduate Nursing Department webpage.

Additional Admission Requirements for Bachelor's to Doctor of Nursing Practice

GRE: Not required

TOEFL: Score of 600 paper-based, 100 Internet-based, OR

IELTS: 7.0 total band

In addition to meeting the Graduate School admission requirements, applicants for graduate study for the Bachelor's to Doctor of Nursing Practice must have:

1. Current RN licensure.
2. Bachelor's degree in nursing from an NLNAC or CCNE Accredited program with a minimum cumulative 3.3 GPA.
3. 1500 hours of documented nursing practice experience prior to the first clinical lab.
4. Completed application to both SDSU Graduate School and the SDSU College of Nursing - Graduate Nursing Program.
5. Submit written response to questions regarding educational goals, scholarly practice interest and desired practice career.
6. Completed an approved statistical methods course with a grade of 'C' or higher within the past 5 years.
7. Interview with graduate faculty and/or graduate admissions committee member(s).

Total enrollment in the Doctor of Nursing Practice program may vary depending upon available clinical facilities and qualified faculty. Applicants are selected competitively from those qualified for the program. Applicants should check with the Graduate Nursing office for application deadlines.

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the Graduate Nursing Department. Items 3-7 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Healthcare Providers
4. ACLS certification
5. Professional liability Insurance
6. Influenza vaccine
7. TB test

Doctor of Nursing Practice (D.N.P.) - Neonatal Nurse Practitioner Specialization (B.S.N. to D.N.P.)

Program Information

The Doctor of Nursing Practice prepares advanced practice nurses to transform clinical practice as expert clinicians and leaders with a special focus on rural and under-served populations. Neonatal Nurse Practitioner program (NNP) is offered in partnership with the University of Missouri-Kansas City School of Nursing. The program prepares graduates to provide assessment diagnosis, and medical management of neonates and their families from admission through discharge in collaboration with other health care providers in specific clinical settings. Graduates with this specialization are eligible for the neonatal nurse practitioner examination via the National Certification Corporation.

Program Objectives

The graduate of the Doctor of Nursing Practice program will:

- Analyze significant practice issues with the theoretical and scientific underpinnings of knowledge-based practice
- Employ advanced clinical judgment to assess, design, deliver and evaluate evidence-based care of individuals in complex health and illness situations
- Apply a broad system perspective to design, implement and evaluate culturally congruent policies and practices to improve care for a diverse population
- Lead health care inter-professional and intra-professional teams to transform care
- Initiate ethically sound practice changes to address complex interwoven organization, population, fiscal and policy trends
- Demonstrate proficiency in the use of information technology to improve health care within systems
- Implement evidence-based clinical prevention and health promotion activities to improve the health of populations

Accreditation, Certification, and Licensure

Accreditation

The Doctor of Nursing Practice at South Dakota State University is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791.

Licensure

Students must provide evidence of professional registration by submitting a copy of the most current RN license.

Certification

After completing the program of study, graduates may be eligible to complete certification through several professional organizations.

National Certification Eligibility	Certifying Body
Neonatal Nurse Practitioner Specialization	Neonatal nurse practitioner examination The National Certification Corporation www.nccwebsite.org/Certification/Exam-detail.aspx?eid=16&showId=1

Course Delivery

Nursing courses are delivered face-to-face and enhanced with web-based instruction. Online course delivery is also offered for specified courses. Courses are offered fall, spring and summer semesters. Selected nursing and elective courses are available in summer semesters.

The College of Nursing has agreements for distance education and hybrid courses with the University of Missouri-Kansas City for Neonatal Nurse Practitioner courses, and the University of Missouri-Columbia for Family Psychiatric and Mental Health Nurse Practitioner, Pediatric Nurse Practitioner, and Pediatric Clinical Nurse Specialist courses. Students in these specializations receive their degree from SDSU.

Facilities and Services

The College of Nursing provides world-class facilities and a variety of students services and programs for graduate student engagement.

- Simulation Lab
- Honor Societies

Available Options for Graduate Degrees

Bachelor's to Doctor of Nursing Practice 74 Credits

Core Requirements

- HSC 631 - Biostatistics I Credits: 3
- NURS 615 - Foundations of Advanced Nursing Credits: 3
- NURS 623 - Pathophysiology Across the Lifespan - Application to Advanced Practice Nursing Credits: 4
- NURS 626 - Research in Nursing and Health Care Credits: 3
- NURS 670 - Health Policy, Legislation, Economics and Ethics Credits: 3
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 750 - Transformational Leadership in Nursing Credits: 3
- NURS 760 - Health Promotion and Disease Prevention Across the Lifespan Credits: 3
- NURS 835 - Ethical Issues Influencing Practice and Research in Health Credits: 2
- NURS 850 - Philosophical and Theoretical Foundations for Evidence-Based Care Credits: 3
- NURS 855 - Translational Research in Health Care Credits: 3
- NURS 860 - Health Operations and Financial Management for Nurse Managers Credits: 3
- NURS 875 - DNP Practicum Credits: 1-8 (6 credits required)
- NURS 880 - DNP Project Credits: 1-8 (8 credits required)

University of Missouri- Kansas City courses:

- N5547N - Neonatal Assessment Credits: 3
- N5548N - Physiology/Pathphysiology of the Neonates Credit: 2
- N5549N - Neonatal Pharmacology Credits: 3
- N5564N - Neonatal Nursing I Credits: 3
- N5566N - Neonatal Nursing II Credits: 3
- N5572-NI - Preceptorship I Credits: 5
- N5572-NII - Preceptorship II Credits: 5

Total Credits: 74 (SDSU = 50; University of Missouri = 24)

NOTE:

A minimum of 1,000 preceptor hours are required for the DNP degree.

Clinical Courses offered through the University of Missouri – Kansas City.

University of Missouri coursework is subject to change – contact the SDSU Graduate Nursing Department for updated information.

There are online campus requirements – refer to the Graduate Nursing webpage for additional information.

Additional Admission Requirements for Bachelor's to Doctor of Nursing Practice

GRE: Not required

TOEFL: Score of 600 paper-based, 220 computer-based, 100 Internet-based, OR

IELTS: 7.0 total band

In addition to meeting the Graduate School admission requirements, applicants for graduate study for the Bachelor's to Doctor of Nursing Practice must have:

1. Current RN licensure.
2. Bachelor's degree in nursing from an NLNAC or CCNE Accredited program with a minimum cumulative 3.3 GPA.
3. Additional specific RN experience working with pediatric and/or neonatal populations may be required based on the University of Missouri requirements.
4. 1500 hours of documented nursing practice experience prior to the first clinical lab.
5. Completed application to both SDSU Graduate School and the SDSU College of Nursing - Graduate Nursing Program.
6. Submit written response to questions regarding educational goals, scholarly practice interest and desired practice career.
7. Completed an approved statistical methods course with a grade of 'C' or higher within the past 5 years.
8. Interview with graduate faculty and/or graduate admissions committee member(s).

Total enrollment in the Doctor of Nursing Practice program may vary depending upon available clinical facilities and qualified faculty. Applicants are selected competitively from those qualified for the program. Applicants should check with the Graduate Nursing office for application deadlines.

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the Graduate Nursing Department. Items 3-7 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug Screening
3. Basic Life Support for Healthcare Providers
4. Specialty certification, e.g. NALS (Neonatal Advanced Life Support) or as required by the University of Missouri-Kansas City.
5. Professional liability insurance
6. Influenza vaccine
7. TB test

Doctor of Nursing Practice (D.N.P.) - Pediatric Clinical Nurse Specialist Specialization (B.S.N. to D.N.P.)

Program Information

The Doctor of Nursing Practice prepares advanced practice nurses to transform clinical practice as expert clinicians and leaders with a special focus on rural and under-served populations. Pediatric Clinical Nurse Specialist is offered in partnership with the University of Missouri-Columbia Sinclair School of Nursing. Students are prepared didactically and clinically to deliver care for pediatric clients across the care continuum (acute/critical care, acute/chronic care, and primary care). Upon completion of the program, students are eligible for the ANCC pediatric clinical nurse specialist examination.

Program Objectives

The graduate of the Doctor of Nursing Practice program will:

- Analyze significant practice issues with the theoretical and scientific underpinnings of knowledge-based practice
- Employ advanced clinical judgment to assess, design, deliver and evaluate evidence-based care of individuals in complex health and illness situations
- Apply a broad system perspective to design, implement and evaluate culturally congruent policies and practices to improve care for a diverse population
- Lead health care inter-professional and intra-professional teams to transform care
- Initiate ethically sound practice changes to address complex interwoven organization, population, fiscal and policy trends
- Demonstrate proficiency in the use of information technology to improve health care within systems
- Implement evidence-based clinical prevention and health promotion activities to improve the health of populations

Accreditation, Certification, and Licensure

Accreditation

The Doctor of Nursing Practice at South Dakota State University is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791.

Licensure

Students must provide evidence of professional registration by submitting a copy of the most current RN license.

Certification

After completing the program of study, graduates may be eligible to complete certification through several professional organizations.

National Certification Eligibility	Certifying Body
Pediatric Clinical Nurse Specialist Specialization	ANCC pediatric clinical nurse specialist examination American Nurses Credentialing Center (ANCC) http://www.nursecredentialining.org/#

Course Delivery

Nursing courses are delivered face-to-face and enhanced with web-based instruction. Online course delivery is also offered for specified courses. Courses are offered fall, spring and summer semesters. Selected nursing and elective courses are available in summer semesters.

The College of Nursing has agreements for distance education and hybrid courses with the University of Missouri-Kansas City for Neonatal Nurse Practitioner courses, and the University of Missouri-Columbia for Family Pediatric and Mental Health Nurse Practitioner, Pediatric Nurse Practitioner, and Pediatric Clinical Nurse Specialist courses. Students in these specializations receive their degree from SDSU.

Facilities and Services

The College of Nursing provides world-class facilities and a variety of students services and programs for graduate student engagement.

- Simulation Lab
- Honor Societies

Available Options for Graduate Degrees

Bachelor's to Doctor of Nursing Practice84 Credits

Core Requirements

Offered in collaboration with the University of Missouri - Columbia

- HSC 631 - Biostatistics I Credits: 3
- NURS 615 - Foundations of Advanced Nursing Credits: 3
- NURS 623 - Pathophysiology Across the Lifespan - Application to Advanced Practice Nursing Credits: 4
- NURS 626 - Research in Nursing and Health Care Credits: 3
- NURS 631 - Advanced Assessment Across the Lifespan Credits: 4
- NURS 631L - Advanced Assessment - Lifespan Clinical Laboratory Credits: 0
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 670 - Health Policy, Legislation, Economics and Ethics Credits: 3
- NURS 750 - Transformational Leadership in Nursing Credits: 3
- NURS 760 - Health Promotion and Disease Prevention Across the Lifespan Credits: 3
- NURS 835 - Ethical Issues Influencing Practice and Research in Health Credits: 2
- NURS 850 - Philosophical and Theoretical Foundations for Evidence-Based Care Credits: 3
- NURS 855 - Translational Research in Health Care Credits: 3
- NURS 860 - Health Operations and Financial Management for Nurse Managers Credits: 3
- NURS 875 - DNP Practicum Credits: 1-8 (1 credit required)
- NURS 880 - DNP Project Credits: 1-8 (8 credits required)
- PHA 645 - Pharmacotherapeutics Across the Lifespan: Application to Advanced Practice Credits: 2-4 (4 credits required)

University of Missouri - Columbia courses:

- N7087 - Leadership & Technology Institute ++ *(one-week, on-campus seminar)* Credits: 1
- N8210 - Special Health Needs of Children in School Setting ++ Credits: 3.5
- N8420 - Newborn through Adolescence Primary Care ++ ++ Credits: 3.5
- N8540 - Advanced Diagnostics & Reasoning ++ Credits: 3.5
- N8710: Clinical Mgmt of Acute & Critical Care Problems ++ 3.5 (2, 1.5) Credits: 3.5
- N8720: Symptom Mgmt of Acute & Chronic Illness ++ Credits: 3.5
- N8920 - Quality, Safety & Performance Outcomes ++ Credits: 3
- N9070 - DNP Clinical Residency ++ Credits: 8
- N9087 - Leadership & Transformational Role Institute ++ *(one-week, on-campus seminar)* Credits: 2

Total Credits: 84.5 (SDSU = 53; University of Missouri = 31.5)

++ Courses offered online by the Sinclair School of Nursing, University of Missouri - Columbia.

On-campus requirement at the University of Missouri for clinical and Institute courses. Dates are posted on the University of Missouri Sinclair School of Nursing site.

University of Missouri coursework subject to change – contact the SDSU Graduate Nursing Department for updated information.

For additional information, refer to the Graduate Nursing Department webpage.

Additional Admission Requirements for Bachelor's to Doctor of Nursing Practice

GRE: Not required

TOEFL: Score of 600 paper-based, 220 computer-based, 100 Internet-based, OR

IELTS: 7.0 total band

In addition to meeting the Graduate School admission requirements, applicants for graduate study for the Bachelor's to Doctor of Nursing Practice must have:

1. Current RN licensure.
2. Bachelor's degree in nursing from an NLNAC or CCNE Accredited program with a minimum cumulative 3.3 GPA.
3. Additional specific RN experience working with pediatric and/or neonatal populations may be required based on the University of Missouri requirements.
4. 1500 hours of documented nursing practice experience prior to the first clinical lab.
5. Completed application to both SDSU Graduate School and the SDSU College of Nursing - Graduate Nursing Program.
6. Submit written response to questions regarding educational goals, scholarly practice interest and desired practice career.
7. Completed an approved statistical methods course with a grade of 'C' or higher within the past 5 years.
8. Interview with graduate faculty and/or graduate admissions committee member(s).

Total enrollment in the Doctor of Nursing Practice program may vary depending upon available clinical facilities and qualified faculty. Applicants are selected competitively from those qualified for the program. Applicants should check with the Graduate Nursing office for application deadlines.

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the Graduate Nursing Department. Items 3-7 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Healthcare Providers
4. Specialty Certification, e.g. PALS (Pediatric Advanced Life Support), or as required by the University of Missouri-Columbia.
5. Professional liability insurance
6. Influenza vaccine
7. TB test

Doctor of Nursing Practice (D.N.P.) - Pediatric Nurse Practitioner Specialization (B.S.N. to D.N.P.)

Program Information

The Doctor of Nursing Practice prepares advanced practice nurses to transform clinical practice as expert clinicians and leaders with a special focus on rural and under-served populations. Pediatric Nurse Practitioner Specialty is offered in partnership with the University of Missouri-Columbia Sinclair School of Nursing. Students are prepared to deliver advanced primary health care to pediatric clients and are eligible for the ANCC pediatric nurse practitioner examination and/or the PNCB (Pediatric Nursing Certification Board).

Program Objectives

The graduate of the Doctor of Nursing Practice program will:

- Analyze significant practice issues with the theoretical and scientific underpinnings of knowledge-based practice
- Employ advanced clinical judgment to assess, design, deliver and evaluate evidence-based care of individuals in complex health and illness situations
- Apply a broad system perspective to design, implement and evaluate culturally congruent policies and practices to improve care for a diverse population
- Lead health care inter-professional and intra-professional teams to transform care
- Initiate ethically sound practice changes to address complex interwoven organization, population, fiscal and policy trends
- Demonstrate proficiency in the use of information technology to improve health care within systems
- Implement evidence-based clinical prevention and health promotion activities to improve the health of populations

Accreditation, Certification, and Licensure

Accreditation

The Doctor of Nursing Practice at South Dakota State University is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791.

Licensure

Students must provide evidence of professional registration by submitting a copy of the most current RN license.

Certification

After completing the program of study, graduates may be eligible to complete certification through several professional organizations.

National Certification Eligibility	Certifying Body
Pediatric Nurse Practitioner Specialization	ANCC pediatric nurse practitioner examination American Nurses Credentialing Center (ANCC) http://www.nursecredentialining.org/#

Course Delivery

Nursing courses are delivered face-to-face and enhanced with web-based instruction. Online course delivery is also offered for specified courses. Courses are offered fall, spring and summer semesters. Selected nursing and elective courses are available in summer semesters.

The College of Nursing has agreements for distance education and hybrid courses with the University of Missouri-Kansas City for Neonatal Nurse Practitioner courses, and the University of Missouri-Columbia for Family Pediatric and Mental Health Nurse Practitioner, Pediatric Nurse Practitioner, and Pediatric Clinical Nurse Specialist courses. Students in these specializations receive their degree from SDSU.

Facilities and Services

The College of Nursing provides world-class facilities and a variety of students services and programs for graduate student engagement.

- Simulation Lab
- Honor Societies

Available Options for Graduate Degrees

Bachelor's to Doctor of Nursing Practice 84 Credits

Core Requirements

Offered in collaboration with the University of Missouri - Columbia

- HSC 631 - Biostatistics I Credits: 3
- NURS 615 - Foundations of Advanced Nursing Credits: 3
- NURS 623 - Pathophysiology Across the Lifespan - Application to Advanced Practice Nursing Credits: 4
- NURS 626 - Research in Nursing and Health Care Credits: 3
- NURS 631 - Advanced Assessment Across the Lifespan Credits: 4
- NURS 631L - Advanced Assessment - Lifespan Clinical Laboratory Credits: 0
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 670 - Health Policy, Legislation, Economics and Ethics Credits: 3
- NURS 750 - Transformational Leadership in Nursing Credits: 3
- NURS 760 - Health Promotion and Disease Prevention Across the Lifespan Credits: 3
- NURS 835 - Ethical Issues Influencing Practice and Research in Health Credits: 2
- NURS 850 - Philosophical and Theoretical Foundations for Evidence-Based Care Credits: 3
- NURS 860 - Health Operations and Financial Management for Nurse Managers Credits: 3
- NURS 855 - Translational Research in Health Care Credits: 3
- NURS 875 - DNP Practicum Credits: 1-8 (1 credit required)
- NURS 880 - DNP Project Credits: 1-8 (8 credits required)
- PHA 645 - Pharmacotherapeutics Across the Lifespan: Application to Advanced Practice Credits: 2-4 (4 credits required)

University of Missouri - Columbia courses:

- N7087 - Leadership & Technology Institute ++ *(one week, on-campus seminar)* Credits: 1
- N8210 - Special Health Needs of Children in School Setting ++ Credits: 3.5
- N8420 - Newborn through Adolescence Primary Care ++ Credits: 3.5
- N8430 - Reproductive & Sexual Health Primary Care ++ Credits: 3.5
- N8540 - Advanced Diagnostics &Reasoning ++ Credits: 3.5
- N8680 - Pediatric Mental Health Assessment & Treatment ++ Credits: 3.5
- N8920 - Quality, Safety & Performance Outcomes ++ Credits: 3
- N9070 - DNP Clinical Residency ++ Credits: 8
- N9087 - Leadership & Transformational Role Institute ++ (*one week, on-campus seminar)* Credits: 2

Total Credits: 84.5 (SDSU = 53; University of Missouri = 31.5)

++ Courses offered online by the Sinclair School of Nursing, University of Missouri - Columbia.

On-campus requirement at the University of Missouri for clinical and Institute courses. Dates are posted on the University of Missouri Sinclair School of Nursing site.

University of Missouri coursework subject to change – contact the SDSU Graduate Nursing Department for updated information.

For additional information, refer to the Graduate Nursing Department webpage.

Additional Admission Requirements for Bachelor's to Doctor of Nursing Practice

GRE: Not required

TOEFL: Score of 600 paper-based, 220 computer-based, 100 Internet-based, OR

IELTS: 7.0 total band

In addition to meeting the Graduate School admission requirements, applicants for graduate study for the Bachelor's to Doctor of Nursing Practice must have:

1. Current RN licensure.
2. Bachelor's degree in nursing from an NLNAC or CCNE Accredited program with a minimum cumulative 3.3 GPA.
3. Additional specific RN experience working with pediatric and/or neonatal populations may be required based on the University of Missouri requirements.
4. 1500 hours of documented nursing practice experience prior to the first clinical lab.
5. Completed application to both SDSU Graduate School and the SDSU College of Nursing - Graduate Nursing Program.
6. Submit written response to questions regarding educational goals, scholarly practice interest and desired practice career.
7. Completed an approved statistical methods course with a grade of 'C' or higher within the past 5 years.
8. Interview with graduate faculty and/or graduate admissions committee member(s).

Total enrollment in the Doctor of Nursing Practice program may vary depending upon available clinical facilities and qualified faculty. Applicants are selected competitively from those qualified for the program. Applicants should check with the Graduate Nursing office for application deadlines.

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the Graduate Nursing Department. Items 3-7 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Healthcare Providers
4. Specialty Certification, e.g. PALS (Pediatric Advanced Life Support), or as required by the University of Missouri-Columbia.
5. Professional liability insurance
6. Influenza vaccine
7. TB test

Pharmacy (Pharm.D.)

Program Information

The College of Pharmacy offers a six-year course of study (2-year pre-pharmacy and 4-year professional program phase) leading to an entry level Doctor of Pharmacy degree. The Pharm.D. is a professional degree which enables graduates to pursue diverse career opportunities and ensures that their pharmacy education prepares them for future changes in the profession. The program provides unique opportunities for students who want to make a significant contribution to the health care needs of today's society.

Program Admission

Preparation for the Major

In high school the student should take an academic curriculum in preparation for entrance to college. A sound basic education in science and mathematics courses is an essential part of preparation for the study of pharmacy. Good written and verbal communication skills are important. Students planning to transfer from another college or university should consult with the College of Pharmacy early in their academic careers to plan coursework that will transfer to the College of Pharmacy and meet the admission requirements.

Application Process

All students seeking admission to the 4-year professional program leading to the Doctor of Pharmacy degree must submit an application for the professional program. Applications are available from the College of Pharmacy web site. The deadline for applying for admission for the fall semester is February 1. Limitations in the size of the physical facilities, the number of faculty, and the number of advanced pharmacy practice experience sites make it necessary to limit the class size in the professional program. Each student admitted into the professional program is required to authorize and pay for a criminal background check. The background check report is automatically sent to the student and to the College and must be approved by the Admissions Committee.

Selection is competitive and based upon several factors including pre-pharmacy coursework, ACT or PCAT scores, written and oral communication skills, knowledge of the profession, residency status and other factors. Any student who anticipates successful completion of the pre-pharmacy mathematics, science and communication requirements prior to fall semester is eligible to apply.

Notification of acceptance into the professional program will be made by the March 15. Students admitted to the professional program must submit a non-refundable pharmacy major fee to secure their position for the fall semester.

Program Format

The curriculum is divided into a 2-year pre-pharmacy and a 4-year professional program phase. The pre-pharmacy courses provide a solid knowledge base and ability to use critical thought processes in the biological and physical sciences.

The four years of the professional program incorporate a solid foundation of pharmaceutical science courses as well as a comprehensive sequence of therapeutics and professional practice courses. Students earn a B.S. in Pharmaceutical Sciences after successful completion of the first two years of the professional program. The application of drug knowledge, basic science, and critical thinking to resolve problems of drug distribution and patient care are emphasized throughout the curriculum. In their first three years of the program, students gain initial practice experience through introductory pharmacy practice experiences in settings such as community and hospital pharmacies.

In the final year of the program, students have an opportunity to apply knowledge and pharmacy care principles to pharmacy practice situations in a series of advanced pharmacy practice experiences in a variety of patient care settings which include patient care areas of hospitals, nursing homes, community pharmacies, hospital pharmacies, Indian Health Service facilities, and clinic pharmacies.

Curriculum Notes

- Eligible for B.S. in Pharmaceutical Sciences after completion of all general education requirements, 300 and 400-level required PHA courses, and general elective credits for a total of 138 credits.
- Successful completion of the capstone activities are required as part of the degree requirements for both the BS in Pharmaceutical Science and the Doctor of Pharmacy degrees.
- P3 year courses are taught at the University Center North in Sioux Falls. Advanced Pharmacy Practice Experiences (APPEs) are completed during Summer Sessions, Fall, and Spring Semesters.

Pharmacy Regulations

Students in the College of Pharmacy are governed by the regulations which apply to all students at SDSU but are also governed by requirements established by the College. These requirements are presented in detail in the Pharmacy Student Handbook and include:

Progression – Progression standards for students in the Pharm.D. program are set to assure graduates are prepared to provide pharmacy services to the public. The integrated curriculum relies on information and skills garnered in previous courses and therefore, students' success depends on achieving a minimum level of performance in each course. Minimum level of performance is defined as a grade of C or better based on University Catalog grade definitions. A grade of D is defined as in terms of "insufficient" and "inadequate" according to the University Catalog. A grade of F is defined in terms of "failure." D, F, and U (unsatisfactory) grades do not represent a minimum level of performance need to develop skills, abilities, and knowledge of a general practitioner.

Refused Status - A student will be placed on refused status if the student:

a. Earns a D, F, or U in a pharmacy course.
b. Does not complete the Pharm.D. program within six years of starting the professional program.

Class Standing Requirements

Standing - Some pharmacy courses have prerequisites such as "P1 Year Standing", etc. These are defined as follows (note: "completion" means a passing grade in each pharmacy course and maintaining semester and cumulative PHA GPA requirements):

P1 Year Standing - The student must have been admitted into the professional program.

P2 Year Standing - Completion of all PHA 300 level required courses and PHA 109/101.

P3 Year Standing - Completion of all PHA 400 level required courses and PHA 610, a bachelor's degree, and all capstone activities are required to begin the fall semester. Completion of all required PHA 700, non-advanced practice experience courses are required to progress to the subsequent semester.

P4 Year Standing - completion of all PHA 600-700 level required, non-advanced practice courses, and 300 hours of IPPE.

Student Learning Outcomes

The educational outcomes are the knowledge, skills and attitudes which the College desires each Pharm.D. graduate to possess. The Pharm.D. program consists of specific courses and other experiences which are designed to provide the knowledge, training and experience to allow each student to successfully attain these outcomes.

Foundational Knowledge

The professional program leading to the Doctor of Pharmacy degree (hereinafter "the program") develops in the graduate the knowledge, skills, abilities, behaviors, and attitudes necessary to apply the foundational sciences to the provision of patient-centered care.

1.1. Foundational Knowledge (Learner) – Develop, integrate, and apply knowledge from the foundational sciences (i.e., biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences) to evaluate the scientific literature, explain drug action, solve therapeutic problems, and advance population health and patient-centered care.

Essentials for Practice and Care

The program imparts to the graduate the knowledge, skills, abilities, behaviors, and attitudes necessary to provide patient-centered care, manage medication use systems, promote health and wellness, and describe the influence of population-based care on patient-centered care.

2.1. Patient-centered care (Caregiver) - Provide patient-centered care as the medication expert (collect and interpret evidence, prioritize, formulate assessments and recommendations, implement, monitor and adjust plans, and document activities).

2.2. Medication use systems management (Manager) – Manage patient healthcare needs using human, financial, technological, and physical resources to optimize the safety and efficacy of medication use systems.

2.3. Health and wellness (Promoter) – Design prevention, intervention, and educational strategies for individuals and communities to manage chronic disease and improve health and wellness.

2.4. Population-based care (Provider) – Describe how population-based care influences patient-centered care and influences the development of practice guidelines and evidence-based best practices.

Approach to Practice and Care

The program imparts to the graduate the knowledge, skills, abilities, behaviors, and attitudes necessary to solve problems; educate, advocate, and collaborate, working with a broad range of people; recognize social determinants of health; and effectively communicate verbally and nonverbally.

3.1. Problem Solving (Problem Solver) – Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.

3.2. Education (Educator) – Educate all audiences by determining the most effective and enduring ways to impart information and assess learning.

3.3. Patient Advocacy (Advocate) – Represent the patient's best interests.

3.4. Interprofessional collaboration (Collaborator) – Actively participate and engage as a healthcare team member by demonstrating mutual respect, understanding, and values to meet patient care needs.

3.5. Cultural sensitivity (Includer) – Recognize social determinants of health to diminish disparities and inequities in access to quality care.

3.6. Communication (Communicator) – Effectively communicate verbally and nonverbally when interacting with individuals, groups, and organizations.

Personal and Professional Development

The program imparts to the graduate the knowledge, skills, abilities, behaviors, and attitudes necessary to demonstrate self-awareness, leadership, innovation and entrepreneurship, and professionalism.

4.1. Self-awareness (Self-aware) – Examine and reflect on personal knowledge, skills, abilities, beliefs, biases, motivation, and emotions that could enhance or limit personal and professional growth.

4.2. Leadership (Leader) – Demonstrate responsibility for creating and achieving shared goals, regardless of position.

4.3. Innovation and Entrepreneurship (Innovator) – Engage in innovative activities by using creative thinking to envision better ways of accomplishing professional goals.

4.4. Professionalism (Professional) – Exhibit behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers, and society.

Accreditation, Certification, and Licensure

Accreditation

The Pharm.D. program is accredited by the Accreditation Council for Pharmacy Education, 135 S. LaSalle Street, Suite 4100, Chicago, IL 60603-4810

Certification and Licensure

Graduates with a Doctor of Pharmacy degree are eligible to apply for licensure in any state. Licensure as a pharmacist requires graduation with the Pharm.D. degree from an accredited pharmacy program, a certified period of supervised internship experience and successful completion of the North American Pharmacist Licensure Examination and the Multistate Pharmacy Jurisprudence Examination in order to practice as a pharmacist.

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.

Facilities and Services

The graduate programs are housed in the recently constructed Avera Health and Science Center, a first-class educational and research facility on the Brookings campus. The Avera Health and Science Center has enabled the College to incorporate new teaching strategies into the curriculum that will lead to pharmacy graduates that are better prepared to provide patient care utilizing modern technology and a team-based approach. The facility has modern research laboratories that support our growing research program.

Student Engagement and Support Opportunities

Graduate students may choose to take part in Peer Mentoring or get involved with the College's Honorary societies and other student organizations.

Available Options for Graduate Degrees

Doctor of Pharmacy (Pharm.D.) 218 Credits

Core Requirements

System General Education Requirements

- Goal #1 Written Communication: ENGL 101 and ENGL 201 Credits: 6
- Goal #2 Oral Communication: SPCM 101 Credits: 3
- Goal #3 Social Sciences/Diversity: ECON 202 Credits: 6
- Goal #4 Arts and Humanities/Diversity: Credits: 6
- Goal #5 Mathematics: MATH 121-121L Credits: 5
- Goal #6 Natural Sciences: CHEM 112-112L and CHEM 114-114L Credits: 8

Institutional Graduation Requirements

- Goal #1 First Year Experience: PHA 109 Credits: 2
- Goal #2 Cultural Awareness and Social and Environmental Responsibility: Credits: 3

Major Requirements

- BIOL 151-151L - General Biology I and Lab * (COM) Credits: 4
- BIOL 221-221L - Human Anatomy and Lab(COM) Credits: 4
- BIOL 325-325L - Physiology and Lab (COM) Credits: 4
- CHEM 326-326L - Organic Chemistry I and Lab (COM) Credits: (3, 1)
- CHEM 328-328L - Organic Chemistry II and Lab (COM) Credits: (3, 1)
- MICR 231-231L - General Microbiology and Lab (COM) Credits: 4
- STAT 281 - Introduction to Statistics * (COM) Credits: 3
- PHA 109 - First Year Seminar - Pharmacy** Credits: 2
- PHA 320 - Introduction to Pathophysiology Credits: 3
- PHA 323 - Pharmaceutical Biochemistry Credits: 4
- PHA 324 - Biomedical Science I Credits: 4
- PHA 331 - Pharmaceutics I Credits: 3
- PHA 332-332L - Pharmaceutics II and Lab Credits: 4
- PHA 340-340L - Medicinal Chemistry I and Lab Credits: 4
- PHA 341-341L - Medicinal Chemistry II and Lab Credits: 4
- PHA 367-367L - Pharmacy Practice I and Lab Credits: 2
- PHA 368-368L - Pharmacy Practice II and Lab Credits: 3
- PHA 410 - Introductory Practice Experience I Credits: 3 [3]
- PHA 415 - Biopharmaceutics and Pharmacokinetics Credits: 4
- PHA 425 - Biomedical Science II Credits: 3
- PHA 430 - Pharmacy Practice Law Credits: 3
- PHA 442 - Pharmacology I Credits: 5
- PHA 443 - Pharmacology II Credits: 4
- PHA 444 - Toxicology Credits: 2
- PHA 445 - Pharmacotherapeutics I Credits: 2
- PHA 446 - Pharmacotherapeutics II Credits: 3
- PHA 467-467L - Pharmacy Practice III and Lab (AW) Credits: 3

Must have a bachelor's degree[1,2] to begin the P3, 600-700 level courses [4]

- PHA 610 - Introductory Practice Experience II Credits: 3 [5]
- PHA 714 - Community Pharmacy Practice Experience Credits: 5
- PHA 716 - Hospital/Institutional Pharmacy Practice Experience Credits: 5
- PHA 723 - Ethics in Healthcare Practice Credits: 2
- PHA 727 - Professional Resources Management Credits: 3
- PHA 741 - Public Health and Wellness Credits: 2
- PHA 742 - Patient Assessment and Self Care Credits: 2
- PHA 756 - Pharmacotherapeutics III Credits: 4
- PHA 757 - Pharmacotherapeutics IV Credits: 4
- PHA 761 - Pharmacotherapeutics V Credits: 5
- PHA 762 - Pharmacotherapeutics VI Credits: 5
- PHA 767 - Pharmacy Practice V Credits: 3
- PHA 767L - Pharmacy Practice V Lab Credits: 0
- PHA 768 - Pharmacy Practice VI Credits: 3
- PHA 768L - Pharmacy Practice VI Lab Credits: 0
- PHA 772 - Internal Medicine I Practice Experience Credits: 5
- PHA 774 - Ambulatory Care Practice Experience Credits: 5
- Assigned Advanced Pharmacy Practice Experiences: 10
  Choose 10 credits from the following:
  - PHA 700 - Directed Studies Practice Experience Credits: 4-5
  - PHA 706 - Critical Care Practice Experience Credits: 5
  - PHA 707 - Infectious Disease Practice Experience Credits: 5
  - PHA 717 - Community Health and Patient Monitoring Practice Experience Credits: 5
  - PHA 770 - Pediatrics Practice Experience Credits: 5
  - PHA 771 - Geriatrics Practice Experience Credits: 5
  - PHA 773 - Internal Medicine II Practice Experience Credits: 5
  - PHA 775 - Psychiatry Practice Experience Credits: 5
  - Advanced Pharmacy Practice Experiences (APPEs) are completed during Summer sessions, Fall, and Spring semesters.
- Elective Advanced Pharmacy Practice Experiences +: 10
  Choose 10 credits from the following:
  - PHA 700 - Directed Studies Practice Experience Credits: 4-5
  - PHA 701 - Home Health/Hospice Practice Experience Credits: 5
  - PHA 702 - Indian Health Services Practice Experience Credits: 5
  - PHA 703 - Pharmacy Administration Practice Experience Credits: 5
  - PHA 704 - Nutrition Support Practice Experience Credits: 5
  - PHA 705 - Clinical Research Practice Experience Credits: 5
  - PHA 708 - Surgery Practice Experience Credits: 5
  - PHA 709 - Nephrology Practice Experience Credits: 5
  - PHA 710 - Pharmacokinetics Practice Experience Credits: 5
  - PHA 712 - Nuclear Pharmacy Practice Experience Credits: 5
  - PHA 713 - Managed Care Practice Experience Credits: 5
  - PHA 780 - International Pharmacy Practice Experience Credits: 5
    APPEs not utilized from list of Assigned APPEs

Electives

- General Electives Credits: 6
- Pharmacy Electives, PHA 700 level, nonAPPE Credits: 4

Total Credits: 218

Notes

[1] Eligible for B.S. in Pharmaceutical Sciences after completion of all general education requirements, 300 and 400-level required PHA courses, and general elective credits for a total of 138 credits.

[2] Students must meet progression standards and capstone requirements in order to advance within the program.

[3] PHA 410 must be completed during the summer between the P1 and P2 years.

[4] General Electives are a College of Pharmacy requirement and can be from any discipline but must be completed by the end of the P2 year. For all students, general elective credits can include credits in excess of System Graduation Requirements (SGR) or SDSU Core (IGR). Students starting at SDSU summer 2012 or more recently will complete 8 IGR credits according to the catalog, students starting fall 2012 or later will complete 5 IGR credits (including PHA 109 for 2 credits) and BIOL 151.

[5] PHA 610 must be completed during the summer between the P2 and P3 years.

Additional Admission Requirements

Applicants to the Doctor of Pharmacy (Pharm.D.) Program will submit:

- The completed application (http://www.sdstate.edu/pha/apply/upload/Application-for-Professional-Program.pdf)
- Official transcripts
- Contact information for two references

- Documentation of your ACT, SAT, or PCAT scores
- A short essay on the topic of "Why I want to obtain a Doctor of Pharmacy Degree at SDSU"
- A completed shadowing form (http://www.sdstate.edu/pha/apply/upload/Shadowing-Exp-Form.pdf)

The program requires an interview with the Pharmacy Admissions Committee before we make the final selections for the new Fall class.

Those selected are required to send a non-refundable deposit to secure enrollment for the fall semester.

Students must pass a criminal background check before final approval for admission into the professional program.

Applicants receive notification of acceptance into the professional program by March 15.

For more information see frequently asked questions (FAQ) (http://www.sdstate.edu/pha/apply/faq-pharmd.cfm).

General Requirements (Pharm.D.)

For additional information see Doctor of Pharmacy Degree Requirement.

Graduate Certificates

Animal Science Certificate

Program Description

The Animal Science Certificate program is designed to provide students with courses in the major disciplinary areas of animal science. The goal of the program is to provide foundation courses across many facets of animal science, serving as a basis for further study in one of the disciplines or in a particular animal species. Because the courses are delivered via the World Wide Web they allow for greater flexibility and access to course content than traditional classroom based courses. The Animal Science Certificate program will be marketed to working professionals who wish to further their education but lack the flexibility to devote themselves to a full-time graduate program.

Course Delivery Format

The online graduate certificate program in Animal Science has been developed to support continuing education needs of the workforce in food animal agriculture. The consortium offering the certificate is affiliated with AG IDEA and is governed by its structure. The institutions involved in this effort consist of South Dakota State University, North Carolina State University, Clemson University, and the University of Georgia. The program is also intended to benefit traditional graduate programs through additional course availability.

The courses in this program are online and taught by the same instructors who teach on campus at the participating universities. Curriculum is specially adapted for the online environment to ensure students receive the same quality education as they would experience on campus.

Course schedules are determined by the teaching institution but do not have set class times, allowing students to access course content when it is convenient for them. Students meet deadlines as outlined by the instructors, and interact with instructors and other students through e-mail, chats, discussion boards, and other interactive methods. Students must have access to a computer, e-mail, and the Internet.

Requirements for Animal Science Certificate

- AS 541 - Advanced Meat Science Credits: 3
- AS 720 - Advanced Selection of Domestic Animals Credits: 3
- AS 732 - Advanced Physiology of Reproduction Credits: 3
- Select one of the following courses:
  - AS 712 - Ruminant Nutrition Credits: 3
  - AS 736 - Monogastric Nutrition Credits: 3

Total Credits: 12

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admission
Distance Education

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Bioenergy and Sustainable Technology Certificate

Program Description

The rapidly expanding industry of bioenergy and biobased products requires a well trained workforce. Chemical feedstocks, materials, and fuels derived from biomass have received increasing emphasis nationally and are seen as being very desirable for many reasons. With a rising interest in green chemistry and sustainability, and escalating crude oil prices, private industry now actively recruits individuals with specific training in bioprocessing and biobased materials. SDSU's Bioenergy and Sustainable Technology Graduate Certificate program is designed to serve the needs of these emerging industries and provide post-baccalaureate educational opportunities for industry practitioners who do not require a full graduate degree program. Students develop an interdisciplinary background and can tailor the program of study to specific interests.

The certificate may be suitable for individuals who are placebound in the target industries and need additional knowledge in their disciplines while requiring distance education options. Students pursuing the certificate or taking courses to support their graduate degree must be admitted to the graduate college of one of the consortia institutions. Students may take courses without pursuing the certificate to strengthen their plan of study in conventional graduate degree programs.

Course Delivery Format

The online graduate certificate program in Bioenergy and Sustainable Technology has been developed to support continuing education needs of the workforce in bio-based industries. The consortium offering the certificate is affiliated with AG IDEA and is governed by its structure. The institutions involved in this effort consist of South Dakota State University, Kansas State University, Oklahoma State University, and the University of Arkansas. The program is also intended to benefit traditional graduate programs through additional course availability in specialized disciplines.

Requirements for Bioenergy and Sustainable Technology Certificate

Overview Course Credits: 9

- ABE 551 - Fundamentals of Conversion Credits: 3
- ECON 662 - Bioenergy Economic/Sustainability Credits: 3
- PS 543 - Bioenergy Feedstock Production System Credits: 3

Specialized Courses Credits: 6

Select two specialization courses:

Feedstock

- PS 723 - Hydrologic Modeling Credits: 3
- PS 753 - Soil/Water Quality Bioenergy Feedstock Credits: 3

Conversion

- ABE 543 - Fundamentals of Bioprocessing Credits: 3
- ABE 553 - Biochemical Engineering for Renewable Resources Credits: 3
- ABE 748 - Bioseparations Credits: 3
- ABE 765 - Advanced Biomass Thermochemical Conversion Credits: 3

Sustainability

- ABE 590 - Seminar Credits: 1
- ABE 662 - Life Cycle Assessment Credits: 3
- ABE 632 - Environmental/Ecological Risk Assessment Credits: 3
- CD 603 - Community Natural Resource Management Credits: 3
- ECON 663 - Bio-Energy Feasibility and Commercialization Credits: 3
- ECON 672 - Bioenergy & Resource Economics Credits: 3

Total Credits: 15

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admissions
Distance Education

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Family Financial Planning Certificate

Program Contact/Coordinator

SooHyun Cho
Department of Consumer Sciences
E-mail: soohyun.cho@sdstate.edu

Program Information

The graduate certificate program in Family Financial Planning is designed for students who want graduate coursework that meets the educational requirement to sit for the CFP® Certification Examination but who do not need a Master's degree. Family financial planning is an emerging area with job opportunities in areas related to insurance, real estate, investments, retirement, tax and estate planning. Financial planners are increasingly in demand as Americans seek advisers to help manage their income, assets, and debts.

Accreditation, Certification, and Licensure

The Family Financial Planning graduate program is registered by the CERTIFIED FINANCIAL PLANNER™ Board of Standards. CFP® and CERTIFIED FINANCIAL PLANNER™ are federally registered service marks of the CERTIFIED FINANCIAL PLANNER™ Board of Standards, Inc. They are granted by the CFP® Board to those persons who have fulfilled a comprehensive educational requirement, passed the CFP® Certification Examination, satisfied a work experience requirement and agreed to abide by the CFP® Board code of ethical conduct.

- The graduate certificate in Financial Planning does not guarantee a student will pass the CFP® exam.
- In earning the graduate certificate in Financial Planning through the Great Plains IDEA, students receive the education required to take the exam.
- After completing the necessary educational requirements, students work with the CFP Board on examination, experience and ethics requirements for CFP® certification.

Certified Financial Planner™ professionals have the satisfaction of helping people solve their financial problems and reach their financial goals. The CFP Board website at www.cfp.net has extensive CFP® certification information.

Students admitted to the Great Plains IDEA online degree program are advised to obtain the Guide to CFP® Certification. The guide includes an application for the exam, exam fee information, exam procedures and information on the required work experience.

- Certified Financial Planner Board of Standards Inc. owns the marks CFP®, CERTIFIED FINANCIAL PLANNERTM, and CFP (with flame logo)®, which it awards to individuals who successfully complete initial and ongoing certification requirements.
- Great Plains IDEA institutions do not certify individuals to use the CFP®, CERTIFIED FINANCIAL PLANNERTM and CFP (with flame logo)® certification marks. CFP® Certification is granted only by the Certified Financial Planner Board of Standards Inc. to those persons who, in addition to completing an educational requirement such as this CFP Board-Registered Program, have met its ethics, experience and examination requirements.

Course Delivery Format

The online program has been developed by faculty from the Great Plains Interactive Distance Education Alliance (GP-IDEA). Courses will be entirely Internet based and will be taught by faculty within the Alliance (Iowa State University, Kansas State University, Montana State University, North Dakota State University, Oklahoma State University, South Dakota State University, University of Missouri, and University of Nebraska). Courses are offered fall, spring and summer semesters.

Requirements for Family Financial Planning Certificate

- CA 660 - Investing for Family's Future Credits: 3
- CA 680 - Insurance Planning for Families Credits: 3
- CA 704 - Estate Planning for Families Credits: 3
- CA 725 - Family, Employment Benefits and Retirement Planning Credits: 3
- CA 735 - Personal Income Taxation Credits: 3
- CA 755 - Financial Planning Case Study Credits: 3

Total Credits: 18

Notes

Students without a background in financial planning should take CA 640 - Fundamentals of Family Financial Planning

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admissions
Distance Education

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Financial and Housing Counseling Certificate

Program Contact/Coordinator

SooHyun Cho
Department of Consumer Sciences
E-mail: soohyun.cho@sdstate.edu

Program Information

The program prepares students to apply for the Certified Housing Counselor (CHC) and the Accredited Financial Counselor (AFC) certifications, which are appropriate to meet the needs of military spouses, active duty service members, civilians providing services, and retired military or civilians in the areas of financial and housing counseling.

Certification and Licensure

In collaboration with the Association for Financial Planning and Counseling Education (AFCPE), students successfully completing the Financial & Housing Counseling (FHC) Certificate program will be able to sit for the Accredited Financial Counselor (AFC) examination or the Certified Housing Counselor (CHC) examination.

To become an Accredited Financial Counselor (AFC), candidates must have 1000 hours of experience in admissible financial counseling experience to enroll. To become a Certified Housing Counselor (CHC), candidates must have 1500 hours of admissible housing counseling experience. For additional information on AFC and CHC certification, visit the AFCPE website.

Course Delivery Format

The online program has been developed by faculty from the Great Plains Interactive Distance Education Alliance (GP-IDEA). Courses will be entirely internet based and will be taught by faculty within the Alliance (Iowa State University, Kansas State University, North Dakota State University, Oklahoma State University, South Dakota State University and University of Nebraska). Courses are offered fall, spring and summer semesters.

Core Requirements

- CA 612 - Financial Counseling Credits: 3
- CA 621 - Financial Theory and Research I Credits: 3
- CA 640 - Fundamentals of Family Financial Planning Credits: 3
- CA 715 - Housing and Real Estate in FFP Credits: 3
- Electives: 6 (Select two)
  - CA 595 - Practicum Credits: 3
  - CA 645 - Military Personal Financial Readiness Credits: 3
  - CA 660 - Investing for Family's Future Credits: 3
  - CA 680 - Insurance Planning for Families Credits: 3
  - CA 704 - Estate Planning for Families Credits: 3
  - CA 725 - Family, Employment Benefits and Retirement Planning Credits: 3
  - CA 735 - Personal Income Taxation Credits: 3

Total Credits: 18

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admissions
Distance Education

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Grassland Management Certificate

Program Information

Grasslands represent a fundamental resource of the region that determines the environmental and economic future of the Great Plains states. Many of the managers or advisors on these grasslands have B.S. degrees in natural resources or agriculture and want to further develop their expertise in grassland management through university programs. However, constraints associated with their work schedule and responsibilities limit their ability to pursue conventional on-campus coursework and graduate degrees. The Grassland Management Graduate Certificate Program was developed to address the needs of working professionals as well as other students interested in distance education opportunities. Students will interact with their institutional advisors to develop a plan of study most beneficial to the student. Coursework may be transferred in on a case-by-case basis with the approval of the student's advisor.

Course Delivery Format

This program is delivered fully online through the AG*IDEA Program, an affiliate of the Great Plains IDEA, a national consortium of universities offering programs and courses in agriculture disciplines. AG*IDEA's fully online program provides flexibility, enabling students to balance career advancement with professional, social and financial commitments.

Requirements for Grassland Management Certificate

- Elective Credits: 12
- Complete a minimum of 12 credits from the following courses:
  - RANG 510 - Grassland Monitor & Assessment Credits: 2
  - RANG 520 - Watershed Management Credits: 3
  - RANG 521 - Grassland Fire Ecology Credits: 3
  - RANG 530 - Ecology of Invasive Species Credits: 3
  - RANG 540 - Grassland Plant Identification Credits: 2
  - RANG 710 - Principles of Forage Quality Credits: 3
  - RANG 750 - Grazing Ecology and Management Credits: 3

Total Credits: 12

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admissions
Distance Education

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Health Journalism Certificate

Program Information

The Certificate in Health Journalism is designed for media professionals who seek expertise in communicating with Health Professionals in creating easy-to-understand and effective written text, marketing and social media for the general public.

Course Delivery Format

Program coursework is delivered online.

Requirements for Health Journalism Certificate

- MCOM 742 - Health Campaigns Credits: 3
- MCOM 760 - Social Marketing for Health and Behavioral Change Credits: 3
- MCOM 785 - Health Journalism Credits: 3
- MCOM 794 - Internship *(Optional, depending on professional experience in the field)* Credits: 3

Total Credits: 9-12

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admissions

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Management Foundations Certificate

Program Information

The certificate in Management Foundations is designed with flexibility to the meet the working professionals who want additional professional development, but also has the flexibility to meet the needs of students who want to supplement their graduate degree with additional credentials.

Course Delivery Format

Program coursework is delivered on campus.

Requirements for Management Foundations Certificate

- OM/GE 569 - Project Management Credits: 3
- OM 660 - Operations Management Credits: 3
- OM 670 - Research Methods in Management Credits: 3
- OM 650 - Manufacturing Systems Management Credits: 3
  or OM/ME 767 - Decision Theory Credits: 3
  or ME 760 - Quality Control Credits: 3

Total Credits: 12

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admissions

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Merchandising Certificate

Program Information

The certificate provides an introduction to merchandising, with emphasis on current trends in the United States factors that will distinguish graduates among their peers. Graduates with a certificate are prepared to work in product development, promotions, and retail management in this ever-expanding industry.

Course Delivery Format

The online program has been developed by faculty from the Great Plains Interactive Distance Education Alliance (GP-IDEA). Courses will be entirely Internet based and will be taught by faculty within the Alliance (Kansas State University, North Dakota State University, Oklahoma State University, South Dakota State University, and University of Nebraska). Courses are offered fall, spring and summer semesters.

Requirements for Merchandising Certificate

- MRCH 510 - Consumer Behavior in Merchandising Credits: 3
- MRCH 520 - Professional Advancement in Merchandising Credits: 3
- MRCH 530 - Product Design, Development, and Evaluation Credits: 3
  or MRCH 540 - Promotional Strategies in Merchandising Credits: 3
- MRCH 550 - Retail Theory and Current Practice Credits: 3

Total Credits: 12

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admissions
Distance Education

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Native Communities and Economic Development Certificate

Program Information

This certificate is designed for graduate students interested in expanding their skills and understanding in regard to Native community and economic development and an interest in working with native communities. Today students taking these courses are often employed or seeking employment in native-serving organizations and agencies who have extended their programming to Native-majority communities and neighborhoods.

Course Delivery Format

Courses are offered online through the Sociology and Rural Studies Department at SDSU. Students enrolled in Great Plains Interactive Distance Education Alliance programs (www.gpidea.org) may sign up for courses through the Community Development Program http://www.sdstate.edu/cee/distance/graduate-degrees/rur-soc.cfm.

Requirements for Native Communities and Economic Development Certificate

- CD 613 - Introduction to Native Community Development Credits: 3
- CD 624 - Building Native Community in Economic Capacity Credits: 3
- CD 634 - Native American Natural Resource Management Credits: 3
- Electives: 3

Total Credits: 12

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admissions
Distance Education

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Post Master Clinical Nurse Leadership Certificate

Program Information

The Post Master Clinical Nurse leader certificate is focused on integrating the vital work of Clinical Nurse Leaders into every hospital. This certificate program is designed for nurses who currently hold a Master's Degree in Nursing Education or Nursing Administration or Clinical Nurse Specialist.

Courses for the certificate are designed to meet the national AACN requirements for the student to become a certified Clinical Nurse Leader and assist students to meet the following CNL competencies: Critical thinking; Communication; Health Assessment; Nursing Technology and Resource Management; Health Promotion, Risk Reduction, and Disease Prevention; Illness and Disease Management; Information and Health Care Technologies; Ethics; Human Diversity; Global Health Care; Health Care Systems and Policy; Provider and Manager of Care; Designer/Manager/Coordinator of Care, and; Member of a Profession.

Accreditation, Certification, and Licensure

Accreditation

The post-graduate APRN certificate at South Dakota State University is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791.

Requirements for Post Master Clinical Nurse Leadership Certificate

- NURS 645 - CNL I: Improvement Science: A Microsystem Approach Credits: 2-5 (5 credits required)
- NURS 646 - CNL II: Clinical Immersion and Capstone Project Credits: 1-6 (6 credits required)
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 860 - Health Operations and Financial Management for Nurse Managers Credits: 3

Total Credits: 17

Notes

- The Post-Master's Clinical Nurse Leader Certification program of study is individualized. Interested applicants will contact the graduate nursing department to discuss options.
- The following graduate level courses are required pre-requisites for admission to the Certificate Program: Advanced Physical Assessment (Lifespan), Advanced Pathophysiology (Lifespan), Advanced Pharmacology /Pharmacotherapeutics (Lifespan). If these were not completed within the previous five years, students may be required to repeat them.
- For additional information, refer to the Graduate Nursing Department webpage.

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admissions

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the Graduate Nursing Department. Items 3-6 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Healthcare Providers
4. Professional liability insurance
5. Influenza vaccine
6. TB test

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Post Master Family Nurse Practitioner Certificate

Program Information

Nurses who have a master's in nursing but are not nurse practitioners are eligible to apply. Graduates of this program are prepared to deliver evidence-based direct patient care at an advanced practice level to individuals across the lifespan in primary care settings. Graduates are eligible to write certification examinations in Family Nurse Practitioner from either the American Nurses Credentialing Center (ANCC) or the American Academy of Nurse Practitioners Certification Program (AANPCP).

The program has many online courses, and some where intermittent in-person attendance is required. Students who have completed graduate nursing courses in pharmacology, pathophysiology and advanced health assessment in the last five years may be able to use those course towards certificate requirements. Students complete a minimum of 1000 hours of clinical practice preceptorship in a variety of settings, including mandatory practice in rural settings.

Requirements for Post Master Family Nurse Practitioner Certificate

- NURS 623 - Pathophysiology Across the Lifespan - Application to Advanced Practice Nursing Credits: 4
- NURS 631 - Advanced Assessment Across the Lifespan Credits: 4
- NURS 631L - Advanced Assessment - Lifespan Clinical Laboratory Credits: 0
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 765 - Family Nurse Practitioner Practicum I Credits: 7 (3, 4)
- NURS 771 - Family Nurse Practitioner Practicum II Credits: 7
- NURS 776 - Family Nurse Practitioner III - Small Group Instruction Credits: 3
- NURS 777 - Family Nurse Practitioner: Practicum III Credits: 3-9 (9 credits required)
- PHA 645 - Pharmacotherapeutics Across the Lifespan: Application to Advanced Practice Credits: 2-4 (4 credits required)

Total Credits: 41

Notes

- For additional information, refer to the Graduate Nursing Department webpage.

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admissions

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the Graduate Nursing Department. Items 3-7 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Healthcare Providers
4. ACLS certification
5. Professional liability insurance
6. Influenza vaccine
7. TB test

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Post Master Nursing Educator Certificate

Program Information

The Post Master Nursing Educator certificate program prepares graduates to utilize theories of teaching and learning in a variety of settings with emphasis on nursing education. Graduates demonstrate the ability to plan, implement, and evaluate nursing education programs. Individuals who have earned a Master's in Nursing degree from SDSU or any other CCNE or NLNAC accredited nursing program are eligible to apply for the Nurse Educator Post-Master's Certificate program. Additionally, graduates may be eligible to earn National Certification as a Certified Nurse Educator.*

Accreditation, Certification, and Licensure

Accreditation

The post-graduate APRN certificate at South Dakota State University is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791.

Requirements for Post Master Nursing Educator Certificate

- NURS 631 - Advanced Assessment Across the Lifespan and Lab Credits: 4
- NURS 675 - Cultural Competence in Health Care Credits: 3
- NURS 710 - Curriculum Development in Nursing Credits: 3
- NURS 720 - Technology-Based Instruction for Nurse Educators Credits: 3
- NURS 778 - Nurse Educator Practicum Credits: 5
- NURS 795 - Practicum in Advanced Health Concepts for Nurse Educators Credits: 3
- PHA 645 - Pharmacotherapeutics Across the Lifespan: Application to Advanced Practice Credits: 2

Total Credits: 23

Notes

*Individuals must meet eligibility requirements before they can take the CNE examination. An active registered nurse license is necessary. Students must also have a master's or doctoral degree in nursing and full-time experience in a nurse faculty role within the past 5 years. If the college degree emphasized non nursing instruction, individuals will need 2 years of experience in a nurse faculty role. Four years of experience is required if the graduate nursing degree did not emphasize on education.

** A graduate level Pathophysiology (Lifespan) course is a required prerequisite course for admission to the Certificate Program.

For additional information, refer to the Graduate Nursing Department webpage.

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admissions
College of Nursing

General Requirements

Graduate students must consult with the Graduate Nursing Student Services Advisor prior to registration for graduate work. Registration is completed by the Graduate Nursing Department. Items 3-6 in the list below are required prior to initial registration and all subsequent registrations.

1. FBI background check
2. Drug screening
3. Basic Life Support for Healthcare Providers
4. Professional liability insurance
5. Influenza vaccine
6. TB test

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Systems Management Certificate

Program Information

Offered through the College of Engineering, the certificate in Systems Management has the flexibility to be used for a variety of students, including for corporate professional development. The Certificate in Systems Management is targeted at working professionals in a variety of managerial positions.

Course Delivery Format

Program coursework is delivered on campus.

Requirements for Systems Management Certificate

- CSC 740 - Management Information Systems Credits: 3
- GE 603 - Designing the Work Place for Production Credits: 3
- GE 650 - Manufacturing Systems Management Credits: 3
- ME 760 - Quality Control Credits: 3

Total Credits: 12

Additional Admission Requirements

Please refer to the following for additional information

Graduate School Admissions

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Transdisciplinary Childhood Obesity Prevention Certificate

Program Information

The Transdisciplinary Childhood Obesity Prevention (TOP) graduate certificate program offered through South Dakota State University (SDSU) and the University of Nebraska Lincoln (UNL) is a graduate certificate program with experiential learning opportunities addressing childhood obesity. This program is unique and provides expertise in a job market that is desperate for trained health professionals in the prevention of childhood obesity. The program will expose students to a variety of disciplines involved in the prevention of childhood obesity and prepare students to conduct transdisciplinary research on the behavioral, social, biological, and environmental causes of childhood obesity. Students will develop skills required to implement evidence based transdisciplinary approaches to prevention. Nutrition, Exercise Science, Health Promotion, Extension, Early Childhood Education, Nursing, and Statistics faculty are collaborating to implement the TOP graduate certificate program.

Students will obtain a TOP program certificate upon completion of the requirements for both the certificate and the Masters or Doctoral degree from their respective college.

Course Delivery Format

The TOP program consists of lecture, laboratory, and experiential learning projects.

Student Support and Engagement Opportunities

The College of Education and Human Sciences and the Department of Health and Nutritional Sciences offers a limited number of qualified graduate student applicants scholarships as well as funded assistantships. Additionally, the department offers a number of opportunities for students to be involved. The student organizations provide opportunities for professional development and social interaction through numerous events on campus as well as service learning projects. Travel opportunities are available, including regional and national conferences.

Program Support

The SDSU/UNL TOP graduate program is supported by the National Research Initiative Grant no. 2011-67002-30202 from the Food and Agriculture Division of Nutrition.

Requirements for Transdisciplinary Childhood Obesity Prevention Certificate

- NUTR 750 - Trandisciplinary Childhood Obesity Prevention I Credits: 3
- NUTR 751 - Trandisciplinary Childhood Obesity Prevention II Credits: 3
- NUTR 795 - Practicum Credits: 1
- Elective Credits: 2-3
  - NUTR 708 - Evidence Based Analysis Credits: 3
  - NUTR 782 - Epidemiology Credits: 3
  - HSC 631 - Biostatistics I Credits: 3
  - HSC 520 - K-12 Methods of Health Instruction Credits: 2
  - SOC 711 - Qualitative Research Methods Credits: 3
  - CHRD 723 - Counseling the Family Credits: 3
  - ECE 711 - Child Development Theory and Application Credits: 3
  - EDAD 730 - School Finance Credits: 2
  - EDFN 725 - Education in a Pluralistic Society Credits: 3
  - FCSE 761 - Advanced Methods and Assessment in Family & Consumer Sciences Education Credits: 3
  - HDFS 711 - Child Development Theory and Application Credits: 3
  - HDFS 630 - Lifespan Development Credits: 3
  - HDFS 742 - Family Theory and Research Credits: 3
  - CD 613 - Introduction to Native Community Development Credits: 3

This certificate will be granted when the individuals meet the requirements for their respective graduate education majors (PhD and Masters) and complete the course requirements listed above.

Total Credits: 9-10

Admission Requirements

Please refer to the following for additional information.

Admission to the TOP program requires completion of the TOP application.
TOP program webpage
Graduate School Admissions

Additional Information

Students enrolled in SDSU certificate programs are not eligible for federal student financial aid. The non-federal alternative loan programs may be used for students meeting the lender criteria as found at www.sdstate.edu (search alternative loans). For further information, please contact the SDSU financial aid office at 605-688-4695 or finaid@sdstate.edu.

Coursework Only

History, Political Science, Philosophy, and Religion

Program Information

The Department of History, Political Science, Philosophy, and Religion offers dual listed, topics, independent study courses on an as needed basis. Occasional courses are offered for teachers needing in-service or continuing education credit. Graduate degrees are not available in these disciplines, but students may use these courses in an approved plan of study.

Modern Languages

Program Information

The Department of Modern Languages and Global Studies provides proficiency-oriented instruction in second languages, literatures, civilizations and cultures, as well as a variety of courses on Global Studies, in many cases in conjunction with other departments on campus. The Department offers bachelor degrees in French Studies, German, Global Studies and Spanish, but it does not offer advanced degrees. However, the Department does provide graduate level courses in all its major areas as needed.

Music

Program Information

The South Dakota State University Music Department is shaped by the university's Land Grant status and the spirit of the Morrill Act. Within that context, it is the mission of the Music Department to musically serve the university, state, and region through teaching/advising, research/creative activity, and outreach/general service. The Music Department does not offer an graduate level degree in music. However, students may enroll in graduate courses provided by the department.

Physics

Program Information

The Department of Physics does not offer a graduate degree program. However, the Physics program's coursework supports graduate degrees in a variety of departments in the science and engineering fields.

Psychology

Program Information

The psychology department provides a robust and challenging undergraduate curriculum. A graduate degree is not available, but students may use departmental courses in an approved plan of study.

Studio Arts

Program Information

The School of Design offers courses in animation, art education, art history, ceramics, computer graphics, drawing, film, interactive design, graphic design, painting, printmaking, sculpture and web design. The School does not offer a graduate level degree. However, students may enroll in graduate courses provided by the School.

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Curriculum Entries

Course Descriptions

BIOL[1] 101[2] Biology Survey I[3] (COM)[4] . . . . . 3[5]
Study of the nature, diversity, and classification of life; ecology; cells and cell cycles, Mendelian and modern Genetics. Intended for those not majoring in Biology. Duplicate credit for 101 and 151 not allowed.[6]

1. Course prefix.
2. Course number. The first digit of the three-digit number indicates the level of instruction, as follows:

0 Pre-college, non-degree, remedial
1 Freshman
2 Sophomore
3 Junior
4 Senior

3. Name of the course.
4. Common Course within the Regental System.
5. Number of credits assigned to the course. One credit is usually interpreted as one hour of class work per week or as two to four hours of lab work per week.
6. 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 102." This means that MATH 102 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
001-099 Pre-college, remedial skills, special improvement (non-degree credit)
100-199 Freshman level
200-299 Sophomore level
300-399 Junior level
400-499 Senior level (may be dual listed with 500 level graduate course)

Graduate Courses
500-599 Entry level graduate (may be dual listed with a 400 level undergraduate course and may include limited enrollment by undergraduates)
600-699 Graduate level (undergraduate enrollment only by exception) Also 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 Term); The course or courses are not required for the Bachelor's degree.
700-799 Graduate level (graduate students only)
800-899 Doctoral and post-doctoral level (doctoral and post-doctoral students only)

Experimental Courses
A course at the 100-600 levels ending in 99 is experimental and may be offered no more than twice within two academic years before it must be submitted as a New Course Request.

Course Prefixes

A&S, Arts and Sciences
ABE, Agricultural and Biosystems Engineering
ABME, Agricultural, Biosystems and Mechanical Engineering
ABS, Agriculture and Biological Sciences
ACCT, Accounting
ADV, Advertising
AEWR, Atmospheric, Environmental, and Water Resources
AGEC, Agricultural and Resource Economics
AGED, Agricultural Education
AHED, Adult Higher Education
AIR, Aerospace Studies
AIS, American Indian Studies
AM, Apparel Merchandising
ANTH, Anthropology
ARAB, Arabic
ARCH, Architecture
ART, Art
ARTD, Art Design
ARTE, Art Education
ARTH, Art History
AS, Animal Science
AST, Agricultural Systems Technology
AT, Athletic Training
AVIA, Aviation
BADM, Business Administration
BIOL, Biology
BIOS, Biological Sciences
BOT, Botany
CA, Consumer Affairs
CD, Community Development
CDFR, Child Development and Family Relations
CE, Civil Engineering
CEE, Civil and Environmental Engineering
CEX, Center of Excellence
CHEM, Chemistry
CHIN, Chinese
CHRD, Counseling and Human Resource Development
CJUS, Criminal Justice
CM, Construction Management
COM, Construction and Operations Management
CS, Consumer Science
CSC, Computer Science
CSS, Computational Science and Statistics
CTE, Career and Technical Education
DANC, Dance
DS, Dairy Science
DSGN, Design
ECE, Early Childhood Education
ECON, Economics
EDAD, Educational Administration
EDER, Education Evaluation and Research
EDFN, Educational Foundations
EE, Electrical Engineering
EES, Ecology and Environmental Science
EET, Electronics Engineering Technology
EFA, Events and Facilities Administration
EHS, Education and Human Sciences
ELED, Elementary Education
EM, Engineering Mechanics
ENGL, English
ENTR, Entrepreneurial Studies
EPSY, Educational Psychology
ET, Electronics Technology
EURS, European Studies
EXCH, Exchange Programs
EXPL, Experiential Learning
FCS, Family and Consumer Sciences
FCSE, Family and Consumer Sciences Education
FREN, French
FS, Food Science
GDES, Graphic Design
GE, General Engineering
GEOG, Geography
GER, German
GERO, Gerontology
GLST, Global Studies
GS, General Studies
GSE, Geospatial Science and Engineering
GSR, Graduate School and Research
HDFS, Human Development and Family Studies
HIST, History
HLTH, Health
HMGT, Hospitality Management
HNS, Health and Nutritional Sciences
HO, Horticulture
HON, Honors
HPPR, History, Political Science, Philosophy, and Religion
HSC, Health Science
ID, Interior Design
IDL, Interdisciplinary Studies
INFO, Informatics
LA, Landscape Design
LAKL, Lakota
LAS, Latin American Studies
LEAD, Leadership
LING, Linguistics
LMNO, Leadership and Management of Nonprofit Organizations
MATH, Mathematics
MCOM, Mass Communication
ME, Mechanical Engineering
MFL, Modern Foreign Languages
MGMT, Management
MICR, Microbiology
MLS, Medical and Laboratory Science
MNET, Manufacturing Engineering Technology
MRCH, Merchandising
MSL, Military Science Leadership
MUAP, Music Applied
MUEN, Music Ensemble
MUS, Music
NE, Nuclear Engineering

NFS, Nutrition and Food Science
NRM, Natural Resources Management
NURS, Nursing
NUTR, Nutrition and Dietetics
OM, Operations Management
PE, Physical Education
PHA, Pharmacy
PHGY, Physiology
PHIL, Philosophy
PHTH, Physical Therapy
PHYS, Physics
PLAN, Planning
POLS, Political Science
PS, Plant Science
PSYC, Psychology
PUBH, Public Health
RANG, Range Science
READ, Reading
RECR, Recreation
REL, Religion
RUSS, Russian
SEED, Secondary Education
SOC, Sociology
SPAN, Spanish
SPCM, Speech Communication
STAT, Statistics
THEA, Theatre
UC, University College
VET, Veterinary Science
WEL, Wellness
WL, Wildlife and Fisheries Sciences
WMST, Women's Studies

Course Types/Instructional Methods

Clinical Experience
Students participate in client and client related services that are an integral part of an educational program. Clinical instruction occurs in or outside an institutional setting and involves work with clients who receive professional services from students serving under direct or indirect supervision by a faculty member and/or an approved member of the agency staff. Instructional Method: G.

Clinical Laboratory
The course takes place in a clinical laboratory setting. This includes practice labs, hospitals, or other agencies. Students apply methods and principles of a clinical discipline. Course size varies depending upon accreditation standards, clinical space limitations, level of offering, availability of client experiences, the nature of the clients, and equipment limitations. Faculty members control the assignments and maintain direct and close supervision of the students. Instructional Method: C.

Competency-Based/Self-Paced Study
Students proceed through a course of study at their own rate, or as directed often assisted by computer or other technology. Mastery is based on achieving competencies and benchmarks, rather than attaining a schedule of assignments. An instructor monitors student progress. May be supplemented by individual or group tutorial sessions. Includes self-paced Internet courses. Instructional Method: B.

Design/Research
Courses focusing on design research and do not entail a dissertation or thesis. The plan of study is negotiated by the faculty member and the students. Contact between the two may be extensive and intensive. May be used as a research/design requirement for a degree. Research/Research Problems are included in this course type. Instructional Method: J.

Discussion/Recitation
A course, or a section of a larger course, designed for group discussion or student recitation. Instructional Method: D.

Ensemble
Large group musical performance courses, meaning group of more than 10 performers. Includes: orchestra, bands, and choruses. Instructional Method: H.

Graduate Thesis
A formal treatise presenting the results of study submitted in partial fulfillment of the requirements of an advanced degree. The process requires intensive interaction between the candidate and the thesis director. Masters degrees, Specialist degrees, and Doctorates are included in this course type. Instructional Method: T.

Students complete individualized plans of study. The faculty member and students negotiate the details of the study plans. Meeting depending upon the requirements of the topic. This course type is not for completion of a thesis or dissertation or for meeting the research requirement for a degree. Directed Studies, Special Projects, Mentored, and Special Problems are examples of this course type. Instructional Method: I.

Internship/Practicum
Applied, monitored and supervised, field-based learning experience for which the student may or may not be paid. Students gain practical experience; they follow a negotiated and/or directed plan of study. Includes field work/ experience, supervision courses, student teaching, and cooperative education. Instructional Method: S.

Laboratory
Courses meeting in a defined physical setting (i.e. laboratory) for the purpose of the application of methods and principles of a discipline. Instructional Method: L.

Lecture
Faculty members give oral presentations of facts, principles, context, or interpretation. Instruction takes place in a traditional classroom setting. Instructional Method: R.

Modified Physical Education Activity
A course type limited to accommodate students with physical disabilities where numbers are very limited. Instructional Method: O.

Physical Education Activity
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. Instructional Method: P.

Private Instruction
The courses involve individual instruction. One-to-one demonstration, performance critique, music, fine arts or performing arts, or flight instruction are examples. Instructional Method: M.

Seminar
A highly focused, and topical course. The format includes student presentations and discussions of reports based on literature, practices, problems, or research. Seminars may be conducted over electronic media such as Internet and are at the upper division or graduate levels. Instructional Method: E.

A course devoted to a particular issue in a specified field. Course content is not wholly included in the regular curriculum. Guest artists or experts may serve as instructors.

Studio Course/Small Group Instruction/Small Ensemble
Course involves the demonstration and application of design and theory in a defined physical setting (i.e., studio). The Studio Course is characterized by significant oneon- one student/instructor interaction. Students explore and experiment under the guidance of an instructor. Instructional Method: A.

Thesis/Research Sustaining
This is a zero credit hour course type used to track students who are not currently working with faculty on thesis or research activities. Universities may require students to register under this course type to remain active degree candidates. Instructional Method: U.

Tracking Courses
This course type is used to track students for zero credit hours. Instructional Method: Q.

Undergraduate Thesis
A formal treatise presenting the results of study submitted in partial fulfillment of the requirements for an undergraduate degree. The process requires extensive and intensive one-on-one interaction between the candidate and professor with more limited interaction between and among the candidate and the other members of the committee. Instructional Method: T.

Workshop
Special sessions in specific topic areas. Approximately 45 hours of work is required for each hour of credit. Workshops may vary in time range. They may include lectures, conferences, committee work, and group activity. Instructional Method: W.

Other Important Definitions

Advanced Writing
A BOR Requirement, courses chosen by departments to meet this requirement are tagged with (AW).

Common Course Numbering
The South Dakota Regental institutions utilize common course numbering, meaning that a course designated as a common course (COM) is automatically transferable between institutions. Any courses on the following pages without the COM designation are considered to be unique to SDSU.

Cross-listed Courses
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.

Dual Numbered Courses
A multiple-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 dual-numbered course may also be cross-listed.

Globalization
A BOR Requirement, courses chosen by departments to meet this requirement are tagged with (G).

x9x Common Course Descriptions

The following middle digit 9 course numbering scheme is used in the South Dakota public university system. These courses may have multiple sections. A section's title may or may not reflect the material covered in that section. See the academic department for section information, e.g., description, prerequisites such as instructor or department consent, GPA required, junior or senior standing, etc.

x90	Seminar	x95	Practicum	788	Master's Research Problems/Projects
x91	Independent Study	x96	Field Experience	789	Master's Research Problems/Projects Sustaining
x92	Topics	x97	Cooperative Education	798/898S/898D	Thesis/Dissertation
x93	Workshop	498	Undergraduate Research/Scholarship	799/899S/899D	Thesis Sustaining/Dissertation Sustaining
x94	Internship				

x90 Seminar
A highly focused, and topical course. The format includes student presentations and discussions of reports based on literature, practices, problems, and research. Seminars may be conducted over electronic media such as Internet and are at the upper division or graduate levels. Enrollment is generally limited to fewer than 20 students. Instructional method: E.

x91 Independent Study
Includes Directed Study, Problems, Readings, Directed Readings, Special Problems, and Special Projects. Students complete individualized plans of study which include significant one-on-one student-teacher involvement. The faculty member and students negotiate the details of the study plans. Enrollments are usually 10 or fewer students. Meeting depending upon the requirements of the topic. Instructional method: I.

x92 Topics
Includes Current Topics, Advanced Topics and Special Topics. A course devoted to a particular issue in a specified field. Course content is not wholly included in the regular curriculum. Guest artists or experts may serve as instructors. Enrollments are usually of 10 or fewer students with significant one-on-one student/teacher involvement.

x93 Workshop
Special, intense sessions in specific topic areas. Approximately 45 hours of work is required for each hour of credit. Workshops may vary in time range but typically use a compressed time period for delivery. They may include lectures, conferences, committee work, and group activity. Instructional method: W.

x94 Internship
Applied, monitored and supervised, field-based learning experience for which the student may or may not be paid. Students gain practical experience; they follow a negotiated and or directed plan of study. A higher level of supervision is provided by the instructor in these courses than is the case with Field Experience courses. Instructional method: S.

x95 Practicum
Applied, monitored and supervised, field-based learning experience for which the student may or may not be paid. Students gain practical experience; they follow a negotiated and or directed plan of study. A higher level of supervision is provided by the instructor in these courses than is the case with Field Experience courses. Instructional method: S.

x96 Field Experience
Applied, monitored and supervised, field-based learning experience for which the student may or may not be paid. Students gain practical experience; they follow a negotiated and or directed plan of study established between the student, instructor and field experience supervisor. Due to the presence of a field experience supervisor, a lower level of supervision is provided by the instructor in these courses than is the case with an Internship or Practicum course. Instructional method: S.

x97 Cooperative Education
Applied, monitored and supervised, field-based learning experience for which the student may or may not be paid. Students gain practical experience; they follow a negotiated and or directed plan of study established between the student, instructor and field experience supervisor. Due to the presence of a field experience supervisor, a lower level of supervision is provided by the instructor in these courses than is the case with an Internship or Practicum course. Instructional method: S.

498 Undergraduate Research/Scholarship
Includes Senior Project, and Capstone Experience. Independent research problems/projects or scholarship activities. The plan of study is negotiated by the faculty member and the student. Contact between the two may be extensive and intensive. Does not include research courses which are theoretical. Instructional method: J.

788 Master's Research Problems/Projects
Independent research problems/projects that lead to a research or design paper but not to a thesis. The plan of study is negotiated by the faculty member and the candidate. Contact between the two may be extensive and intensive. Does not include research courses which are theoretical. Instructional Method: J.

789 Master's Research Problems/Projects Sustaining
This is a zero credit hour instructional method type used to track students who are not currently working with faculty on thesis or doctoral activities. Universities may require students to register under this instructional method type to remain active degree candidates. Instructional Method: U.

798/ 898S/ 898D* Thesis/Dissertation
A formal treatise presenting the results of study submitted in partial fulfillment of the requirements for the applicable degree. The process requires extensive and intensive one-on-one interaction between the candidate and professor with more limited interaction between and among the candidate and other members of the committee. Instructional Method: T.

Course Schedules

Search for class sections in one of three ways:

- Course Schedule - including finals schedule (http://www.sdstate.edu/campus/records/class-schedules.cfm)
- WebAdvisor Schedule (http://webadvisor.sdstate.edu/)
- SDSU Schedule of Classes (http://sdsuadvisor.sdstate.edu/schedule/)

Contact Information:
Registrar's Office
Enrollment Services Center (SESC)
PO Box 511A
605-688-6195
Fax: 605-688-6384
E-mail: sdsu.registrar@sdstate.edu

Course Descriptions

A&S (Arts and Sciences)

A&S 582 - Travel Studies Credits: 1-5
This travel study course is designed to provide extra-mural educational experiences, as approved by and under the direction of a faculty member, and may be in cooperation with faculty and administrators of other institutions. Students will participate in hands-on activities and design educational activities for presentation at selected locations. Includes pre-travel orientation, post-travel self-evaluation, and a written report.

ABE (Agricultural and Biosystems Engineering)

ABE 533L - Advanced Irrigation Engineering Laboratory Credits: 0

ABE 543 - Fundamentals of Bioprocessing Credits: 3
This course is designed for students who want a clear understanding of Bioprocessing principles as applied to the emerging bio-based industry. This course covers the fundamentals of mass and energy balances, fluid dynamics, heat and mass transfer, as applied to Bioprocessing. The microbial growth, kinetics and fermenter operation as applicable to Bioprocessing will be covered in this course. Industrial Bioprocessing case studies that involve the integration of the course contents will be discussed. Prerequisites: MATH 123, CHEM 108, PHYS 211

ABE 544 - Unit Operations of Biological Materials Processing Credits: 4
Transport processes of heat and mass are applied to the following unit operations: evaporation, drying gas liquid separation processes (humidification cooling towers), vapor-liquid separation processes (distillation), soil-liquid separation processes (leaching), membrane separations (ultrafiltration, reserve osmosis), mechanical separation processes, extrusion. Corequisites: ABE 544L. Prerequisites: Senior standing or instructor consent.

ABE 544L - Unit Operations of Biological Materials Processing Laboratory Credits: 0

ABE 551 - Fundamentals of Conversion Credits: 3
This web-based class is an overview of the technology involved in the conversion of biomass to energy; sustainability issued associated with this technology will also be covered. An overview of biomass structure and chemical composition will be presented. Biochemical and thermochemical conversion platforms will be covered. Important issues, such as energy crop production related to water consumption and soil conservation will be addressed. Topics include: biomass chemistry, logistics, and resources; biological processes; and thermochemical processes. Prerequisites: MATH 103; ENGL 101; CHEM 112 or BIOL 150 or PHYS 111.

ABE 553 - Biochemical Engineering for Renewable Resources Credits: 3
The analysis and design of biochemical processing systems with emphasis on fermentation kinetics, continuous fermentations, aeration, agitation, scale up, sterilization, and control. Notes: Suggested prerequisite chemical kinetics and reactor design course

ABE 555 - Principles Biological Separation Processing Credits: 3
Biological separation principle and process development for isolation of value added products from renewable agricultural based materials. The mass and heat transfer as well as engineering scale up will be applied to chromatography separation (gel filtration, ion exchange, metal affinity, hydrophobic interaction, and bio-affinity), membrane separation (Micro-filtration, ultra-filtration, and extraction, and solvent extraction). Hands-on laboratory experiments will be an integral part of this course. Students will be expected to complete comprehensive laboratory reports which include scale up computations. Corequisites: ABE 555L.

ABE 555L - Principles of Biological Separation Processes Laboratory Credits: 0
Corequisites: ABE 555.

ABE 590 – Seminar Credits: 1
ABE 592 – Topics Credits: 1-3

ABE 632 - Environmental/Ecological Risk Assessment Credits: 3
This course will examine the process and methodologies associated with human environmental and ecological risk assessments. The participants will apply the methods learned in the course to a project to gain experience in defining and quantifying uncertainty associated with human perturbation, management and restoration of environmental and ecological processes.

ABE 662 - Life Cycle Assessment Credits: 3
This course will examine the process and methodologies associated with life cycle analysis. The participants will apply the methods developed in the course to a project to gain experience in defining and quantifying uncertainty associated with human perturbation, management and utilization of biofuels and other complex processes.

ABE 732 - Advanced Hydrology in Agriculture Credits: 2
Small watershed hydrology principles. Unit hydrograph theory. Infiltration and evapotranspiration processes. Small watershed surface runoff simulation. Soil erosion principles. Pre-requisite: instructor consent.

ABE 733 - Ground Water Engineering in Agriculture Credits: 3
Saturated and unsaturated ground water flow theory. Steady and transient well hydraulics. Aquifer groundwater flow simulation. Infiltration models. Vadose zone simulation. Groundwater recharge. Prerequisites: Instructor consent.

ABE 734 - Advanced Irrigation Engineering Credits: 3
Basic soil-water-crop relationships. Theory and design of pumping plants, surface, sprinkler, and drip irrigation systems. Corequisites: ABE 734L. Prerequisites: ABE 434

ABE 734L - Advanced Irrigation Engineering Lab Credits: 0
Laboratory to accompany ABE 734. Corequisites: ABE 734.

ABE 738 - Computer Models in Water Resources Management Credits: 3
This course offers students in agricultural, biosystems, and environmental engineering and related fields an understanding of hydrological modeling and associated skills. Computer models currently utilized in industry and government agencies for decision support will be studied and used to enhance the

understanding of hydrological processes. Hands-on experiences will be organized with local case studies for analysis and practice-oriented learning using software tools.

ABE 748 – Bioseparations Credits: 3
Study of separations important in food and biochemical engineering such as leaching, extraction, expression, absorption, ion exchange, filtration, centrifugation, membrane separation, and chromatographic separations. Prerequisites: CBE 218, ABE 444 or ABE 544.

ABE 752 - Theoretical Micro-Climatology Credits: 2
Derivation and application of physical laws to air layer near the ground occupied by plants and animals. Instruments used to take measurements in layer near ground. Prerequisites: MATH 125 and PHYS 211.

ABE 754 - Advanced Unit Operations of Food/Biomaterials Processing Credits: 3
Advanced study of engineering principles as they apply to unit operations for food preservation and processing, including effect of heat and time on the lethality of undesirable food microorganisms, heat transfer with foods and containers and its effect on food safety, freezing and refrigeration technology, high temperature short time extrusion processing, and aseptic processing. Corequisites: ABE 754L.

ABE 754L - Advanced Unit Operations of Food/Biomaterials Processing Laboratory Credits: 0
Corequisites: ABE 754.

ABE 763 – Instrumentation Credits: 3
Principles of transducers, amplifiers and terminating devices in measurement systems with emphasis on transducers and systems performance. Techniques and methods for use in engineering and scientific measurement. Corequisites: ABE 763L. Prerequisites: PHYS 213 and MATH 225.

ABE 763L - Instrumentation Laboratory Credits: 0
Corequisites: ABE 763.

ABE 765 - Advanced Biomass Thermochemical Conversion Credits: 3
Advanced study, evaluation, and application of thermochemical conversion pathways in biofuel production. Specific topics include biomass gasification, pyrolysis, liquefaction, and heterogeneous catalysis. Prerequisites: ME 314 and ABE 444.

ABE 771 - Graduate Seminar Credits: 1
Discussion and reports of current topics and investigations in Agricultural and Biosystems Engineering. Notes: Limit of 2 credits

ABE 788 - Master's Research Problems/Projects Credits: 1-2
ABE 791 - Independent Study Credits: 1-3
ABE 792 – Topics Credits: 1-3
ABE 792L - Special Topics Laboratory Credits: 0
ABE 798 – Thesis Credits: 1-7
ABE 898D - Dissertation – PhD Credits: 1-12

ABME (Agricultural, Biosystems and Mechanical Engineering)

ABME 790 – Seminar Credits: 1
ABME 792 – Topics Credits: 3
ABME 898D – Dissertation Credits: 1-12

ACCT (Accounting)

ACCT 592 – Topics Credits: 1-4

ADV (Advertising)

ADV 676 - International and Ethnic Advertising Credits: 3
This course develops an understanding of international and ethnic advertising and marketing. Students gain experience in marketing decisions that reflect an understanding of intercultural and international markets and explore the social and ethical issues in such marketing.

ADV 692 – Topics Credits: 1-3

AGEC (Agricultural Economics)

AGEC 521 - Farming and Food Systems Economics Credits: 3
Economic concepts and methods for analyzing farming system and food system alternatives, investments, and issues. Includes economic feasibility analysis methods for assessing potential farm/ranch, value-added, and other food enterprises. Economic structure and organization of food systems in US and other parts of the world are examined. Prerequisites: Senior standing, AGEC 271 or ECON 201.

AGEC 530 - Agribusiness Marketing and Prices Credits: 3
Economic theory and quantitative techniques used in analysis of procurement and sales, construction of economic models, statistical estimates of supply and demand, and price forecasting. Prerequisites: BADM 370.

AGEC 571 - Advanced Farm and Ranch Management Credits: 3
Leasing arrangements, capital investment, computerized accounting and budgeting. Linear programming as a tool for planning and organizing the farm business. Prerequisites: Senior standing, AGEC 271, ECON 301, or instructor consent.

AGEC 591 - Independent Study Credits: 1-3
AGEC 592 – Topics Credits: 1-4
AGEC 593 – Workshop Credits: 1-3

AGEC 672 - Bioenergy & Resource Economics Credits: 3
Bioenergy and Resource Economics surveys the allocation and conservation of natural resources from a perspective of optimal use and sustainability. Emphasis is placed on the trade offs and issues related to the production of biomass and development of the biofuels market including resource allocation, valuation methodology, economic growth, and market development. Prerequisites: ECON 201, MATH 121 or MATH 123.

AGEC 691 - Independent Study Credits: 1-3

AGED (Agricultural Education)

AGED 592 – Topics Credits: 1-5

AGED 610 - Introduction to Research Credits: 3
Determining research focus; developing research problems and objectives; reviewing the literature and establishing a theoretical framework; establishing procedures for data collection and analysis; ethical issues.

AGED 620 - Curriculum for Agricultural Science Education (CASE) Credits: 3-5
Obtain practical application of agricultural education content, review lab and classroom activities.

AGED 650 - Foundations of Agricultural Education Credits: 3
Philosophical premises, ethical principles, historical development, contextual applications, and knowledge bases for agricultural education.

AGED 690 – Seminar Credits: 1-2

AGED 788 - Research Problems in Agricultural Education Credits: 1-2
A problem is selected, analyzed, and reported in form approved by the research advisor. Course is repeatable for additional credit. Pre-requisite: Required of all graduate students in education qualifying for the degree under Option B. Can be elected under Option C, if desired.

AGED 798 – Thesis Credits: 1-7

AHED (Adult Higher Education)

AHED 691 - Independent Study Credits: 1-3
AHED 693 – Workshop Credits: 1-3

AHED 711 - Assessment and Program Design Credits: 3
Organization and implementation of adult education programs. Particular emphasis on curriculum development, financing, staffing, marketing, and evaluation of adult programs.

AHED 720 - Principles of Postsecondary Education Credits: 3
This course provides an overview of the postsecondary education system in the US. It surveys the history, major features, and effects of this system.

AHED 755 - Principles of College Teaching Credits: 3
An analysis of teaching methodologies, planning procedures, evaluation techniques, and professional relationships. Emphasis will be on learning and using strategies suitable for teaching.

AHED 772 - Administration and Leadership in Student Affairs Credits: 3
This course provides an overview of administrative and leadership practice in the student affairs profession. The course will emphasize historical foundations of the profession and will utilize these foundations in understanding current practice. Students will gain broad knowledge about the role and function of student affairs functions in a variety of higher education settings. Cross-Listed: CHRD 772.

AHED 788 - Research Problems in Adult Education Credits: 1-2
A problem is selected, analyzed, and reported in form approved by the research advisor. Required of all graduate students in education qualifying for the degree under Option B. Can be elected under Option C if desired. Course is repeatable for additional credit.

AHED 790 – Seminar Credits: 1-3
AHED 794 – Internship Credits: 1-6

ANTH (Anthropology)

ANTH 591 - Independent Study Credits: 1-3

ARCH (Architecture)

ARCH 521 - Building Media IV Credits: 2
Students will develop the skills necessary to produce professional contract documents, construction documents and outline specifications, with an emphasis on sustainable building technologies. Computer aided drafting (CAD) and Building Information Modeling (BIM) will be covered. Prerequisites: ARCH 351.

ARCH 522 - Building Media V Credits: 2
Continued development of skills necessary to produce professional contract and construction documents, with an emphasis on building envelope assembly and large scale detailing. Computer aided drafting (CAD) and Building Information Modeling (BIM) will be covered. Prerequisites: ARCH 521.

ARCH 531 - Building Shop IV Credits: 2
Workshop studies in craftsmanship, assembly, and fabrication through hands-on demonstrations and projects.

ARCH 551 - Whole Building Studio I Credits: 6
First of a two semester studio sequence. Student will prepare a schematic building and site design using a complex program and considering all material, structural, environmental and life-safety conditions. Prerequisites: ARCH 351.

ARCH 552 - Whole Building Studio II Credits: 6
Second of a two-semester studio sequence. Students will prepare detailed and coordinated drawings, models and specifications of integrated assemblies and systems using their building proposals from the first course. Projects will document LEED points and address sustainable concepts. Prerequisites: ARCH 551.

ARCH 571 - Architectural Practice I Credits: 2
This course introduces regulations as they relate to architectural registration, including building codes and ordinances, professional service contracts, environmental regulation, and other legal responsibilities connected with the profession. Prerequisites: ARCH 351.

ARCH 572 - Architectural Practice II Credits: 2
This course presents architectural production as an evolving cultural and financial practice. Topics include traditional delivery methods, the client's role, and alternative contemporary models. Prerequisites: ARCH 571.

ARCH 592 – Topics Credits: 3

ARCH 631 - Building Technology II Credits: 2
Introduction to building systems, daylighting, environmental systems, building services, and sustainable technologies with an emphasis on the building exterior surface. Prerequisites: ARCH 351.

ARCH 632 - Building Technology III Credits: 2
Introduction to technological issues of interior systems and construction including plumbing systems, mechanical air handling, lighting, finish materials, and sustainable practices in interior design. Prerequisites: ARCH 351.

ARCH 651 - Professional Design Practice I Credits: 6
Topic option studio relating to present day situations. Prerequisites: ARCH 552.

ARCH 652 - Professional Design Practice II Credits: 6
Topic option studio relating to present day situations. Prerequisites: ARCH 552.

ARCH 671 - Architectural Practice III Credits: 2
This course will cover the responsibilities architects have to society. Topics include sustainability, community outreach, collaboration, leadership, ethics, and professional judgment. Prerequisites: ARCH 572.

ARCH 672 - Architectural Practice IV Credits: 2
This course introduces architectural project management and practice management. Topics include basic principles of project team selection, delivery methods, and professional organizational models. Prerequisites: ARCH 671.

ARCH 692 – Topics Credits: 3

ART (Art)

ART 591 - Independent Study Credits: 1-9
ART 592 – Topics Credits: 1-9

ARTE (Art Education)

ARTE 591 - Independent Study Credits: 1-3

AS (Animal Science)

AS 541 - Advanced Meat Science Credits: 3
In-depth study of muscle anatomy and physiology, postmortem metabolism, rigor mortis, meat proteins, meat quality, and meat tenderness.

AS 549 - Equine Issues and Leadership Credits: 3
Students will be faced with professional development, service, and tackling major issues within the equine industry. A heavy emphasis on detail, fact finding, writing, and public speaking will prepare these students to serve as future leaders in our industry.

AS 563 - Agricultural Waste Management Credits: 3
Understand agricultural or biological wastes. Develop an understanding of regulatory requirements and best management practices that advocate responsible environmental stewardship. Topics include production, collection, handling, treating, and reusing agricultural and biological wastes. Course will emphasize written and oral reports. Prerequisites: PS 213 or PS 313. Cross-Listed: AST 563.

AS 591 - Independent Study Credits: 1-3
AS 592 – Topics Credits: 1-6

AS 711 – Ruminology Credits: 3
Biochemical, physiological, and microbiological activity occurring in the rumen and the relation of rumen function to animal response. Prerequisites: CHEM 464 and VET 223 or instructor consent. Cross-Listed: DS 711.

AS 712 - Ruminant Nutrition Credits: 3
Principles of nutrition for ruminants in relation to growth, reproduction and lactation.

AS 720 - Advanced Selection of Domestic Animals Credits: 3
Quantitative and population genetic theory of sound breeding programs for domestic animals including, variation, heredity, selection, estimation of breeding values, systems of mating, and performance testing.

AS 730 – Endocrinology Credits: 3
This course covers topics pertaining to endocrine gland and hormone function; hormone synthesis; control of hormone secretion, circulation and metabolism; physiological roles of hormones; and mechanisms of hormone action. Specific areas of study involve pituitary and hypothalamic function, pancreatic function, and hormones regulating growth and metabolism, thyroid hormones, gonadal and adrenal hormones.

AS 732 - Advanced Physiology of Reproduction Credits: 3
Anatomical and physiological process of reproduction in domestic animals with special emphasis on research techniques and the findings of recent research. Prerequisites: AS 433.

AS 733 - Vitamins and Minerals Credits: 3
Relationships between nutrients in metabolism. Comparing metabolic significance of required nutrients for different animal species and as applied to human nutrition. Prerequisites: AS 233, AS 323, CHEM 361, VET 223 or ZOOL 325.

AS 734 - Protein and Energy Nutrition Credits: 3
Principles of protein and energy metabolism and the partitioning of these nutrients for maintenance, growth and production in domestic farm animals.

AS 736 - Monogastric Nutrition Credits: 3
Nutrition principles for nonruminants related to reproduction, lactation and growth. Prerequisites: AS 233, AS 323, CHEM 361, VET 223 or ZOOL 325.

AS 740 – Metabolism Credits: 3
The metabolism of domestic animals and humans will be covered. This will include the structure and function of proteins, enzyme kinetics, and catalysis. The major pathways of amino acid, carbohydrate, lipid, and nucleotide metabolism including their regulation will be emphasized.

AS 750 - Animal Growth and Development Credits: 3
Growth of animals at the cellular level, including hormones, growth factors, receptors and signaling and growth at the whole animal level. Notes: It is recommended that students have completed undergraduate biochemistry (or AS 640) and physiology courses.

AS 753 - Research Topics in Meat Science Credits: 3
Current research issues in meat science. Interpreting meat science research results. Experience in scientific writing for proposals and journal articles. Prerequisites: AS 241.

AS 790 – Seminar Credits: 1
AS 798 – Thesis Credits: 1-7
AS 898D - Dissertation – PhD Credits: 1-12

AST (Agricultural Systems Technology)

AST 563 - Agricultural Waste Management Credits: 3
Understand agricultural or biological wastes. Develop an understanding of regulatory requirements and best management practices that advocate responsible environmental stewardship. Topics include production, collection, handling, treating, and reusing agricultural and biological wastes. Course will emphasize written and oral reports. Prerequisites: PS 213 or PS 313. Cross-Listed: AS 563.

AST 791 - Independent Study Credits: 3

AT (Athletic Training)

AT 541 - Athletic Training Techniques I Credits: 3
This course is designed to meet outcomes and guidelines set forth by the Education Council of the National Athletic Trainers' Association related to acute care provided by Athletic Trainers for Injuries and Illnesses. Students will obtain the knowledge, skills and clinical decision making to act efficiently and effectively in emergency situations related to life-threatening and non-life threatening conditions. Also, the course will address ethical and legal issues related to emergency care and the practice of Athletic Training. Corequisites: AT 541L. Prerequisites: Major in Athletic Training.

AT 541L - Techniques I Lab Credits: 0
This course is designed to meet outcomes and guidelines set forth by the Education Council of the National Athletic Trainers' Association related to acute care provided by Athletic Trainers for Injuries and Illnesses. Students will obtain the knowledge, skills and clinical decision making to act efficiently and effectively in emergency situations related to life-threatening and non-life threatening conditions. Also, the course will address ethical and legal issues related to emergency care and the practice of Athletic Training. Corequisites: AT 541.

AT 542 - Athletic Training Techniques II Credits: 3
This course is the second of the intermediate athletic training courses designed to meet all of the guidelines and competencies required by the National Athletic Trainers' Association. Content includes techniques related to the prevention, recognition, and management of athletic injuries to the upper and lower extremities. Related topics include preseason screening, pre-participation physicals, and appropriate weight training techniques. Prerequisites: AT 441; Major in Athletic Training.

AT 543 - Athletic Training Techniques III Credits: 3
This course is the third of the intermediate athletic training courses designed to meet all of the guidelines and competencies required by the National Athletic Trainers' Association. These courses should be taken in sequence. AT 543 includes a combination of material. One section of the class is devoted to the prevention, recognition, and management of athletic injuries relative to head, face, throat, abdomen, and thorax. The remainder of the class includes material in regards to evaluation and care of general illnesses and dermatological disorders common to athletics, understanding the role of pharmaceuticals in athletics, both legal and banned substances, drug testing procedures, special issues related to women in athletics, and the athletic trainer's role in counseling athletes. Corequisites: AT 543L Prerequisites: Major in Athletic Training

AT 543L - Techniques III Lab Credits: 0
This course is designed to meet outcomes and guidelines set forth by the Education Council of the National Athletic Trainers' Association related to prevention, evaluation and management of medical conditions and disabilities incurred by individuals involved in physical activity or sport. Students will obtain the knowledge, skill and clinical decision making to accurately assess and recognize general medical conditions (both acute and chronic), make appropriate referrals and work as part of a coordinated health care team to implement plans which allow individuals with medical conditions to participate safely in physical activity and sport. Corequisites: AT 543. Notes: AT majors only.

AT 544 - Athletic Training Techniques IV Credits: 2
This course is designed to cover the athletic training competencies in organization and administration. It will cover knowledge, skills and values that an athletic trainer must possess to develop, administer, and manage a health care facility and associated venues that provide health care to athletes and others involved in physical activity. Notes: AT majors only.

AT 554 - Athletic Injuries Assessment – Lower Extremity Credits: 2
This course is designed to have the student athletic trainers develop a sound understanding of the assessment of athletic related injuries and conditions occurring to the lower extremities. The course will incorporate anatomy of the lower extremity, the athletic related injuries or conditions which may occur, and evaluation techniques used to assess this area of the body. Notes: AT majors only.

AT 556 - Athletic Injuries Assessment – Upper Extremity Credits: 2
This course is designed to have the student athletic trainers develop a sound understanding of the assessment of athletic related injuries and conditions occurring to the upper extremities. The course will incorporate anatomy of the upper extremity, the athletic related injuries or conditions which may occur, and evaluation techniques used to assess this area of the body. Notes: AT majors only.

AT 562 - Interventions I Credits: 3
First course in a 3-semester sequence, designed to teach students foundational principles and theories associated with the development of a treatment plan for an injured patient. The class is taught through lectures and demonstrations.

AT 564 - Interventions II Credits: 2
This course is designed to meet outcomes and guidelines set forth by the Education Council of the National Athletic Trainers' Association related to therapeutic interventions. The second course in a 3-semester sequence, it is designed to have the student develop a basic understanding of the theory and application of therapeutic interventions including modalities and exercise in the treatment of the injured patient. The class will be taught through lectures and demonstrations. Prerequisites: Athletic Training Major.

AT 574 - Interventions III Credits: 2
This course is designed to meet outcomes and guidelines set forth by the Education Council of the National Athletic Trainers' Association related to therapeutic interventions. The third course in a 3-semester sequence, it is designed to have the student develop an advanced level of understanding of the theory and application of therapeutic interventions including modalities and exercise in the treatment of the injured patient. The class will be taught through lectures and demonstrations. Notes: AT majors only.

AT 790 – Seminar Credits: 2

AT 795 – Practicum Credits: 1-3
Notes: Throughout the course of the two-year curriculum, students will complete five (5) separate one (1) credit AT 795 Practicum courses that are linked to students' clinical experiences: AT 795 Practicum: Lower Extremity; AT 795 Practicum: Upper Extremity; AT 795 Practicum: Modalities; AT 795 Practicum: Fall Clinical Experience; and AT 795 Practicum: Rehabilitation.

BADM (Business Administration)

BADM 511 – Investments Credits: 3
This course is a thorough study of the equity market including fundamental valuation techniques, asset allocation, the efficient markets hypothesis and its implications, portfolio theory, risk and return, the primary and secondary market mechanisms, security market indicators, and international investing. An overview of the bond market including bond valuation, duration, and bond portfolio management, and an introduction to options, futures, and forward contracts are provided. The vital roles of computer technology and electronic trading are also explored. Prerequisites: BADM 310.

BADM 538 - Entrepreneurship II Credits: 3
This course focuses on the process of screening an opportunity, drafting a personal entrepreneurial strategy, and understanding the business plan writing process. Building the entrepreneurial team and the acquisition and management of financial resources are emphasized along with venture growth, harvest strategies, and valuation.

BADM 576 - Marketing Research Credits: 3
This course provides an in-depth study of the primary methodologies of marketing research. Emphasis is placed on collecting, analyzing, interpreting and presenting information for the purpose of reducing uncertainty surrounding marketing and management decisions.

BADM 592 – Topics Credits: 1-4
BADM 593 – Workshop Credits: 1-3

BIOL (Biology)

BIOL 515 – Mycology Credits: 2-3
Comprehensive taxonomic survey of the Kingdom Fungi; reproductive biology, physiology, genetics, and ecology of fungal organisms; relationship of fungi to human affairs. Corequisites: BIOL 515L. Cross-Listed: PS 515.

BIOL 515L - Mycology Laboratory Credits: 0-1

BIOL 539 - Biology of Aging Credits: 3
Physical, sensory, and physiological changes with age, aging of cells and tissues. Cellular, developmental, endocrine and other theories of aging. Pathologies of aging. Prerequisites: BIOL 325.

BIOL 567 – Parasitology Credits: 3
This course will prepare students in the area of ecological effects of toxic substances and other contaminants. Wildlife toxicology and impacts of agriculture on the Northern Plains will be emphasized. Topics covered will include pesticides, heavy metals, aquatic and terrestrial ecotoxicity and other topics related to wildlife toxicology. Corequisites: BIOL 567L.

BIOL 567L - Parasitology Laboratory Credits: 0

BIOL 645 - Microimaging Techniques Credits: 3
Preparation and observation of animal and plant tissues for microscopic and photomicrioscopic study. Emphasis will be given to various techniques used in current research areas.

BIOL 645L - Microimaging Techniques Laboratory Credits: 1-3

BIOL 767 - Fire and Ecosystems Credits: 3
This course is a broad treatment of how fire and ecosystems combine to form the landscapes that we see. Course material examines the contributions of climate, topography, weather, and fuels to the fire environment and how these factors influence wildland fire behavior. We will explore the interactions between ecological processes and fire regimes in ecosystem dynamics and the ways in which human land use and land management affect the outcomes. Cross-Listed: GSE 767/GEOG 767.

BIOL 782 – Epidemiology Credits: 3
The course introduces concepts and methodologies for the study of health and disease in human populations. Different study designs and their methods of analysis will be discussed, as well as sources, handling, and interpretation of epidemiologic data. Cross-Listed: HSC 782/NUTR 782.

BIOL 788 - Master's Research Problems/Project Credits: 1-3
BIOL 790 – Seminar Credits: 1
BIOL 791 - Independent Study Credits: 1-4
BIOL 792 – Topics Credits: 1-6

BIOS (Biological Sciences)

BIOS 662 - Advanced Molecular and Cellular Biology Credits: 6
This course will provide cutting-edge, comprehensive knowledge in molecular and cellular biology and pave a solid foundation for graduate students as they develop and conduct thesis and dissertation research. It will give students a perspective both on what is known and unknown about cellular structures, organization and their functions, cell chemistry and biosynthesis, genetic mechanisms, and cells in their social context. Notes: Undergraduate courses in genetics and cell biology are recommended prior to taking the course.

BIOS 663 - Advanced Concepts in Infectious Disease Credits: 6
This course will provide cutting-edge, comprehensive knowledge in molecular and cellular pathogenesis and the immune response. It will give a perspective both on what is known and current research in the areas of general pathology, immunology, virology, and bacteriology. The course will cover the importance of host-pathogen interactions in infectious disease, which will serve as the basis for further study within more specialized topics in higher-level courses. Prerequisites: BIOS 662; students with no background in infectious disease should enroll in undergraduate Immunology, Virology, or Medical Microbiology prior to taking this course.

BIOS 664 - Molecular Plant Physiology Credits: 6
This course will serve as the core to the plant biochemistry, physiology, growth and development students in the BIOS and PS graduate programs. The course will emphasize current theories and concepts of plant metabolism, the regulations of development, and the molecular genetic approaches used to elucidate our current understanding of these processes.

BIOS 788 - Master's Research Problems Credits: 1-3
BIOS 790 – Seminar Credits: 1
BIOS 791 - Independent Study Credits: 1-6
BIOS 792 – Topics Credits: 1-6
BIOS 793 – Workshop Credits: 1-6
BIOS 794 – Internship Credits: 1-6
BIOS 796 - Field Experience Credits: 1-6
BIOS 798 – Thesis Credits: 1-10
BIOS 890 – Seminar Credits: 1
BIOS 898D - Dissertation – PhD Credits: 1-7

BOT (Botany)

BOT 505 - Grasses and Grasslike Plants Credits: 3
A systematic study of grasses, and grasslike plants of the northern Great Plains; field and lab practice in collection and identification of graminoid plants; discussion of unique biological aspects of grass and grasslike plants that make them economically and ecologically significant.

BOT 505L - Grasses and Grasslike Plants Laboratory Credits: 0

BOT 515 - Aquatic Plants Credits: 3
A systematic survey of vascular plants that grow in wetland habitats, and a study of their adaptations to life in the water. Field and laboratory practice in identification and recognition of common aquatic plants. Corequisites: BOT 515L. Prerequisites: BIOL 103 or BIOL 153.

BOT 515L - Aquatic Plants Laboratory Credits: 0
Corequisites: BOT 515.

BOT 592 – Topics Credits: 1-5

BOT 715 - Advanced Plant Ecology Credits: 4
Analysis of the energy relationships of communities with emphasis on productivity. Literature readings. Laboratory work in techniques of community analysis.

BOT 715L - Advanced Plant Ecology Laboratory Credits: 0
Analysis of the energy relationships of communities with emphasis on productivity. Literature readings. Laboratory work in techniques of community analysis.

BOT 791 - Independent Study Credits: 1-4
BOT 792 – Topics Credits: 1-5

CA (Consumer Affairs)

CA 592 – Topics Credits: 1-3
CA 595 – Practicum Credits: 1-6

CA 612 - Financial Counseling Credits: 3
Theory and research regarding the interactive process between the client and the practitioner, including communication techniques, motivation and esteem building, the counseling environment, ethics, and methods of data intake, verification, and analysis. Other topics include legal issues, compensation, uses of technology to identify resources, information management, and current or emerging issues.

CA 621 - Financial Theory and Research I Credits: 3
Theories of family functioning, macroeconomic theory related to family resource allocation decisions, the family as an economic unit, and the interaction of the economy and families.

CA 640 - Fundamentals of Family Financial Planning Credits: 3
Issues and concepts related to the overall financial planning process, and establishing client-planner relationships. Services provided, documentation required and client and CFP licensee responsibilities are explored. Competencies related to gathering of client data, determining goals and expectations, and assessing the client's financial status by analyzing and evaluating data are developed. Emerging issues and the role of ethics in financial planning are an integral part of the course.

CA 645 - Military Personal Financial Readiness Credits: 3
This course gives an overview of the topics relevant to the financial planning process. The course adapts the topics to address the unique needs of and resources available to military service members and their families. Topics covered are: status of service member; financial readiness; financial management; record-keeping; cash flow management; risk management; credit and debt management; savings, education planning, and investment management; tax management; retirement management; estate management; and special topics.

CA 660 - Investing for Family's Future Credits: 3
An in-depth study of investment options for clients, this course will include common stocks, fixed income securities, convertible securities, and related choices. Relationships between investment options and employee/employer benefit plan choices will be studied. Current and emerging issues, and ethics will be an integral part of the course.

CA 680 - Insurance Planning for Families Credits: 3
An in-depth study of risk management concepts, tools, and strategies for individuals and families, including life insurance; property and casualty insurance liability insurance; accident, disability, health and long-term care insurance; and government-subsidized programs; current and emerging issues, as well as ethical considerations, relative to risk management will be discussed. Case studies will provide experience in selecting insurance products suitable for individuals and families.

CA 704 - Estate Planning for Families Credits: 3
Fundamentals of the estate planning process will be studied, including estate settlement, estate and gift taxes, property ownership and transfer, and powers of appointment. Tools and techniques used in implementing an effective estate plan; ethical considerations in providing estate planning services and new and emerging issues in the field will be explored. Case studies will provide experience in developing estate plans suitable for varied family forms.

CA 715 - Housing and Real Estate in FFP Credits: 3
The role of housing and real estate in the family financial planning process, including taxation, mortgages, financial calculations, legal concerns, and ethical issues related to home ownership and real estate investments. Emphasis on emerging issues in the context of housing and real estate.

CA 721 - Financial Theory and Research II Credits: 3
Microeconomic theory as it relates to family resource allocation decisions, theories of household behavior, the lifecycle hypothesis, behavioral economics, behavioral finance, theories of behavioral change, and psychological theories of family well-being. Focus on empirical research investigating household financial decision-making. Prerequisites: CA 621.

CA 725 - Family, Employment Benefits and Retirement Planning Credits: 3
Study of micro and macro considerations for retirement planning. Survey of various types of retirement plans, ethical considerations in providing retirement planning services, assessing and forecasting financial needs in retirement, and integration of retirement plans with governmental benefits.

CA 735 - Personal Income Taxation Credits: 3
This course provides in-depth information of income tax practices and procedures including tax regulations, tax return preparation, the tax audit processes, the appeals process, preparation for an administrate or judicial forum, and ethical considerations of taxation. New and emerging issues related to taxation will be covered. Family/individual case studies provide practice in applying and analyzing tax information and recommending appropriate tax strategies.

CA 745 - Professional Practices in Financial Planning Credits: 3
Challenges of managing financial planning practices including, but not limited to: business evaluation, personnel, marketing, client services, ethics and technological applications. Relying both on a theoretical as well as an applied approach, students will analyze case studies that provide relevant, practical exposure to practice management issues, with a strong emphasis on current research findings.

CA 755 - Financial Planning Case Study Credits: 3
This course examines professional issues in financial planning, including ethical considerations, regulation and certifications requirements, communication skills, and professional responsibility. Students are expected to utilize skills obtained in other courses and work experiences in the completion of personal financial case studies, the development of a targeted investment policy, and other related financial planning assignments.

CA 788 - Master's Research Problems/Projects Credits: 3
CA 790 – Seminar Credits: 3
CA 792 – Topics Credits: 1-3
CA 798 – Thesis Credits: 1-6

CD (Community Development)

CD 600 - Orientation to Community Development Study Credits: 2
This course is available only to graduate students registered in the Community Development specialization. This seminar will serve as an orientation to on-line learning and communities of practice as well as an introduction to the courses, faculty and curriculum connected to the on-line master's degree program in community development. In addition, students will have an opportunity to meet each other on-line and practice using the technology to support learning objectives.

CD 601 - Organizing for Community Change Credits: 3
This course will examine the role of civil society in community planning efforts and offer students a comparative approach to planning theories and approaches. It will also focus on change within communities and the roles of government, planners, and citizens in reacting to or shaping change. Students will have an opportunity to explore current issues related to planning and dealing with change by examining controversial practices such as covenants and land trusts, as well as by studying various community responses to change. Students will understand how citizens, firms and governments act to improve their community and region; the structure and implications of power; the relation between social relationships and economic activity, coalition building, concepts of inclusiveness (class, gender, ethnicity, geography), voice, and conflict and its management in communities and regions. The course will cover dimensions of social capital and the context of change. Students will learn to use this knowledge to promote equitable change at the community and regional level. They will study the implications of economic and demographic shifts on strategies and tactics for change and explore various resources for supporting these efforts. This course is available only to graduate students registered in the Community Development specialization.

CD 602 - Community and Regional Economic Policy and Analysis Credits: 3
A firm grounding in the reality of the local economy is necessary for successful programs in community economic development and for designing successful state and local policy and programs in economic development. The course introduces concepts of communities and regions, theories of economic growth, drivers of economic growth, the economic base of a community, course of growth or decline in the community, roles of local government and institutions, analytical tools, and strategies for local economic development. This course is available only to graduate students registered in the Community Development specialization.

CD 603 - Community Natural Resource Management Credits: 3
The course will introduce students to the breadth of consideration involved in community resource management. Included in the course are theoretical frameworks, methodological investigation and applied practices to enhance the ability of community development professionals to work with their communities to plan, develop, and monitor the conversation and development of natural resources with multiple functions. This course is available only to graduate students registered in the Community Development specialization.

CD 604 - Community Analysis Credits: 3
This course provides an introduction to research methods relevant to community development. Course topics include how to formulate and begin a research effort, methods of data collection and how conceptual frameworks are used to develop the questions and analyze data. Also included are strategies for reporting findings and applying findings in community action. The course will also look at methods of evaluating the entire research process. Significant attention is paid to issues of research ethics and inclusiveness throughout the course. This course is available only to graduate students registered in the Community Development specialization.

CD 605 - Principles and Strategies of Community Change Credits: 3
This interdisciplinary course analyzes principles and practices of community change and development, beginning with definitions of community and the role of communities in social and economic change. Using case studies and the students' communities of reference, the course will relate Community Development approaches to conceptual models from diverse disciplines. Conceptual models include conflict, neo-classical economic growth, participatory democracy, and others. Students will be exposed to professional practice principles and will leave the course having constructed their personal framework for the practice of community development. This course is available only to graduate students registered in the Community Development specialization.

CD 611 - Impact Analysis Credits: 1
The course teaches the basics of economic and fiscal impact analysis. It includes the scenario construction, basics of input-output analysis, careful use of multipliers, estimations of local revenues and expenditures and discounting. This course is available only to graduate students registered in the Community Development specialization.

CD 612 - Housing and Development Credits: 3
Review and evaluation of historical and current housing issues, production, and financial systems, Examination of federal, state, and local policies and programs for community development.

CD 613 - Introduction to Native Community Development Credits: 3
This course is designed as a base knowledge course for students currently working within or in partnership with native communities or considering working in this area. Students taking this course will develop a basic understanding within the context of community development of the diversity of tribal structures and cultures and the unique history and jurisdictional considerations of these nations. Course topics will include: working with tribes, Federal and Indian relations, and governance and cultural issues. Students taking this course will complete a holistic analysis and conceptual mapping of a tribe. This course is required before students may take other courses in this track. This course is available only to graduate students registered in the Community Development specialization.

CD 616 - Public and Nonprofit Budgeting Credits: 3
The purpose of this three-credit hour graduate level distance education course is to introduce students to the fundamental theories and practices of budgeting in the public and nonprofit sectors. Topics include overview of budgeting and budget reform, taxation, expenditures, budget preparation and adoption, budget implementation, and performance budgeting.

CD 617 - Tribal Colleges in Economic Development Credits: 1
This course will focus on the role of tribally-chartered colleges and universities in economic development within Native communities. Students will learn the historical and contemporary case for tribal self-determination in higher education vis-a-vis economic development. Using a social capital analytical framework, students will examine and evaluate the tribal college model of economic development. Topics will include the use of bonding and bridging social capital as an analytical tool, the historical and contemporary case for tribally-chartered higher education, the economic impact of tribal colleges on their local economies, and opportunities and challenges of broad and diverse economic networks.

CD 623 - Ecological Economics Credits: 3
The course seeks a synthesis across the notion of utility as represented in traditional environmental/natural resource economics and the notion of ecology in the newer ecological economics. This course seeks ways to treat both economy and community/ecosystem as being on par, each influencing the other. This synthesis results in a search for the win-win through recognizing the potential for a kind of symbiotic complementarity between the two perspectives, the two systems, and the forces each puts in place. We seek sustainability in both economy and community over longer time periods.

CD 624 - Building Native Community in Economic Capacity Credits: 3
This course will focus on non-western approaches to helping native communities build their capacity. Students will learn to take a participatory, culture-centered, and strength-based approach to development. This course is available only to graduate students registered in the Community Development specialization.

CD 626 - Economic Development Strategy Credits: 3
Course explores theories of local economic development and addresses the development issues faced by communities in the 21st century. Students will understand and apply concepts from economic development planning, economic analysis, business development, human resource development, community-based development, and high-technology development. This course is limited to GPIDEA student registration, pending student's department approval.

CD 631 - Evaluation of Organizations/Programs Credits: 3
The purpose of this three-credit hour graduate level distance education course is to the philosophy, techniques, and methodologies of organizational and program evaluation. Topics covered include overview of program evaluation and theory, techniques to evaluate program processes and performance, evaluation designs, assessing program deficiency, models to diagnose organizations, and methods to assess organizational performance.

CD 633 - Introduction to Environmental Law Credits: 3
This course offers students an introduction to American environmental law. We will begin with a basic introduction to sources of law and jurisdiction. We will survey tort law, as the historic and conceptual basis for environmental law in property law. We will emphasize administrative law and environmental legislation, as these are the areas of environmental law that most of you will encounter as professionals in community development. We will spend the majority of the course learning about how governmental agencies regulate private activities that affect land, air, water, and wildlife. Because we will consider the legal process largely from the perspective of someone working for or dealing with a public agency, we will deal with such topics as administrative procedure and judicial review of agency actions. We will also consider the roles of individuals and nonprofit organizations in the administrative and litigation processes. Therefore, we will pay close attention to such issues as standing to sue and the availability of attorney fee awards. The course will cover a wide range of substantive issues including such topics as the regulation of toxic waste, the Clean Air Act, the National Environmental Policy Act, the Endangered Species Act, common law environmental torts and the public trust doctrine. This course is available only to graduate students registered in the Community Development specialization.

CD 634 - Native American Natural Resource Management Credits: 3
This course will introduce students to the breadth of considerations involved in Native American resource management. Included in the course are theoretical frameworks, methodological investigations and applied practices by which we will explore the impact of structural inequality, globalization and sovereignty on planning, sustainability and development of natural resources on the reservation. This course is available only to graduate students registered in the Community Development specialization.

CD 635 - Sustainable Communities Credits: 3
This course links the management of natural capital to other community-based actions around resource allocation and the impacts on quality of life. The literature on community-based natural resource management will be examined and alternative ways of valuing natural capital will be assessed. Contrasting theories of the role of natural capital in communities and human society will be linked to their implications for community sustainability in terms of economic vitality, social well-being, and ecosystem health.

CD 636 - Policy/Politics Coastal Areas Credits: 3
This Coastal Policy course focuses on coastal zone management policy issues. Students learn more about the fragile coastal environment and what they can do to protect it. This course supplements the offerings in the Natural Resource track of the Community Development emphasis in the GPIDEA Community Development Program, of which SDSU is a partner.

CD 637 - Immigration and Communities Credits: 3
International migration has historically impacted rural and urban communities around the world. Taking a comparative approach, this course examines community-immigration interactions and how that influences community development and immigrant inclusion. Students will read and relate theories of immigrant and community change to case studies of immigrants and communities and gather primary data to assess the capacity of communities to include new international immigrants.

CD 638 - Com/Reg Economic Analysis II Credits: 3
Substantive grounding in the theories and practice of measuring community economic dynamics; build solid foundation skills for applied community economic analysis.

CD 641 - Leadership for Change Credits: 3
Course focus is on the role of leadership in community development and change, including situation leadership in the community development process, reviewing the effectiveness of different leadership styles, and relating leadership to community. Skills and processes that facilitate effective shared leadership, including facilitation, conflict resolution, use of participatory techniques, etc, are explained. This course is available only to graduate students registered in the Community Development specialization.

CD 642 - Grant Writing Credits: 3
The intricacies of grantsmanship provide the focus of this course. Topics covered will include identification of fund sources, procedures for proposal preparation, composition of grants, and the effects of organizational and personal linkages. Students will prepare a grant application based upon an RFP or to a continuous funding source (e.g. Kellogg Foundation, NW Foundation, or IDED). This course is available only to graduate students registered in the Community Development specialization.

CD 643 - Nonprofit Management Credits: 3
Managing nonprofits including the role of nonprofit organizations in addressing various social problems. Focus will be on the growth of the nonprofit sector and its impact on the community as a source of citizen empowerment. Topics include individual giving and volunteering, board and executive leadership, government and nonprofit relationship, ethics and accountability, and issues and challenges in nonprofit management. This course is available only to graduate students registered in the Community Development specialization.

CD 644 - Participatory Action Research Methods Credits: 3
A graduate level course to develop participatory action research knowledge and skills through real-world applications. PAR is a method of collecting information by community members in collaboration with a researcher that respects, places community central to, and reflects the experiences and culture of the people most directly impacted by the issue under consideration.

CD 645 - Community Developer as Community Education Credits: 3
A graduate level course on education strategies and tools for use in community development. This course will develop students? identities as community educators and provide knowledge on appropriate methodologies for working with adults in community settings, as well as develop their creativity and critical thinking skills. Students will engage in peer-to-peer teaching and critical analysis of community education activities.

CD 791 - Independent Study Credits: 1-3
CD 792 – Topics Credits: 3
CD 794 – Internship Credits: 3
CD 795 – Practicum Credits: 3

CEE (Civil and Environmental Engineering)

CEE 511 - Bituminous Materials Credits: 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. Corequisites: CEE 511L. Prerequisites: CEE 216.

CEE 511L - Bituminous Materials Laboratory Credits: 0
Performance of standard tests on asphalt products and mixtures to determine various characteristics. Emphasis will be placed on the interpretation of test results.

CEE 522 - Environmental Engineering Instrumentation Credits: 3
Development of an understanding of standard analytical methods for parameters commonly measured in liquid environmental systems. Corequisites: CEE 522L. Prerequisites: CEE 225 or instructor consent.

CEE 522L - Environmental Engineering Instrumentation Laboratory Credits: 0
Analysis of water and wastewater samples using environmental laboratory instrumentation. Development of laboratory skills in water and wastewater analysis.

CEE 523 - Municipal Water Distribution and Collection System Design Credits: 3
Design of municipal water distribution and collection systems utilizing modern design tools including the utilization of software to simulate system behavior in response to environmental changes.

CEE 524 - Industrial Waste Treatment Credits: 3
Characteristics and composition of industrial wastes, sampling and methods of analysis of these wastes and remedial measures for treatment and disposal.

CEE 535 - Water Resources Engineering Credits: 3
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. Prerequisites: CEE 225.

CEE 543 - Matrix Analysis of Structures Credits: 3
Theory and application of matrix methods in structural analysis. Prerequisites: CEE 353.

CEE 544 - Precast Concrete Structures Credits: 3
Advantages of precast concrete. Structural and architectural precast elements. Building systems. Design concepts and structural design. Connections, specifications, and detailing. Prerequisites: CEE 456.

CEE 546 - Advanced Geotechnical Engineering Credits: 3
Development of a fundamental understanding of engineering properties of soils and the factors controlling their magnitude and changes with time and environment. Development of why this knowledge is important and how it can be used in the solution of geotechnical and geoenvironmental problems. Prerequisites: CEE 346.

CEE 547 - Foundation Engineering Credits: 3
Application of the fundamental concepts of soil behavior to evaluation, selection, and design of shallow and deep foundation systems. Related topics such as temporary support systems for excavations and pile driving are also included. Students enrolling in CEE 547 will be held to a higher standard than those enrolling in CEE 447. Prerequisites: CEE 346.

CEE 552 - Prestressed Concrete Credits: 3
Theory and design of prestressed concrete including pre-tensioning and post-tensioning. Prerequisites: CEE 456.

CEE 558 - Design of Timber Structures Credits: 3
Gravity and lateral loads, physical and mechanical properties of wood, properties of dimension lumber and glued laminated timber, design of beams and columns, properties of structural wood panels. Design of sheathing, diaphragms and shearwalls. Design of connections.

CEE 567 - Transportation Engineering Credits: 3
Engineering principles in various common modes of transportation. Prerequisites: CEE 363.

CEE 592 – Topics Credits: 1-3

CEE 633 - Open Channel Hydraulics Credits: 3
Energy and momentum principles in open channel flow, flow resistance, flow in uniform and nonuniform channels, flood routing. Prerequisites: CEE 432.

CEE 691 - Independent Study Credits: 1-3
CEE 692 – Topics Credits: 1-3

CEE 702 - Advanced Civil and Environmental Engineering Credits: 1
Introduction to graduate study and professional communication skills required for further study in Civil and Environmental Engineering. Course may be repeated as needed to meet plan of study requirements.

CEE 720 - Water Treatment Plant Design Credits: 3
Water supply sources, design of treatment plants, cost estimates of water supply systerms. Corequisites: CEE 720L. Prerequisites: CEE 323 or instructors consent.

CEE 720L - Water Treatment Plant Design Laboratory Credits: 0
Practical design problems in water treatment plant design.

CEE 722 - Hazardous and Toxic Waste Disposal Credits: 3
Legislation, regulation, business aspects and technology related to the management and disposal of hazardous and toxic wastes.

CEE 725 - Biological Principles of Environmental Engineering Credits: 3
Ecology, energetics and kinetics of biochemical systems. Analysis and modeling of suspended growth and fixed film biological processes used in environmental engineering. Laboratory procedures for developing biokinetic data. Prerequisites: CEE 323 or instructors consent.

CEE 725L - Biological Principles of Environmental Engineering Lab Credits: 0

CEE 726 - Physical and Chemical Principles of Environmental Engineering Credits: 3
Fundamental concepts of fluid/particle interactions, process kinetics, and equilibrium chemistry applied to natural and engineered aquatic environmental systems. Coagulation, fluid/particle separation, oxidation/reduction, precipitation/dissolution, carbonate systems, absorption, ion exchange, and gas/liquid interfaces. Corequisites: CEE 726L. Prerequisites: CEE 323 or instructors consent.

CEE 726L - Physical and Chemical Principles of Environmental Engineering Laboratory Credits: 0

CEE 729 - Wastewater Treatment Plant Design Credits: 3
Design of waste collection and disposal facilities, waste treatment plants, cost estimates of waste disposal and treatment systems. Prerequisites: CEE 323. Graduate standing.

CEE 729L - Wastewater Treatment Plant Laboratory Credits: 0
Practical design problems in wastewater treatment plant design.

CEE 732 - Advanced Foundation Engineering Credits: 3
Advanced treatment of foundations and earth retaining structures. Bearing capacity, lateral resistance and settlement of deep foundations; earth pressures on sheet pile walls, braced excavations and buried pipes; numerical methods and computer use in design and analysis applications. Prerequisites: CEE 346.

CEE 733 - Topics in Water Resources Engineering Credits: 3
Topics related to water resources engineering including: Multiple purpose river development, economic andalysis of flood control measures, aspects of water law, advanced topics related to surface and ground water hydrology and administrative of water resources planning. Notes: Course may be repeated.

CEE 734 - Surface Water Quality Model Credits: 3
Modeling advective and dispersive mass transport in surface and engineered water systems. Analysis of reactions affecting the fate of dissolved oxygen, nutrients, toxic compounds and pathogens. Analytical and numerical solutions to derministic modeling equations. Application and use of the QUALI-IIE and EPANET models. Prerequisites: CEE 423, MATH 321.

CEE 738 - Advanced Hydraulics Credits: 3
Introduction to topics related to water resources engineering including: dimensional analysis, similitude, mechanics of sediment transport, river engineering, coastal hydraulics and stream channel mechanics. Corequisites: CEE 738L. Prerequisites: CEE 432; graduate standing.

CEE 738L - Advanced Hydraulics Laboratory Credits: 0

CEE 749 - Geotechnical Testing Credits: 3
Determination of engineering properties of soils. Measurement of stress-strain behavior, compressibility, permeability. Use of direct shear test, triaxial compression test, consolidation test, permeameter tests. Interpretation of test data for engineering applications. Use of computerized data acquisition methods. Corequisites: CEE 749L. Prerequisites: CEE 346.

CEE 749L - Geotechnical Testing Lab Credits: 0

CEE 754 - Advanced Design of Steel Structures Credits: 3
Review of LRFD concepts and basic member design, fundamentals of ASD, column buckling, plate buckling, fundamentals of structural stability, frame

stability and frame design. Design of plate girders, composite girders, bracing members and the basics of PR and FR connections. Prerequisites: CEE 455.

CEE 755 - Advanced Reinforced Concrete Design Credits: 3
Design of rigid frames, effect of plastic behavior, details for complex structures, analysis of flat plate and other two-way floor systems. Design comparisons. Prerequisites: CEE 456.

CEE 756 - Reinforced Masonry Design Credits: 3
Development of masonry construction. Material properties. Structural design of loadbearing walls, columns, beams and shear walls. Design of masonry buildings due to gravity loads, lateral forces and earthquakes. Prerequisites: CEE 456.

CEE 759 - Structural Dynamics Credits: 3
Dynamic analysis of structural system with one and several degrees of freedom. Determination of natural frequencies. Analysis of free and forced vibration systems including damping. Introduction to earthquake engineering. Prerequisites: CEE 353, CEE 456.

CEE 765 - Pavement Design Credits: 3
Introduction to pavement types, wheel loads, stresses and strains in pavement components, material characterization, basic principles of design and pavement evaluation. Prerequisites: CEE 363.

CEE 769 - Bridge Design Credits: 3
Determination of bridge loadings and bearings. Design of concrete and steel bridge systems. Specifications and detailing related to bridge. Prerequisites: CEE 455, CEE 456.

CEE 788 - Master's Research Problems/Project Credits: 1-3
CEE 790 – Seminar Credits: 1
CEE 791 - Independent Study Credits: 1-3
CEE 792 – Topics Credits: 1-3
CEE 792L - Special Topics Laboratory Credits: 0
CEE 798 – Thesis Credits: 1-7
CEE 898D – Dissertation Credits: 1-12

CHEM (Chemistry)

CHEM 691 - Independent Study Credits: 1-4

CHEM 701 - Advanced Organic Chemistry I Credits: 3
Review and discussion of nomenclature, stereochemistry, resonance theory, equilibria, elementary kinetics, intermediate and mechanisms. Chemistry of polymers, heterocyclics, and natural products. Prerequisites: CHEM 229, CHEM 328.

CHEM 703 - Advanced Physical Chemistry Credits: 3
A review of the principles and applications of physical chemistry. Topics such as thermochemistry, quantum mechanics, spectroscopy, kinetics, and electrochemistry considered. Prerequisites: CHEM 242 and MATH 123.

CHEM 704 - Advanced Inorganic Chemistry Credits: 3
Inorganic systems including theoretical, representative group and transition metal topics. Prerequisites: CHEM 242 and CHEM 452.

CHEM 705 - Principles of Biochemistry Credits: 2-5
Chemistry of biological processes occurring in plants and animals. Prerequisites: CHEM 464.

CHEM 706 - Advanced Analytical Chemistry Credits: 3
Theoretical treatment of principles involved in non-instrumental analytical chemistry including sampling and statistics. Prerequisites: CHEM 242 and CHEM 332.

CHEM 707 - Chemical Communication Skills Credits: 2
Searching chemical literature by traditional and computer assisted methods; techniques of written and oral communication of chemical information.

CHEM 711 - Chemical Education Research Credits: 2
Course will provide an introduction to the primary literature on research in chemical education. Students will survey the fundamental areas of focus such as learning theories, pedagogical methodology, assessment, and current topics of interest. Prerequisites: Instructor consent.

CHEM 713 - Qualitative Research Methods Credits: 2
A survey of theoretical traditions in qualitative methods for chemical education. Research will include methods of data collection, analysis, and reporting for each tradition. Emphasis will be placed on differences between qualitative and quantitative research methods in chemical education research. Prerequisites: Instructor consent.

CHEM 714 - Quantitative Research Methods Credits: 2
The course will include fundamental issues regarding the use of statistical analysis in chemical education research. Topics will include different quantitative strategies such as descriptive statistics, nonexperimental designs, single-subject designs, inferential statistics, and an introduction to current statistical program packages. Prerequisites: Instructor consent.

CHEM 715 - Chemistry Instruction in Higher Education Credits: 2
Instructional processes, learning theories, and issues specific to chemistry instruction in higher education. Topics including learning theory in the context of chemistry, lecture and laboratory settings, assessment strategies, demonstrations, and group work. Prerequisites: Instructor consent.

CHEM 722 - Synthesis of Natural Products Credits: 3
Synthetic strategies and pathways for the formation of natural products. Prerequisites: CHEM 328.

CHEM 724 - Structural Determination of Organic Compounds Credits: 3
Determination of the structure of organic compounds primarily by spectroscopic techniques. Corequisites: CHEM 724L. Prerequisites: CHEM 328.

CHEM 724L - Structural Determination of Organic Compounds Laboratory Credits: 0

CHEM 728 - Bioorganic Chemistry Credits: 3
Interpretation and categorization of biochemical reactions in terms of principles of organic chemistry. Synthesis of biologically active macromolecules and models for enzyme catalysis. Prerequisites: CHEM 328 and CHEM 705.

CHEM 731 - Advanced Environmental Chemistry Credits: 3
In-depth treatment of the principles of the environmental chemistry and geochemistry of the atmospheric, aquatic and lithospheric environments. Prerequisites: CHEM 342, instructor consent.

CHEM 733 - Atmospheric Chemistry Credits: 3
Structure and functions of the atmosphere; principles of atmospheric chemical processes; chemical reactions and fate of pollutants in the atmospheric environment. Prerequisites: CHEM 342.

CHEM 734 - Environmental Surface Chemistry Credits: 3
Chemical and physical processes at environmental interfaces. Prerequisites: CHEM 342, instructor consent.

CHEM 738 - Electroanalytical Chemistry Credits: 3
The principles of electrochemistry as applied to analytical methods will be presented in this course. Topics covered will include polarography, potentiometry, conductance, coulometry, and related topics. Prerequisites: CHEM 434.

CHEM 739 - Chromatography and Separation Credits: 3
Theory and practice of solvent extraction and paper, thin layer, gas and liquid chromatographic techniques. Prerequisites: CHEM 232.

CHEM 740 - Analytical Spectroscopy Credits: 3
In-depth treatment of the quantitative applications and theory of modern spectroscopy techniques including atomic absorption, emission, and fluorescence; molecular absorption and fluorescence; and X-ray spectroscopy. Prerequisites: CHEM 434.

CHEM 741 - Quantum Chemistry I Credits: 3
The application of wave mechanics to simple atomic and molecular systems, properties of wave functions, and approximate methods. Prerequisites: CHEM 703 and MATH 321.

CHEM 742 - Quantum Chemistry II Credits: 3
Continuation of CHEM 741. Prerequisites: CHEM 741.

CHEM 744 - Chemical Thermodynamics Credits: 3
Discussion of the laws and theories of classical and statistical thermodynamics as related to macroscopic chemical systems. Prerequisites: CHEM 344.

CHEM 745 - Statistical Thermodynamics Credits: 3
Fundamental principles of statistical thermodynamics with applications to chemical systems. Prerequisites: CHEM 703 and CHEM 744.

CHEM 748 - Chemical Kinetics Credits: 3
Experimental methods and theoretical approaches to the study of reaction rates. Prerequisites: CHEM 328 and CHEM 344.

CHEM 753 - Organometallic Chemistry Credits: 3
The study of metal compounds containing organic moieties and related inorganic compounds. Major emphasis will be focused on transition metal-carbon compounds such as the carbonyls, aromatic hydrocarbons and nonaromatic olefin and acetylene complexes. Homogenous catalysts will be discussed. Prerequisites: CHEM 352.

CHEM 760 - Laboratory Rotations in Biochemistry Credits: 2
Investigative laboratory experiences for doctoral students in biochemistry, as supervised by faculty members participating in the Biochemistry PhD.

CHEM 764 - Biochemistry I Credits: 3
Study of metabolism of carbohydrates and lipids. Includes aspects on enzyme kinetics and regulation as well as principles and characteristics of ATP-synthesizing complexes. Prerequisites: CHEM 701.

CHEM 766 - Biochemistry II Credits: 3
Study of the metabolism of amino acids, proteins, nucleotides and nucleic acids. Includes some aspects of enzymology and the mechanism of intra and intercellular communication. Prerequisites: CHEM 705.

CHEM 767 - Biophysical Chemistry Credits: 3
Discussion of the theoretical and practical aspects of biophysical methods. These will include an examination of electrophoresis, centrifugation, light scattering, optical rotary dispersion, X-ray diffraction, viscosity/diffusion, and spectroscopy. Prerequisites: CHEM 340 and CHEM 705.

CHEM 770 - Atomic Theory & Bonding Credits: 3
This course will examine topics in atomic theory including wave-particle duality, wavefunctions, atomic spectra, quantum numbers, and the relationship between electronic structure and the periodic table. These topics will provide a foundation to explain molecular bonding. Topics of molecular bonding will include ionic and covalent bonding, electronegativity, polarizability, valence-shell-electron-pair-repulsion (VSEPR), valence-bond theory, and molecular orbitals. Student participation in discussions will lead to enhanced pedagogical skills for the secondary science teacher. Prerequisites: Instructor consent.

CHEM 771 - Intermolecular Interactions & Phases of Matter Credits: 3
This course will examine the impact on a variety of physical properties made by attractive forces between molecules, atoms, and ions. Topics will include explaining the existence and predicting the strengths of intermolecular interactions, predicting physical properties such as viscosity, boiling points, and melting points based on the presence of intermolecular forces, and the impact of intermolecular interactions on phases of matter. Student participation in discussions will lead to enhanced pedagogical skills for the secondary science teacher. Prerequisites: Instructor consent.

CHEM 772 – Thermodynamics Credits: 3
This course will focus on the relationship between energy, entropy, and the progress of chemical reactions. Major topics will include the relationship between heat and chemical reactions, calorimetry, reaction enthalpy, standard enthalpy, entropy, and free energy. An emphasis will be made on the mathematical techniques used to calculate these relationships and on how these concepts explain chemical behavior. Student participation in discussions will lead to enhanced pedagogical skills for the secondary science teacher. Prerequisites: Instructor consent.

CHEM 773 - Equilibria & Acid-Base Chemistry Credits: 3
This course will examine the reversibility of chemical reactions. The concept of dynamic equilibria will be studied and the law of mass action used to quantify the condition of equilibrium. Students will be able to predict the extent and direction of a chemical reaction and quantify species at equilibrium. Le Chatelier's principle will used to study the impact different factors on the equilibrium status of a chemical reaction. Topics in acid/base chemistry will be used to further explain equilibria processes. Additionally, Bronsted-Lowry and Lewis theories, molecular structure relationships to acid/base behavior, weak acid/ base behavior, the acidic/basic behavior of salts, titration, and buffer solutions will be discussed. Student participation in discussions will lead to enhanced pedagogical skills for the secondary science teacher. Prerequisites: Instructor consent.

CHEM 774 - Kinetics, Nuclear, & Electrochemistry Credits: 3
This course will focus on three important topics in chemistry: kinetics, nuclear, and electrochemistry. Students will utilize mathematical methods to study the speed of chemical reactions including average and instantaneous rates of reaction, rate laws, the law of initial methods, and integrated rate laws. Additionally, discussion of changes within the nucleus of an atom resulting in the alteration of that atom will occur by identifying fundamental processes of nuclear chemistry. Biological effects related to nuclear reactions will also be discussed both qualitatively and quantitatively. Finally, this course will focus on oxidation/reduction reactions as students manipulate redox reactions by balancing chemical reactions, predicting spontaneity of redox reactions, and explaining the function of voltaic cells. Student participation in discussions will lead to enhanced pedagogical skills for the secondary science teacher. Prerequisites: Instructor consent.

CHEM 775 - Organic & Biochemistry Credits: 3
This course will focus on topics in organic and biochemistry that provide a basis for future instruction in these content areas. Topics in organic chemistry will include nomenclature, functional groups, and basic organic reactions and mechanisms. Biochemistry topics will include nomenclature and structures of simple molecules including carbohydrates, proteins, and nucleic acids. Student participation in discussions will lead to enhanced pedagogical skills for the secondary science teacher. Prerequisites: Instructor consent.

CHEM 776 - Laboratory Development Credits: 2
This course will focus on the development of laboratory strategies for the secondary chemistry classroom. Students will receive guided instruction in laboratory development techniques from content experts. The outcome of the course will be the development of several new laboratory exercises which will be shared among participants. Prerequisites: Instructor consent.

CHEM 777 - Action Research in the Secondary Classroom Credits: 3
This course will engage science instructors in processes used to assess the efficacy of using specific strategies for teaching in the classroom. The methodology for conducting educational research in the classroom will be the initial focus. One outcome of the course will be the inception of a project that could be implemented by the science instructor to investigate the use of a new teaching strategy in the classroom. Prerequisites: Instructor consent.

CHEM 778 - Chemistry Teaching Strategies Credits: 3
This course will focus on pedagogical and curricular strategies and the educational research which supports using these methods. The incorporation of pedagogical methods into science classrooms as modifications for or enhancement of traditional instruction will be the goal for participants. Additionally the development of integrated curricula which use multiple content areas will be discussed. Pedagogical and curricular strategies developed during the course will be peer-evaluated and tested in individual classrooms. Prerequisites: Instructor consent.

CHEM 781 - Bioinorganic Chemistry Credits: 3
A study of biological systems stressing the role of metals ions, primarily the transition metals. Model systems included in the discussion. Prerequisites: CHEM 120 (4 credits), CHEM 352 or instructor consent.

CHEM 788 - Research Problems in the Chemistry Classroom Credits: 1-2
This capstone course will involve the application of the project conceived of during CHEM 616. Students will be expected to design, implement, and assess the outcomes of the project in their classroom. Results from this work will be summarized and defended in an oral exam format. Prerequisites: Instructor consent and CHEM 776.

CHEM 790 – Seminar Credits: 1
CHEM 792 – Topics Credits: 1-6
CHEM 798 – Thesis Credits: 1-7
CHEM 898D - Dissertation - Ph.D. Credits: 1-12

CHRD (Counseling & Human Resource Development)

CHRD 571 - Gerontology Issues in Counseling Credits: 3
This course is designed to familiarize helping professionals with psychological aspects of the aging process. Students will gain skills in establishing rapport and interacting in a professional, caring manner with older adults and learn about appropriate resources and techniques to assist older clients.

CHRD 601 - Introduction to Professional Issues and Ethics Credits: 1
This course provides an introduction and orientation to the counseling profession with a focus on ethics. More specifically, ethical standards of ACA and other related specialty areas will be covered along with the use of ethical decision-making models.

CHRD 602 - Research and Evaluation in Counseling and Human Development Credits: 3
The course explores various research designs and methodologies applicable to the field of counseling. The course will emphasize qualitative and quantitative research, critical evaluation of research reports, the use of internet databases for writing a research paper, a thorough understanding of APA format. Cross-Listed: HDFS 602.

CHRD 610 - Developmental Issues in Counseling Credits: 3
Provides an understanding of the developmental needs of humans across the life span and adolescents and appropriate intervention methods to be used in counseling.

CHRD 661 - Theories of Counseling Credits: 3
This course takes a practice-based approach to teaching students counseling theory. The course focuses on several major theories, such as Adlerian, Person-Centered, Cognitive-Behavioral, and Family Systems theories. Students are encouraged to understand the utility of theory-based practice. Course work involves applying theory to case studies and developing treatment plans based on the tenets and techniques of the theories studied.

CHRD 690 - Seminar Credits: 3
CHRD 691 - Independent Study Credits: 1-3
CHRD 692 – Topics Credits: 1-3
CHRD 693 – Workshop Credits: 1-3

CHRD 701 - Professional Issues and Ethics II Credits: 1
This course serves as an advanced view of the ethical standards of ACA and other related specialty areas. Application of the code and an ethical decision-making model is expected. Prerequisites: Consent.

CHRD 705 - Motivational Interviewing & Behavior Change Coaching Credits: 3
This course is intended to provide a comprehensive study of the change process as enhanced through Motivational Interviewing. An emphasis will be placed on these concepts as they apply to behavioral changes in various areas including healthy eating, obesity, disordered eating, etc.

CHRD 713 - Administration and Management of Mental Health Organizations Credits: 3
Developing and managing a comprehensive counseling program in agencies. Emphasis on the planning process, management, budgeting, organizational structure, supervision, evaluation and consultation.

CHRD 716 - Human Resources Management in Business and Industry Credits: 3
This course will focus on the human factors affecting the workplace. Specific topics to be covered will include employee assistance programs, wellness programs, management training, conflict resolution, and career planning.

CHRD 721 - School Counseling Credits: 3
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.

CHRD 722 - Administration and Management of School Counseling Programs Credits: 3
Developing and managing a comprehensive counseling program in a school setting. Emphasis on the planning process, management, budgeting, organizational structure, supervision, evaluation and consultation.

CHRD 723 - Counseling the Family Credits: 3
Counseling the Family is a course which describes the major systems of family therapy and the resulting impact upon the counseling process. An inter-psychic, systematic framework will be formulated as a supplemental way to view familial problems and promote change.

CHRD 725 - Couples and Advanced Family Counseling Credits: 3
This course is designed to help students increase their theoretical and practical knowledge, along with skill development in working with couples and families. Treating couples and families from an ecological systems context (i.e. community, social, cultural, economic, etc.) with specific attention on current issues including gender, race, ethnicity, sexuality, family patterns, and economic conditions.

CHRD 728 - Child and Adolescent Counseling Credits: 2
This course is intended to provide a comprehensive study of therapeutic approaches and techniques applicable for use with children and adolescents in a counseling setting. Emphases will be placed on developmental problems, creative interventions, crisis management, exceptional children, and collaboration with the community, family, and school systems.

CHRD 731 - Multicultural Counseling and Human Relations Credits: 3
This course aims to provide an understanding of the cultural context of relationships, issues and trends in a multicultural and diverse society related to such factors as culture, ethnicity, nationality, age, gender, sexual orientation, mental and physical characteristics, education, family values, religious and spiritual values, socioeconomic status and unique characteristics of individuals, couples, families, ethnic groups, and communities.

CHRD 736 - Appraisal of the Individual Credits: 3
Assessment methods used in studying individuals. Standardized instruments, self-report inventories, observation, case study techniques and other non-standardized assessment tools are used. Recording, analyzing, compiling and interpreting data for use in counseling setting.

CHRD 742 - Career Counseling and Planning Credits: 3
Examination of the career development and counseling process through the life span. Assist those intending to counsel at elementary, secondary, higher education and the community/workplace. Explores strategies and resources for career/life planning. Various interest inventories and personality assessment methods are used.

CHRD 751 - Overview of Rehabilitation and Mental Health Counseling Credits: 3
Provides an orientation to the field of rehabilitation and mental health counseling. Includes historical antecedents, philosophical and traditional connections with the field of rehabilitation counseling, assessment, planning and service delivery methods for those intending to work in rehabilitation focused programs serving persons with psychiatric disabilities.

CHRD 752 - Medical and Psychological Aspects of Disability Credits: 3
Provides instruction in the causes and processes of medical diseases and conditions that result in severe and persistent disability. Basic anatomy, physiology, and central nervous system functions will be reviewed. The course will explore the relationship between physical and psychiatric processes. Individual and family adjustment to disability will be covered. Students will be oriented to current approaches and concepts in prosthetics, assistive technology, medication, and wellness.

CHRD 753 - Case Management Principles and Plan Development Credits: 3
Covers practice and provides methods for managing cases and making caseload management decisions. Principles and practice in areas covered include intake interview; medical, psychological, and vocational evaluation, career and lifestyle

alternatives, plan development, transitions, placement, and community integration. The course will also provide instruction in writing professional case reports, proposals, and progress notes. Time and work flow management strategies will be examined.

CHRD 755 - Clinical Diagnosis and Treatment Planning Credits: 4
This course is designed to introduce students to the DSM-IV and to help develop their diagnostic and treatment planning skills. Students will focus on particular disorders and how to effectively treat those disorders in clinical and school settings. Among the disorders and treatment plans that will be covered in class are: depressive disorders, anxiety disorders, substance abuse disorders, schizophrenia, disorders first diagnosed in infancy, childhood and adolescence, as well as personality disorders.

CHRD 756 - Counseling the Addictive Client Credits: 3
Counseling the addictive client is a course which describes how one can identify and treat addictive behaviors. Emphasis is on preventive and remedial action.

CHRD 757 - Advanced Testing: Intellectual Assessment Credits: 3
Examines the role, function, and use of intellectual assessment instruments. Emphasis is placed on administration and interpretation of the assessment instruments.

CHRD 759 - Advanced Testing: Personality Assessment Credits: 3
Examines the role, function, and use of personality assessment instruments. Emphasis will be placed on the administration and interpretation of personality assessment instruments.

CHRD 766 - Group Counseling Credits: 3
Processes and procedures used in small group counseling. Students participate in group counseling, facilitate in-class counseling sessions and develop structured units for specific populations. Prerequisites: CHRD 601, CHRD 610, CHRD 661 and EDER 760 or CHRD 602.

CHRD 770 - Student Development: Theory and Practice Credits: 3
This course introduces various theories of college student development and includes attention to developmental issues of special populations, such as minority students, international students, and nontraditional students. Research in several areas of student affairs work is emphasized.

CHRD 771 - Student Personnel Services Credits: 3
Two basic orientations provide the framework for this course: understanding the transition from theory to practice, and becoming a reflective, ethical practitioner. Students will gain a broad knowledge of student affairs functions as well as good overview of current issues in higher education.

CHRD 772 - Administration and Leadership in Student Affairs Credits: 3
This course provides an overview of administrative and leadership practice in the student affairs profession. The course will emphasize historical foundations of the profession and will utilize these foundations in understanding current practice. Students will gain broad knowledge about the role and function of student affairs functions in a variety of higher education settings. Cross-Listed: AHED 772.

CHRD 785 - Pre-Practicum Credits: 3
This course provides an introduction to basic therapeutic skills and structures compatible with a wide range of theoretical approaches. Students learn to conduct counseling interviews in order to successfully identify clients' conflicts, determine clients' desire for change, explore options and assist client action. This course serves as a foundation of CHRD 786 Counseling Practicum. Prerequisites: CHRD 601, CHRD 610, CHRD 661 and EDER 760 or CHRD 602.

CHRD 786 - Counseling Practicum Credits: 3-5
This course builds on the basic counseling skills learned in CHRD 785 Pre-Practicum and preferably directly follows that course in students' course work. In addition to enhancing basic counseling skills, this course is designed to help students integrate theory and practice. As part of their course work, students are asked to develop theory-based conceptualizations of client concerns. The faculty reserve the right to deny admission to CHRD 786 if they have reason to suspect a student might be unable to provide quality counseling services to clients. A minimum of 20 semester credit hours, including, CHRD 601, 602, 610, 661, 766, and 785, with a grade of B or better in 766 and 785. Retakes limited to two retakes. Prerequisites: CHRD 601 and CHRD 602 or CHRD 610, CHRD 661 and EDER 760.

CHRD 788 - Research Problems in Counseling and Guidance Credits: 1-3
A problem is selected, analyzed, and reported in a form approved by the research advisor. Required of all graduate students in counseling qualifying for Master's degree under Option B. Can be elected under Option C if desired.

CHRD 791 - Independent Study Credits: 1-3
CHRD 794 – Internship Credits: 2-6
CHRD 798 – Thesis Credits: 1-6

CJUS (Criminal Justice)

CJUS 591 - Independent Study Credits: 1-3
CJUS 592 – Topics Credits: 3

CM (Construction Management)

CM 543 - Construction Planning and Scheduling Credits: 3
Planning and scheduling construction projects. Both manual methods and computer programs will be used to schedule activities, control cost and manage resources. Prerequisites: CM 232 or Instructor permission.

CM 560 - Sustainable Building Systems Concepts and Analysis Credits: 3
The analysis of energy efficient and environmentally responsible building design and construction. Material selection, energy, and climate analysis, and practical applications of new technology will be covered.

CM 573 - Construction Law and Accounting Credits: 3
The study of the application of legal, contractual, and generally accepted accounting principles to the construction industry. Prerequisites: ACCT 210.

CM 585 - Site Development and Feasibility Analysis Credits: 3
Tools and techniques used to evaluate the cost of new site development; risk assessment and market feasibility analysis for properties to be acquired for economic development. Corequisites: CM 585L.

CM 585L - Site Development and Feasibility Analysis Lab Credits: 0
Lab to accompany CM 585. Corequisites: CM 585.

CSC (Computer Science)

CSC 533 - Computer Graphics Credits: 3
Principles of computer graphics. A study of the algorithms used to generate raster and vector graphics. Prerequisites: CSC 285, MATH 215 and MATH 125

CSC 547 - Artificial Intelligence Credits: 3
Introduction to ideas, issues and applications of Artificial Intelligence. Knowledge representation, problem solving, search, inference techniques, theorem proving. Expert systems. Artificial intelligence programming languages. Prerequisites: CSC 290.

CSC 550 - Game Programming Credits: 3
This course teaches the fundamental concepts of computer game programming using Windows and C/C++. The C/C++ languages are used for this course because they are the standard used for most commercial games. In this course, students will learn how to design 2D games for Windows, creating a simple game as part of the course.

CSC 574 - Computer Networks Credits: 3
Analysis of current and future computer networks with emphasis on the OSI model. Local and wide area networks. TCP/IP, SNA, token ring, ethernet and other common networks will be covered. Protocol and interfaces within and across networks including the OSI layers, routers, bridges and gateway. Prerequisites: CSC 300.

CSC 587 - Network Security Credits: 3
An introduction to cryptography and its application to network and operating system security: security threats, applications of cryptography, secret key and public key cryptographic algorithms, hash functions, basic number theory, authentication, and security for electronic mail. Prerequisites: "C" or better in CSC 300.

CSC 591 - Independent Study Credits: 1-3
CSC 592 – Topics Credits: 1-3

CSC 601 - Accelerated Computer Science Fundamentals Credits: 3
This course teaches the fundamental and advanced techniques of graduate computer programming using C++. The C++ language is used for this course because it is the standard language used for most graduate courses. In this course, students will learn how to write efficient and reliable code through advanced programming techniques.

CSC 630 - Principles Data Base System Design Credits: 3
Fundamental concepts. Physical data organization. Data models. Data Manipulation languages. Data base design. Application of data base concepts in design and development of data base systems and applications. Design of current commercial as well as research oriented data base systems. Techniques of using data base systems for application security and integrity. Performance evaluation. Prerequisites: CSC 484.

CSC 705 - Design and Analysis of Computer Algorithms (COM) Credits: 3
Design and analysis of algorithms to determine their time and space requirements. The study of effecient algorithms for various computational problems. Analysis of specific algorithms for internal sorting, hashing, and string search. Sorting manipulation of data structures, graphs, matrix multiplication, the Fast Fourier Transform, arithmetical operations and pattern matching. Study and implication of advanced topics on lists, stacks, trees, sets and dynamic allocation. Prerequisites: CSC 300.

CSC 710 - Structure and Design of Programming Languages Credits: 3
Evolution of concepts in programming languages. Data and control abstraction. Run-time effects of binding, scope and extent; structure of ALGOL-like and interpretive languages. Data types, problem areas and implementation models. Control structures, exception handling, concurrency. Functional programming. Examples from representative languages. Prerequisites: CSC 300.

CSC 720 - Theory of Computation Credits: 3
Formal models of computation. Recursive function theory, computable fuctions, decidable and enumerable sets, unsolvable programs, correctness of programs, undecidability and incompleteness and complexity of computation. Prerequisites: CSC 445.

CSC 740 - Management Information Systems Credits: 3
Computer appreciation course providing technical background for understanding and raising issues treated in other courses. Structure and operation of computer systems. Hardware technology and software development. Tools and methods for developing computer applications. Structure and components of Management Information Systems. Using the computer to support operations of management in planning and control and decision making. MIS development, organization, management and evaluation. Acquiring computer resources. The computer industry and profession. Prerequisites: CSC 325.

CSC 750 - Recent Advances in Parallel Process Credits: 3
A survey of topics related to the architecture of highly parallel machines, programming and algorithms. Pipelined computers, associative machines, array processors. Interconnection networks. Parallel algorithms. Prerequisites: CSC 705.

CSC 770 - Software Engineering Management Credits: 3
Management issues arise in the development of software systems. The topics include planning documentation for requirements, design, implementation and testing, cost projection and modeling, documentation standards, code control, tracking of defects management psychology, group interaction and communication, and the management of reviews and walkthroughs. Prerequisites: CSC 470 or instructor consent.

CSC 788 – Master's Research Problems/Project Credits: 1-2
CSC 790 – Seminar Credits: 1-3
CSC 791 - Independent Study Credits: 1-3
CSC 792 – Topics Credits: 1-3
CSC 798 – Thesis Credits: 1-7

CSS (Computational Science and Statistics)

CSS 890 - Seminar in Computational Science and Statistics Credits: 1
CSS 891 - Independent Study Credits: 1-3
CSS 892 – Topics Credits: 1-3
CSS 898 - Thesis/Dissertation Credits: 1-36

CTE (Career and Technical Education)

CTE 519 - Methods of Teaching Credits: 3
This course will feature lesson presentation and methods of delivering instruction in vocational technical education. The course is designed for individuals who are presently teaching in the vocational technical education field. Content builds upon existing knowledge of the program participants in order to increase comprehension of the field of vocational technical education. Instructional techniques appropriate for vocational technical education are developed based on the models identified in competency-based or performance-based philosophy. Participants are actively involved in current teaching assignments which creates an enormous opportunity for reflection and debate.

CTE 520 - Entrepreneurship in Career Education Credits: 3
This course is designed to help educators in all areas of vocational education to incorporate basic concepts of entrepreneurship into the curriculum. Topics include: small business plans, government regulations, site locations, record keeping, financing, legal consideration, business promotions, managing human resources, small business contributions to the economy and economic development, educational resources for entrepreneurship, placement of the entrepreneurship concept in vocational education programs and review of basic concepts related to entrepreneurship such as business ownership options and entrepreneur characteristics.

CTE 525 - Development of Career and Technical Education Thought and Practice Credits: 3
Philosophy, origins, and development of vocational, technical and practical arts, education programs at adult, post-secondary, secondary, and pre-vocational levels. Prerequisites: Current and emerging principles, practices, and issues are stressed.

CTE 530 - Cooperative Education Coordination Techniques Credits: 3
This course emphasizes the organization and coordination of cooperative work experience in vocational education programs: agriculture, marketing education, health occupations, family consumer sciences education, business education, and trade and industrial. Emphasizes strategies and techniques for coordinating classroom instruction with on-the-job work experience. Topics include: program organization, coordinator responsibilities, student selection, placement, advisory councils, public relations, training stations, training plans, legal aspects, and program and student evaluation.

CTE 540 - Curriculum Design in Career Education Credits: 3
This course addresses principles in developing vocational education curriculum research, development, implementation, and evaluation at the secondary, post-secondary and adult levels. Concepts include: coordination and organization of vocational education curriculum, curriculum design models (including competency-based education and applied academics); trends in state and national programs; long-range planning; articulation between secondary, post-secondary and 4-year programs.

CTE 563 - Technical and Industrial Experiences Credits: 1-4
This course is designed for Career and Technical Educators. The purpose of this course is to aid the educator in staying current with new technologies and methodologies occurring in business and industry. Approval is required from the Coordinator of Career and Technical Education (CTE) at least two weeks prior to the educational experience. To receive graduate credit a student will need to complete a paper reviewing the educational experience. Complete details on receiving undergraduate and graduate credit for the Technical and Industrial Experiences course are included in the application materials. (Appropriate forms and related paperwork can be acquired from the Coordinator of CTE).

CTE 591 - Independent Study Credits: 1-4
CTE 592 – Topics Credits: 1-3
CTE 791 - Independent Study Credits: 1-3
CTE 792 – Topics Credits: 1-3
CTE 794 – Internship Credits: 1-3

DS (Dairy Science)

DS 500 - Dairy Chemistry and Analysis Credits: 5
An examination of the physical and chemical properties of milk constituents and their effects on processing, testing, and nutritive value of milk and its' products. The role of intentional or accidental additives including impacts, effects and significance. An examination of laboratory protocols utilized in compositional analysis of milk and milk derived products as they relate to procurement, process control and regulatory compliance. Corequisites: DS 500L. Notes: Fall.

DS 500L - Dairy Chemistry and Analysis Lab Credits: 0
Corequisites: DS 500. Notes: Fall.

DS 513 - Physiology of Lactation Credits: 3
Anatomy, physiology, and biochemistry of mammary glands. Factors affecting quality and quantity of milk. Prerequisites: VET 223 or equivalent.

DS 542 - Dairy Product and Process Development Credits: 3
Students will work in small groups to design and produce a prototype dairy product. The course will include standards of identity for dairy products, nutritional labeling requirements, least cost formulation, design of manufacturing processes and methods for planning product development. Prerequisites: DS 313.

DS 580 - Dairy Farm Operations I Credits: 4
The first course in a two-semester sequence course addressing dairy herd management practices. Dairy farm capital, budgets and credit; factors affecting economic returns of dairy farming; nutrition and feeding of lactating dairy cattle; and nutritional implications related to herd replacements. Corequisites: AS 233-233L and DS 580L. Prerequisites: DS 130-130L and ECON 202. Notes: Odd Fall.

DS 580L Dairy Farm Operations I Lab Credits: 0
Corequisites: DS 580.

DS 581 - Dairy Farm Operations II Credits: 4
The second semester of a two-semester sequence course addressing dairy herd management practices. Production testing and records interpretation; impacts of cropping systems and commodity markets; labor requirements and Human Resources implications; building and equipment requirements; animal health and reproduction; merchandising of cattle and milk; and factors affecting economic returns of dairy farming. Corequisites: DS 581L. Prerequisites: DS 130-130L, ECON 202, DS 580, DS 580L. Notes: Even Spring.

DS 581L - Dairy Farm Operations II Lab Credits: 0
Corequisites: DS 581. Notes: Even Spring.

DS 711 – Ruminology Credits: 3
Biochemical, physiological, and microbiological activity occurring in the rumen and the relation of rumen function to animal response. Prerequisites: CHEM 464 and VET 223 or instructor consent. Cross-Listed: AS 711.

DS 722 - Advanced Dairy and Food Microbiology Credits: 3
Emerging concepts in dairy microbiology related to food preservation, microbial detection techniques, molecular aspects of lactic acid bacteria and applications as probiotics, bacterial pathogenesis, and food safety management systems. Prerequisites: DS 301 or MICR 311 or instructor consent.

DS 731 - Laboratory Techniques in Dairy Science Credits: 3
Research design, laboratory techniques, and data management and presentation in Dairy Science. Laboratory procedures include photometry, gas chromatography, and microbiological (aerobic and anaerobic) assays.

DS 790 – Seminar Credits: 1-3
DS 791 - Independent Study Credits: 1-4
DS 792 – Topics Credits: 1-4
DS 798 – Thesis Credits: 1-10
DS 898D - Dissertation – PhD Credits: 1-12

ECE (Early Childhood Education)

ECE 543 - Child Inquiry Credits: 2
Students will gain an understanding of inquiry based learning and of model programs such as those found at Reggio Emilia, Italy. Students will critically review, reflect upon, and evaluate theory, literature, and current research related to Developmentally Appropriate Early Childhood Education that supports child inquiry. Students will learn to draw on quality assessment, observation, and documentation for curriculum development, including collaborative long-term inquiry based investigations with children, and for conducting action research.

ECE 591 - Independent Study Credits: 1-3
ECE 592 – Topics Credits: 1-3

ECE 645 - Contemporary Perspectives in Early Childhood Education Credits: 3
The course is designed to present contemporary perspectives in the field of early childhood education. Current influences from Dewey to Reggio Emilia on curriculum development and assessment and teaching and learning will be explored.

ECE 676 - Early Childhood Educational Administration and Practices Credits: 1-4

ECE 711 - Child Development Theory and Application Credits: 3
In-depth study of human development. Emphasis upon current theories and their application to an understanding of the developmental growth processes; relationship between cognitive, social, physical and emotional development and behavior; range of normality in growth and behavior. Focus on normal development but with consideration of impact of deviance from normative development on child, family, neighborhood.

ECE 788 - Individual Research and Study Credits: 1-7
ECE 791 - Independent Study Credits: 1-3
ECE 792 – Topics Credits: 1-3
ECE 794 – Internship Credits: 1-7
ECE 795 – Practicum Credits: 1-6
ECE 798 – Thesis Credits: 1-7

ECON (Economics)

ECON 503 - History of Economic Thought Credits: 3
History of economic thought surveys the historical development of economic theory from ancient to modern times. The writings of Aristotle, Adam Smith, Marx, and Marshall provide part of the diverse menu of economic thought.

ECON 520 - Economics of the Public Sector Credits: 3
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. Prerequisites: ECON 201 or instructor consent.

ECON 531 - Managerial Economics Credits: 3
Applications of microeconomic theory, statistics and other quantitative methods to analysis and solution of decision making problems confronted by managers of agribusiness, commercial and manufacturing enterprises. Topics include economic analysis of demand, production, cost, market structure, government regulation, risk, and capital budgeting. Prerequisites: ECON 201, STAT 281.

ECON 540 - Economics of the International Sector Credits: 3
International flow of trade and balance of payments. Monetary and fiscal policies. Trade controls and their effect upon the agricultural and domestic economies. Significant current developments in trade and finance. Prerequisites: ECON 201, 202, and ECON 301 or 302 or 330.

ECON 550 - Industrial Organization Credits: 3
Industrial organization studies how different industry structures influence firm performance and business practices, and how government policies affect competitiveness and the economy.

ECON 553 - Risk Management - Personal and Business Credits: 3
Protection against or adaptation to risk and uncertainty. Principles and practices of fire, casualty, surety and life insurance and other risk management techniques. Prerequisites: STAT 281 and ECON 301.

ECON 560 - Economic Development Credits: 3
Developing and developed national economies. Factors impacting economic development. Role of public policies in development. Agricultural and rural development issues emphasized. Prerequisites: ECON 201, ECON 202, or instructor consent.

ECON 572 - Resource and Environmental Economics Credits: 3
Resource and environmental economics surveys the allocation and conservation of natural resources from a perspective of optimal use and sustainability. Emphasis is placed on environmental economics including the problems of pollution, population, and economic growth. Methods for evaluating projects and programs are considered.

ECON 576 - Marketing Research Credits: 3
Marketing problems confronting agribusinesses and businesses. Descriptive and analytical techniques in a research methods approach. Marketing research techniques. (Offered on demand)

ECON 591 - Independent Study Credits: 1-3

ECON 601 - Economic Study in Industrial Management Credits: 3
Intensive study of economic choice and value theory, financial statement structure and analysis, and financial management. Not open to economics majors.

ECON 610 - Financial Management Credits: 3
Advanced techniques for managing working capital, capital budgeting, analysis of financial structure and cost of capital, valuation, financial planning and control. Prerequisites: BADM 310, STAT 281, or instructor consent.

ECON 660 - Operations Management Credits: 3
Product planning, demand forecasting and management, capacity planning, scheduling, inventory planning and timing, materials management, quality, work standards and measurement. Prerequisites: BADM 360, ECON 301 and STAT 281.

ECON 662 - Bioenergy Economic/Sustainability Credits: 3
This course will provide an understanding of the economic issues relating to overall supply chains producing bioenergy and bio-based products. The course will address the economic, sustainability and social dimensions of these industries. Participants will gain an understanding of triple bottom line objectives, life cycle analysis and the principles of feasibility analysis.

ECON 663 - Bio-Energy Feasibility and Commercialization Credits: 3
This course will introduce the student to the concepts involved in feasibility and commercialization of bio-fuel and bio-based projects. Participants will gain an understanding of issues and processes in moving a project from pilot scale into commercialization. Prerequisites: ECON 201.

ECON 672 - Bioenergy & Resource Economics Credits: 3
Bioenergy and Resource Economics surveys the allocation and conservation of natural resources from a perspective of optimal use and sustainability. Emphasis is placed on the tradeoffs and issues related to the production of biomass and development of the biofuels market including resource allocation, valuation methodology, economic growth, and market development. Prerequisites: ECON 201, MATH 121 or MATH 123.

ECON 691 - Independent Study Credits: 1-3
ECON 692 – Topics Credits: 1-4

ECON 703 - Advanced Macroeconomics Credits: 3
Advanced Macroeconomics studies the economy as a whole. The course investigates the sources of long-run economic growth and short-run aggregate shocks. Some of the models examined include Solow, Infinite Horizon, Overlapping Generations, New Growth, and Real Business Cycle. Also theories of incomplete nominal adjustment, rational expectations, unemployment and inflation, and monetary and fiscal policies are studied. Prerequisites: ECON 428 or instructor consent.

ECON 704 - Advanced Microeconomics Credits: 3
Rigorous analysis of topics in microeconomics including: methodology of economic science, economic choice, production, resource allocation, distribution, welfare economics, and general equilibrium. Prerequisites: ECON 428 or instructor consent.

ECON 705 – Econometrics Credits: 3
Practice in the application of micro-and macro-economic theory to solutions of real and hypothetical problems. Selection and use of appropriate statistical and other analytical methods suitable for complex problems. Prerequisites: ECON 423 and ECON 428.

ECON 707 - Research Methodology in Applied Economics Credits: 2
Planning and conducting empirical research in applied economics. The organization of research, philosophy and the aim of science and research. Research project proposal and presentation are required.

ECON 713 - Monetary Theory and Practice: The American Experience Credits: 3
Examine how the money supply and other nominal economic variables, including inflation rates and nominal interest and exchange rates, relate to real economic variables, including real output, income, and employment. Examine this relationship theoretically, empirically, and in the context of the US experience from 1913 to the present.

ECON 740 - Investment Science Credits: 3
The course will apply econometrics, advanced statistics, and differential calculus to the process of stock analysis and pricing, portfolio composition, options pricing, and risk management. Its focus is on minimizing risk while seeking a target rate of return.

ECON 788 - Master's Research Problems/Projects Credits: 1-2
ECON 792 – Topics Credits: 1-4
ECON 798 – Thesis Credits: 1-7

EDAD (Educational Administration)

EDAD 695 – Practicum Credits: 1
Field-based problem-centered experience. Corequisites: EDAD 700.

EDAD 700 - Introduction to School Administration Credits: 2
A broad overview of administration. Will examine administration as an applied science and analyze the organizational, political, and human relations systems as forces affecting administration. Specific topics will include conflict resolution, crisis management, planning, staff development, evaluation, and communications theory. Corequisites: EDAD 695.

EDAD 701 - Introduction to Education Administration Credits: 3
An introduction to (1) the organization, administration, and control of public education, and (2) the profession of educational administration, including task, process, and activity analysis.

EDAD 707 - The Principalship Credits: 2
Emphasis is on the principal as an instructional leader with major topics focusing on staff recruitment, supervision and evaluation, student services, rights and responsibilities, research on effective schools, parent community relationships and the principal's role in dealing with current issues facing our schools. Corequisites: EDAD 709.

EDAD 708 - Elementary Principalship Practicum Credits: 1
Field-based problem-centered experience. Corequisites: EDAD 707.

EDAD 709 - Secondary Principalship Practicum Credits: 1
Field-based problem-centered experience. Corequisites: EDAD 707.

EDAD 715 – Supervision Credits: 3
A study of leadership styles and the effects different styles have on motivating people. Emphasis on utilizing and developing human potential.

EDAD 730 - School Finance Credits: 2
Develop an understanding and working knowledge of school finance theory and practice. Prerequisites: Emphasis will be placed on the school finance reform movement in recent years.

EDAD 735 - School Law Credits: 3
Legal foundations of elementary and secondary education in our society; legal powers and relationships of school boards, administrators, teachers, parents (guardians) and students. Emphasis will be placed upon the values underlying these foundations, powers and relationships.

EDAD 741 - Community and Public Relations Credits: 2
Maintaining working relations between school and community from the perspective of the building administrator. Includes working with community organizations and public relations. This course is a prerequisite or corequiste for EDAD 794, Internship.

EDAD 788 - Master's Research Problems/Projects Credits: 1-2
A problem is selected, analyzed, and reported in form approved by the research advisor. Required of all graduate students in education qualifying for the degree under Option B. Can be elected under Option C if desired. Course is repeatable for additional credit.

EDAD 790 – Seminar Credits: 1-3
EDAD 791 - Independent Study Credits: 1-3
EDAD 792 – Topics Credits: 1-3
EDAD 793 – Workshop Credits: 1-3

EDAD 794 – Internship Credits: 1-6
Prerequisites: EDAD 707, EDAD 715, EDAD 741 or concurrent.

EDER (Education Evaluation and Research)

ED 692 – Topics Credits: 1-4
ED 695 – Practicum Credits: 1-4
EDER 691 - Independent Study Credits: 1-3

EDER 711 - Educational Assessment Credits: 3
Examines the theory and principles of educational assessment.

EDER 760 - Informational Literacy Credits: 3
Particular emphasis is placed on the knowledge needed to be an informed and effective consumer of research. This course helps students become critical consumers of professional information by addressing the location, evaluation, use, and communication of information.

EDER 788 - Master's Research Problems/Projects Credits: 1-2
Notes: Couse is repeatable for additional credit.

EDER 792 – Topics Credits: 1-6

EDFN (Education Foundations)

EDFN 527 - Middle School: Philosophy and Application Credits: 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. Prerequisites: Consent (Admission to teacher education program, junior standing, an adolescent psychology/development course).

EDFN 560 - Applied Linguistics for Teaching English as a Second Language Credits: 3
The study of social and linguistic structures which undergird different discourse forms. Emphasis will be on discourse forms which are particularly important for full participation in US culture such as the rhetoric of public and school interactions.

EDFN 561 - Cultural and Psychological Perspectives in the Acquisition of English as a Second Language Credits: 3
Addresses the social and cognitive processes involved in the acquisition of a second language including developmental influences.

EDFN 562 - Teaching Language Arts for English as a Second Language Across the Curriculum Credits: 3
The teaching of reading and writing to students with limited English proficiency. Emphasis will be on reading and writing as it pertains to performance in educational and public settings.

EDFN 563 - Methods of Teaching English as a Second Language Credits: 3
Develops the central concepts, tools of inquiry, and structure of teaching English to students with limited English proficiency. Includes the evaluation of instructional processes, learning resources, curriculum, and programs. Emphasis will be on teaching students to use English in educational and public settings.

EDFN 590 – Seminar Credits: 1-3
EDFN 592 – Topics Credits: 1-3
EDFN 691 - Independent Study Credits: 1-3

EDFN 700 - Exceptional Learners Credits: 3
Assist regular classroom teachers to better understand and more effectively teach students with special learning needs. Focuses on learning disabilities, mental retardation, and behavior disorders. Also includes short sections regarding hearing impairments, visual impairments, orthopedic or health impairments, speech/language disorders, and the gifted. Regular classroom curricular adaptations and modifications are included.

EDFN 725 - Education in a Pluralistic Society Credits: 3
Focus on school issues surrounding pluralism in a democratic society. This course relates to working with the diversity of populations within our schools. This diversity is represented in our schools by the multi-cultural nature of American society, and differences associated with exceptionality, gender, age, religion, and socio- economic status. The course will focus on preparing educators to confront issues relating to pluralism and diversity and to work productively in a variety of settings.

EDFN 727 - Group Processes Credits: 3
A survey of small group constructs, research, and principles of application. Emphasis on learning methods and skills of group observation as well as developing knowledge of group roles and dynamics. members will learn experimentally about groups by participating, observing and analyzing opportunities to experience their own behaviors and styles as they deem appropriate.

EDFN 730 - Current Issues in Education Credits: 3
Analysis of current trends and issues in education. Focus on the change process in educational and social settings.

EDFN 745 - Effective Teaching: Theory Into Practice Credits: 3
Approaches instruction from the perspective of Effective Teaching Research integrated with a focus on thinking skills. Students study various instructional models, focus on selection and implementation of appropriate strategies and consider other classroom issues related to effective teaching.

EDFN 747 - Curriculum: Theory Into Practice Credits: 2
A study of the nature and principles of curriculum and curriculum development in schools. Process of curriculum change, development and evaluation will be examined. Roles of teachers, administrators, students and the public in curriculum change will be studied. Corequisites: ELED 748 and SEED 748.

EDFN 750 - Educational Technology Credits: 3
This course provides an advanced grounding in the educational uses of computing and communications technology. It includes integration of technology into the classroom, distance education, multimedia production, and school management systems.

EDFN 751 - Teaching Reading Across Disciplines Credits: 3
Examines the latest research on how readers comprehend and learn from written tests, and the classroom applications of this research. Intended for teachers of content subjects (science, English, math, history, etc.) in grades 4 through the early years of college.

EDFN 754 - Clinical Practice in Reading Credits: 1-3
Supervised experience in utilizing best techniques and materials to effect desirable solution to reading difficulties; practical experience in writing case studies, in diagnosing reading disability. Proposing effective remediation, keeping records and in evaluating progress of student.

EDFN 790 – Seminar Credits: 1
EDFN 792 – Topics Credits: 1-3
EDFN 794 – Internship Credits: 1-6

EE (Electrical Engineering)

EE 536 - Photovoltaic Systems Engineering Credits: 3
Fundamentals of hybrid photovoltaic power systems. Topics may include: an overview of energy and electricity use; solar resource characteristics; load assessment; the fundamentals of solar cells, batteries, power electronics, and generators and other power sources; power system design; the National Electric Code; and energy economics. Corequisites: EE 536L.

EE 536L - Photovoltaic Systems Engineering Laboratory Credits: 1
This lab provides practical experience in the design of hybrid photovoltaic power systems. Corequisites: EE 536.

EE 554 - Biomedical Instrumentation and Electrical Safety Credits: 3
The design of electronic instrumentation for physiological applications. Emphasis on modeling and design of biopotential electrode/amplifier systems, physiological measurement techniques, therapeutic and prosthetic devices, and electrical safety in healthcare facilities. Prerequisites: EE 321.

EE 560 - Sensors and Measurements Credits: 2
Introduction to the operation, design, testing and applications of modern sensors in use and under development. Signal conditioning and system integration are also reviewed. Corequisites: EE 560L.

EE 560L - Sensors and Measurements Laboratory Credits: 0

EE 562L - Electronic Materials Laboratory Credits: 1
An introduction to microelectronic fabrication including evaporative and sputter deposition, photolithography, mask design, and packaging. Prerequisites: Instructor consent.

EE 571 - Fiber Optics Communications Credits: 3
Theory and application of optical fibers and communication systems. Topics include fundamentals of optical fiber waveguides, electroluminescent sources, single-mode and multimode, propagation, coupling consideration, photo-detectors, signal degradation, fabrication and cabling, and transmission linked analysis. Corequisites: EE 571L. Prerequisites: EE 316.

EE 571L - Fiber Optics Communications Laboratory Credits: 1
This laboratory reinforces the theoretical concepts presented in the lecture course, EE 471/571. Topics include basic knowledge and skills needed for handling and testing optical fibers, characteristics of optical components, fiber optic communication systems and fiber optic sensing systems.

EE 575 - Digital Image Processing Credits: 3
Introductions to the fundamentals of digital image processing. Topics include image formation, transforms, enhancement, restoration, compression, and analysis. Prerequisites: EE 317.

EE 591 - Independent Study Credits: 1-4
EE 592 – Topics Credits: 1-3
EE 592L - Topics in Laboratory Experience Credits: 1
EE 691 - Independent Study Credits: 1-3
EE 692 – Topics Credits: 1-3

EE 702 - Theory and Application of Nanoscale Materials Credits: 3
Introductory quantum mechanics, ability to solve ordinary differential equations and linear systems. The course will survey current research in nanoscience and nanotechnology, providing the essential background and theory at a level accessible to students from varied scientific and engineering backgrounds. Special emphasis will be placed on nano-scaled materials and their practical applications. Cross-Listed: NANO 702 at SDSM&T; CHEM 718 at USD.

EE 716 - Digital Fabrication: Materials and Processes Credits: 3
The principles of interfacial phenomenon, solution thermodynamics, and colloid chemistry will be used in illuminated process by which metallic nanoparticulates can be formed and incorporated into inks for use in manufacturing of a variety of products. Students will learn 1) the methods and science behind the manufacture of a variety of functional nanoparticles, 2) the methods of incorporating these particles into inks and the printing of these inks for digital fabrication applications, and 3) the interfacial processes involved in line spreading and curing of the printed traces. Cross-Listed: MES 677 and NANO 677 at SDSM&T; CHEM 716 at USD.

EE 720 - Synthesis and Characterization of Nanomaterials Credits: 3
A survey and analysis of synthetic materials and characterization techniques for nano-structured materials will be presented. The classes of materials that will be studied include: inorganic nanocrystals (metals, semi-conductors, metal oxides), nano-wires, porous materials, carbon nanostructures, and higher order materials, such as supported catalysts. Solution-phase synthetic routes will be emphasized, including sol-gel synthesis, non-hydrolytic molecular decomposition, and micelle-templated synthesis, with lesser emphasis on solid state and gas-phase reactions. Methods of characterization will be discussed, including: transmission electron microscopy (TEM), scanning electron microscopy (SEM), powder X-ray diffraction (XRD), UV-visible absorption/fluorescence, X-ray absorption spectroscopy, gas sorption analysis, atomic force microscopy (AFM), scanning tunneling microscopy(STM), and photoelectron spectroscopy. Cross-Listed: CHEM 720 at USD.

EE 722 - Advanced Statistical Communications (COM) Credits: 3
Advanced concepts of probability and random processes; linear systems and random processes; performance of amplitude angle and pulse modulation systems in noisy environments; digital data transmission; and basic concepts of information theory.

EE 723 - Luminescent Spectroscopy Materials Credits: 3
Fundamentals of luminscent behavior and photodynamics of solid state materials and spectroscopic methods of characterization will be discussed. Applications of novel solid state materials as phosphors, sensors, and in optoelectronics devices will be considered. Cross-Listed: CHEM 723 at USD.

EE 731 - Advanced Power Electronics Credits: 3
This course presents an overview of switching power devices and power electronic converters focused on power electronic interfaces for renewable energy systems, switch mode power supplies and UPS systems. The course emphasizes power electronic circuit analysis, design, and control. Qualitative and quantitative analysis of power electronics is presented focusing on the design and performance of AC/DC, DC/DC, DC/AC, and AC/AC converters. Corequisites: EE 731L.

EE 731L - Advanced Power Electronics Lab Credits: 1
This course presents a practical overview of switching power devices and power electronic converters focused on power electronic interfaces for renewable energy systems, switch mode power supplies and UPS systems. The course is project based and provides the experience for students to practice in the lab the knowledge obtained in the lecture section. Corequisites: EE 731.

EE 732 - Modeling and Control of Power Electronic Systems Credits: 3
This course presents approaches for computer-aided analysis and design of power electronic interfaces for renewable energy systems. Techniques for modeling electric generators, power converters and renewable energy sources (i.e. wind and solar), and for designing converters with feedback control are discussed. Corequisites: EE 732L.

EE 732L - Modeling and Control of Power Electronic Systems Lab Credits: 1
This course presents a laboratory experience for computer-aided analysis and design of power electronic interfaces for renewable energy systems. Techniques for modeling electric generators, power converters and renewable energy sources (i.e. wind and solar), and for designing converters with feedback control are presented. Corequisites: EE 732.

EE 733 - Advanced Power System Analysis Credits: 3
This is an advanced course to power systems engineering, designed to provide a student with the knowledge of steady-state analysis in power system operation. Course content includes power flow analysis, state estimation, power system security, automatic generation control, economic dispatch, optimal power flow, unit commitment, fuel scheduling, and production cost modeling. Corequisites: EE 733L.

EE 733L - Advanced Power System Analysis Lab Credits: 1
This course presents computer (PSS/E) modeling and simulation of power system operation and control, including load-flow, contingency analysis, unit commitment, economic dispatch, optimal power flow, etc. The course is project based and will provide the experience for students to practice in the lab the knowledge obtained in the lecture section. Corequisites: EE 733.

EE 734 - Power System Dynamics and Stability Credits: 3
This course will cover modeling, analysis and mitigation of power system stability and control problems. Planning and operations of a modern interconnected power grid under disturbances to ensure system performance and reliability will also be covered. Students will learn both analytical and numerical methods to solve realistic power system stability and control problems. Corequisites: EE 734L.

EE 734L - Power System Dynamics and Stability Lab Credits: 1
This course presents computer (PSS/E) modeling and simulation of power system stability and control, including, synchronous machine modeling, automatic generation control, transient stability, voltage stability, small signal stability, etc. The course is project based and will provide the experience for students to practice in the lab the knowledge obtained in the lecture section. Corequisites: EE 734.

EE 735 – Photovoltaics Credits: 3
This course will cover modern silicon photovoltaic (PV) devices, including the basic physics, ideal and nonideal models, device parameters and design, and device fabrication. The emphasis will be on crystalline and multicrystalline devices, but thin films will also be introduced. PV applications and economics will also be discussed.

EE 736 - Advanced Photovoltaics Credits: 3
This course will cover advanced photovoltaic concepts, including thin films, compound semiconductors, spectral conversion devices, and organic and polymeric devices. Advanced device designs will be emphasized. Evaluation will include a research paper addressing a current PV topic. Prerequisites: EE 735.

EE 737 - Organic Photovoltaics Credits: 3
Organic photovoltaic provides a variety of interesting and new properties which facilitate solar energy utilization. The objectives of this course are to introduce material properties of polymers, small molecules, dyes, and nanmaterials for photovoltaics; describe device mechanisms and behavior or organic photovoltaics; understand the photophysical processes in organic photovoltaics; and introduce different processing techniques for device fabrication.

EE 751 - Linear Systems Theory Credits: 3
State variables, Laplace transform theory, matrix analysis and complex variable theory as applied to problems in circuit analysis. Topology, network theorems and network functions.

EE 765 - Electric Properties of Materials Credits: 3
Topics covered include electromigration, diffusion, theory of rate processes, relaxation, effects, phase transformations, physics of failure in electrical circuit applications.

EE 766 - Thin Film Materials and Devices Credits: 3
This course will focus on the theory of state-of-the-art micro and nano materials and fabrication techniques. Emphasis will be on the selection of appropriate electronic and optical materials as well as the processes that control form and structure which can be designed to yield desired physical properties. Specific materials and processes to be studied will be decided by the course instructor

EE 770 - Information and Signal Processing Credits: 3
Foundation of information theory and its relationship to the measure and transmission of information; comparison of analog and digital system implementations. Topics include random processes, signal representation, spectral analysis, channel capacity, rate distortion, coding, data compression. Z-transforms and digital filtering. Prerequisites: EE 310 or EE 316.

EE 785 - Microwave Theory Credits: 3
Transmission lines, resonant cavities, waveguide junctions, and components. Active devices, lasers, masers. Prerequisites: EE 385.

EE 788 – Master's Research Problems/Project Credits: 1-2
EE 790 – Seminar Credits: 1
EE 791 - Independent Study Credits: 1-9
EE 792 – Topics Credits: 1-3
EE 798 – Thesis Credits: 1-7
EE 898D – Dissertation Credits: 1-6

EES (Ecology and Environmental Science)

EES 525 - Disturbance and Restoration Ecology Credits: 3
Introduction to basic concepts of disturbance and restoration ecology. Demonstration and discussion of linkages between basic biology and management of natural resources. Corequisites: EES 525L. Prerequisites: BIOL 311.

EES 525L - Disturbance and Restoration Ecology Lab Credits: 0
Corequisites: EES 525.

EES 592 – Topics Credits: 1-7
EES 692 – Topics Credits: 1-7

ELED (Elementary Education)

ELED 592 – Topics Credits: 1-3
ELED 593 – Workshop Credits: 1-3

ELED 748 - Elementary Curriculum Practicum Credits: 1
Field-based problem-centered experience. Corequisites: EDFN 747 and SEED 748.

EM (Engineering Mechanics)

EM 522 - Theory of Elasticity Credits: 3
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. Prerequisites: EM 321, MATH 331 or equivalent.

EM 523 - Theory of Plasticity Credits: 3
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. Prerequisites: EM 522 or instructor consent.

EM 624 - Theory of Plates and Shells Credits: 3
Small-deflection theory of plates. Laterally-loaded rectangular plates. Navier and Levy solutions. Plates of various shapes, boundary conditions, and loading systems. Basic equations of the theory of shells. Design problems in cylindrical shells.

EM 731 - Advanced Fluid Mechanics Credits: 3
Fundamental notions of continuum, stress at a point velocity field, and vorticity. General principles of kinematics and dynamics of a fluid. Potential flow and vortex motion. Prerequisites: EM 331, MATH 331.

EM 741 - Finite Element Analysis Credits: 3
Theoretical basis of the method of finite element analysis-an approximate method which analyzes problems using small, but finite elements rather than the infinitesimal elements of the calculus. Two-and three dimensional stress analysis, plate bending and shell problems, static, dynamic and stability problems. Geometric and material non-linearities. Introduction to both heat and fluid flow problems. Prerequisites: MATH 321.

ENGL (English)

ENGL 522 – Chaucer Credits: 3
Major works of Chaucer, with some attention to his sources and his language.

ENGL 523 - Old and Middle English Literature Credits: 3
Emphasizing pre-Norman heroic and Christian literature, the work of Chaucer and his contemporaries, and folk literature such as the ballads.

ENGL 534 - English 18th Century Literature Credits: 3
Literature of the later 17th and 18th centuries (1660-1800), including major works and developments in literature and thought.

ENGL 538 - English Victorian Literature Credits: 3
English literature of the Victorian Period (1840-1900).

ENGL 553 - American Renaissance Literature Credits: 3
American literature of the mid nineteenth-century, including the Transcendentalists and Romantics.

ENGL 554 - American Realist and Naturalist Literature Credits: 3
American literature of the realist and naturalist movements of the late 19th and early 20th centuries.

ENGL 560 - Contemporary American Literature Credits: 3
American literature since WWII.

ENGL 581 - Travel Studies Credits: 1-5
This travel study course is designed to provide extra-mural educational experiences, as approved by and under the direction of a faculty member, and may be in cooperation with faculty and administrators of other institutions. Students will participate in hands-on activities and design educational activities for presentation at selected locations.

ENGL 583 - Advanced Creative Writing Credits: 3
A course allowing students with experience in creative writing to specialize in a particular genre (poetry, fiction, etc.). Prerequisites: Pre-requisite: ENGL 383 or instructor consent.

ENGL 591 - Independent Study Credits: 1-4
ENGL 592 – Topics Credits: 1-3

ENGL 704 - Introduction to Graduate Studies Credits: 3
An introduction to literary criticism and study of bibliographic tools (including electronic sources) and research methods needed for scholarly writing in the Humanities. Required of all candidates for the M.A. degree in English.

ENGL 705 - Seminar in Teaching Composition Credits: 3
Study of the methods, theories, and history of writing instruction. Prerequisites: A course for English GTAs and required of them.

ENGL 710 - Seminar in Rhetoric Credits: 3
Intensive study of selected periods or topics in rhetoric, with special emphasis on their relation to issues in criticism and composition.

ENGL 724 - Seminar in English Literature To 1660 Credits: 3
Intensive study of a selected type, theme, author, or period of English Literature from the beginning to 1660.

ENGL 725 - Seminar in English Literature Since 1660 Credits: 3
Intensive study of a selected type, theme, author, or period of English literature since 1660.

ENGL 728 - Seminar in American Literature To 1900 Credits: 3
Intensive study of a selected type, theme, author, or period of American literature to 1900.

ENGL 729 - Seminar in American Literature Since 1900 Credits: 3
Intensive study of a selected type, theme, author, or period of American literature since 1900.

ENGL 742 - Seminar in American Indian Literature Credits: 3
Intensive study of American Indian literature of the past or present with concentration on the Plains Indians.

ENGL 755 - Seminar in Minority Literature Credits: 3
American literature of specific cultural or ethnic minorities other than Native American (African American, Asian American, Hispanic, Jewish, or woman writers, for example). May be repeated once with different content.

ENGL 791 - Independent Study Credits: 1-3
ENGL 792 – Topics Credits: 1-4
ENGL 798 – Thesis Credits: 1-7

ENTR (Entrepreneurship)

ENTR 538 - Entrepreneurship II Credits: 3
This course focuses on the processing of screening an opportunity, drafting a personal entrepreneurial strategy, and understanding the business plan writing process. Building the entrepreneurial team and the acquisition and management of financial resources are emphasized along with venture growth, harvest strategies, and valuation.

EPSY (Educational Psychology)

EPSY 526 - Psychology of Early Adolescent Learner Credits: 3
To guide students in the personal construction and application of an early adolescent development knowledge base. The learning environment of the early adolescent/middle school student will be the context of study in this course. A theoretical base related to intellectual development, identity development, and social development will be used as a basis for exploring the benefits and needed changes in current educational settings of the 10- to 15-year-old. Students will study the impact of various influences on the healthy and positive development of the learner. Students will apply the knowledge base to evaluate and critique personal experiences, issues, and programs designed for early adolescent learners. Prerequisites: Admitted to education program. Junior standing or graduate student.

EPSY 723 - Adolescent Psychology Credits: 3
This course covers the mental, social, and emotional development of boys and girls during the adolescent period.

EPSY 740 - Advanced Educational Psychology Credits: 3
A study of theories of learning. The goal of the course is for each student to gain insight into their own beliefs about how learning occurs.

EXPL (Exploratory Studies)

EXPL 578 - Student Exchange – Domestic Credits: 0-18
Students enroll in coursework from approved consortia or tuition reciprocity agreements enabling them to benefit from richer, more specialized, and relevant course and program options. This course tracks enrollment, allows students to retain an active status, and qualifies them for financial aid at SDSU.

EXPL 587 - Study Abroad Credits: 0-18
The goal of the course is to track student enrollment in a study abroad experience as well as to award credit for the time and effort necessary in the preparation, culture-learning, and re-entry processes of study abroad.

FCSE (Family and Consumer Sciences Education)

FCSE 591 - Independent Study Credits: 1-3
FCSE 592 – Topics Credits: 1-3
FCSE 595 – Practicum Credits: 1-3

FCSE 611 - History and Philosophy of Family and Consumer Sciences Credits: 3
The history, mission, philosophy and development of Family and Consumer Sciences (FCS) and career and technical education; the societal context for families and communities and the impact of selected legislation and consumer sciences programs.

FCSE 673 - Supervised Student Teaching in Family and Consumer Sciences Education Credits: 6-9
Student teaching is the capstone experience in a comprehensive program for the professional development of teacher candidates. MS-FCS teacher education candidates will spend 10-16 weeks in family and consumer sciences classrooms working directly with teaching-learning situations under the guidance of cooperating teachers and a university supervisor.

FCSE 721 - Occupational Programs in Family and Consumer Sciences Credits: 3
This course will include the planning and implementing of occupational FCS programs in career and technical education. Emphasis on cooperative education, career pathways and work- based education.

FCSE 741 - Supervision of Family/Consumer Sciences Education Credits: 2
This course will cover the philosophy, responsibilities, and techniques of supervision in the family and consumer sciences classroom and other learning environments.

FCSE 751 - Curriculum of Family/Consumer Sciences Education Credits: 2
The analysis and development of curriculum and methods of teaching family and consumer sciences in the context of the National Standards for Family and Consumer Sciences Students, the National Standards for Teachers of Family and Consumer Sciences and appropriate state standards. This course will include the content topics of learners and the learning environment, program leadership, beginning instructional strategies, Family, Career and Community Leaders of America (FCCLA); curriculum development; integration of technology in the FCS classroom and assessment.

FCSE 761 - Advanced Methods and Assessment in Family & Consumer Sciences Education Credits: 3
This course will address the application of theories of learning and human development in selecting teaching strategies and instructional resources for family and consumer sciences. The course will include long-range planning, classroom management, laboratory management, assessment and program evaluation, marketing/public relations, FCCLA and methods of teaching.

FCSE 788 - Master's Research Project Credits: 1-3
FCSE 792 – Topics Credits: 1-3
FCSE 798 – Thesis Credits: 1-7

FS (Food Science)

FS 550 - Food Analysis Credits: 4
Principles and techniques of physical and chemical analysis of food products. It will include proximate analysis of moisture, protein, lipids and carbohydrates and chemical or instrumental analysis of vitamins, minerals and food additives.

FS 550L - Food Analysis Laboratory Credits: 0

FS 551 - New Food Product Development Credits: 4
This course is designed as a capstone course for undergraduate Food Science students and an introductory course for graduate students in food-related majors. The principles and technologies of food storage, process and packaging will be discussed in depth. Emphasis will be placed in the development of new food products.

FS 551L - New Food Product Development Laboratory Credits: 0

FS 634 - Techniques of Food and Nutrition Research Credits: 3
Laboratory experience using methods, measurements and instruments for obtaining nutritional data. Topics covered will include methods of conducting field, applied and metabolic studies in food and human nutrition.

FS 634L - Techniques of Food and Nutrition Research Laboratory Credits: 0
FS 791 - Independent Study Credits: 1-3
FS 792 – Topics Credits: 1-3
FS 798 – Thesis Credits: 1-7
FS 898D – Dissertation Credits: 1-12

GE (General Engineering)

GE 510 - Human Factors in Design Credits: 3
Human factors engineering (HFE), sometimes called ergonomics, deals with optimizing working and living conditions through designing 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. Prerequisites: MATH 102.

GE 525 - Occupational Health and Safety Credits: 3
Industrial accidents are cased 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 modifications, motivating safety performance, profiling, program organization, products safety, and safety in the adjuct fleet.

GE 569 - Project Management Credits: 2-3
An overview of project management as it relates to integrated systems, product/project life cycle, and organizational change. Defining, estimating, scheduling, risk management, and project team leadership issues will be covered as they relate to projects.

GE 591 - Independent Study Credits: 1-3
GE 592 – Topics Credits: 1-3

GE 603 - Designing the Work Place for Production Credits: 3
Designing the workplace to support the structuring of interpersonal communication and action in the workspace and to optimize the use of human energy through the total integration of corporate policy and culture with the physical environment. Includes the evaluation of operation procedures, the construction of behavior, computer assisted facilities management, developing control and order in the workplace, perceived stability as corporate support, flexibility as a catalyst to successful innovation.

GE 650 - Manufacturing Systems Management Credits: 3
Production planning and control methods to improve efficiency. Study and application of low cost production for small to large systems. Workplace organization, value stream mapping, demand flow, and other management tools will be covered. Prerequisites: STAT 541 or STAT 582.

GE 690 – Seminar Credits: 1-3
GE 691 - Independent Study Credits: 1-3
GE 696 - Field Experience Credits: 1-6
GE 788 - Master's Research Problems/Projects Credits: 1-2
GE 798 – Thesis Credits: 1-7

GEOG (Geography)

GEOG 515 - Environmental Geography Credits: 3
Geographical aspects of environmental issues including historical geography of environmental problems, global driving forces, land ethics and stewardship, environmental externalities, population, resources, climate change, and environmental restoration. Focus on connections between human and natural systems; consequence chains between cause and effect; impact of time and space on problem perception, analysis, and solution; and natural and human laws. Term paper required.

GEOG 521 - Qualitative Research Methods in Geography Credits: 3
The theory and application of qualitative methods in geographic studies. Emphasis on the purpose and effective use of archival, visual, interview, survey, focus group, observation, and ethnography techniques. Design and implementation of research projects using qualitative methods as the primary data collection and analysis tool.

GEOG 525 - Population Geography Credits: 3
Geographic analysis of such population characteristics as: numbers and distribution; growth and change; composition; mortality, fertility, and theories of population change; policy and family planning; migration and mobility; population, environment, food supply, and human wellbeing. Problems and prospects are considered in the context of each topic.

GEOG 559 - Political Geography Credits: 3
This course addresses geographic factors which influence current international relations and the policies of nations and political units with consideration given to aspects of geopolitics, racial/ethnic groupings, religions, languages, boundaries, and territorial changes.

GEOG 560 – Geopolitics Credits: 3
An introduction to geopolitics that addresses the fundamental links between power and space at the global, national, and local scales. Focuses on classical geopolitics, critical geopolitics, political-economic approaches to geopolitics, world orders and hegemonic cycles, historical development of the international state system, and geography of imperialism.

GEOG 561 - Urban Geography Credits: 3
Geography of cities: types, functions, and distribution of world cities. Special emphasis on planning of cities in the U.S.

GEOG 573 - GIS Data Creation/Integration Credits: 3
This course introduces advanced tools and techniques of data creation, data integration, mapping, and spatial analysis in Geographic Information Systems (GIS). It provides basic approaches for solving problems of data integration including format identification, conversion, and spatial registration. Building on the skills and techniques learned int he introductory GIS course or equivalent, it gives a conceptual base to many methods and techniques associated with vector and raster-based spatial analysis including imagery. It provides an examination of the functions and capabilities of ArcGIS Desktop GIS software (including extensions). Corequisites: GEOG 573L.

GEOG 573L - GIS: Data Creation and Integration Lab Credits: 0
Hands-on experience to apply advanced tools and techniques of data creation, data integration, mapping, and spatial analysis in Geographic Information Systems (GIS). It provides basic approaches for solving problems of data integration including format identification, conversion, and spatial registration. Building on the skills and techniques learned in the introductory GIS course or equivalent, it gives a conceptual base to many methods and techniques associated with vector and raster-based spatial analysis including imagery. It provides an examination of the functions and capabilities of ArcGIS Desktop GIS software (including extensions). Corequisites: GEOG 573.

GEOG 574 - GIS: Vector & Raster Modeling Credits: 3
This course introduces basic concepts of vector and raster modeling in Geographic Information Systems (GIS) with special emphasis on construction and use of raster digital elevation models (DEMs). Provides in-depth experience with a range of geoprocessing techniques for handling and analyzing GIS data. Topics include vector processing in a model framework, weighted suitability modeling, path findings, modeling viewsheds, constructing surfaces from point samples, and spatial hydrologic modeling. Builds on the skills and techniques learned in the introductory GIS course or equivalent. Corequisites: GEOG 574. Prerequisites: GEOG 472.

GEOG 574L - GIS: Vector and Raster Modeling Lab Credits: 0
Hands-on experience to apply basic concepts of vector and raster modeling in Geographic Information Systems (GIS) with special emphasis is on construction and use of raster digital elevation models (DEMs). Provides in-depth experience with a range of geoprocessing techniques for handling and analyzing GIS data. Topics include vector processing in a model framework, weighted suitability modeling, path finding, modeling viewsheds, constructing surfaces from point samples, and spatial hydrologic modeling. Corequisites: GEOG 574.

GEOG 575 - GIS Applications Credits: 3
This course explores the latest software and its applications in Geographic Information Sciences. Corequisites: GEOG 575.

GEOG 575L - GIS Applications Lab Credits: 0
Hands-on experience to explore the latest software and its applications in Geographic Information Sciences. Corequisites: GEOG 575.

GEOG 582 - Travel Studies Credits: 1-4
This travel study course is designed to provide extra-mural education experiences, as approved by and under the direction of a faculty member, and may be in cooperation with faculty and administrators of other institutions. Students will participate in hands-on activities and design educational activities for presentation at selected locations. Includes pre-travel orientation, post-travel self-evaluation, and a written report.

GEOG 590 – Seminar Credits: 1-4
GEOG 591 - Independent Study Credits: 1-4

GEOG 710 - Evolution of Geographic Thought Credits: 3
The history and development of geography and its theories, schools of thought, and current ideas.

GEOG 714 - Research and Writing Credits: 3
Development of geographic research and writing skills including a survey of data sources and literature, and preparation of reports, papers, articles, and the master's thesis.

GEOG 741 - Quantitative Remote Sensory for Terrestrial Monitoring Credits: 3
The course will describe the science, algorithms, and computational approaches to generate and assess derived satellite products for long term Earth system monitoring. Emphasis will be on the principles of optical remote sensing and state-of- the-art quantitative algorithms for estimating biophysical and geophysical land surface variables from remotely sensed observations. Prerequisites: STAT 541 and GEOG 484 or consent. Cross-Listed: GSE 741.

GEOG 742 - Cultural Geography Credits: 3
Consideration of culture in a geographic context including such concepts as cultural origins and diffusion, ecology, landscapes, and regions.

GEOG 743 - Geospatial Analysis Credits: 3
This course covers concepts and methods of spatial data analysis, focusing on the analysis of broad-scale geographic datasets characterizing physical, biological, and socioeconomic landscape features. Students learn to develop scientific hypotheses about spatial relationships, and to test these hypotheses using appropriate spatial datasets and analytical techniques. Topics include exploratory data analysis, methods for quantifying spatial pattern, development of explanatory models to test spatial hypotheses, and development of predictive models for spatial interpolation. Prerequisites: One graduate level course in statistics (e.g. STAT 541 or equivalent). Cross-Listed: GSE 743.

GEOG 760 - Advanced Methods in Geospatial Modeling: Topical Credits: 3
Selected topics in advanced methods in geospatial modeling. May be repeated for credit. Specific topics covered will change each semester. Cross-listed: GSE 760. Prerequisites: Graduate standing in a degree program. Specific pre-requisites dependent on topic.

GEOG 765 - Advanced Studies in Land Utilization Credits: 1-4
The physical and cultural factors affecting the nature and pattern of land utilization. Local and/or regional utilization, planning, and problems will be studied in detail in relation to the topic. Course may be repeated under different topic.

GEOG 766 - Advanced Remote Sensing Application Credits: 3
Selected topics in advanced applications in remote sensing. May be repeated for credit. Specific topics covered will change each semester. Prerequisites: Graduate standing in a degree program. Specific pre-requisites dependent on topic. Cross-Listed: GSE 766.

GEOG 767 - Fire and Ecosystems Credits: 3
This course is a broad treatment of how fire and ecosystems combine to form the landscapes that we see. Course material examines the contributions of climate, topography, weather, and fuels to the fire environment and how these factors influence wildland fire behavior. We will explore the interactions between ecological processes and fire regimes in ecosystem dynamics and the ways in which human land use and land management affect the outcomes. Cross-Listed: GSE 767/BIOL 767.

GEOG 786 - Geographic Information Systems Credits: 3
Practical application of GIS to problems and land-use planning, management of natural resources, transportation, as well as demographic data. Hands-on

experience in the making of maps with computers, digitization, the storing and retrieving of geographic data, and the design of simple GIS.

GEOG 788 - Research Paper in Geography Credits: 1-3
GEOG 790 – Seminar Credits: 1-4
GEOG 791 - Independent Study Credits: 1-4
GEOG 792 – Topics Credits: 3
GEOG 794 – Internship Credits: 1-3
GEOG 798 – Thesis Credits: 1-7

GER (German)

GER 591 - Independent Study Credits: 1-3

GLST (Global Studies)

GLST 581 - Travel Studies Credits: 1-6
This course is taken as part of an approved study abroad program under faculty supervision. The number of credit hours depends upon the length of the study abroad program, number of course contact hours, and course content.

GSE (Geospatial Science and Engineering)

GSE 740 - Introduction to Geospatial Science and Engineering Credits: 3
The interdisciplinary course provides an overview of the science and technology of Earth observation, including the fundamentals of remote sensing, geographic information systems, computational and analytical approaches, and professional practices, including research information resources, graphical and oral presentation, proposal writing, publishing, and research ethics. Prerequisites: Admission to the GSE PhD program.

GSE 741 - Quantitative Remote Sensing for Terrestrial Monitoring Credits: 3
The course will describe the science, algorithms, and computational approaches to generate and assess derived satellite products for long term Earth system monitoring. Emphasis will be on the principles of optical remote sensing and state-of-the-art quantitative algorithms for estimating biophysical and geophysical land surface variables from remotely sensed observations. Prerequisites: STAT 541 and GEOG 484 or consent. Cross-Listed: GEOG 741.

GSE 743 - Geospatial Analysis Credits: 3
This course covers concepts and methods of spatial data analysis, focusing on the analysis of broad-scale geographic datasets characterizing physical, biological, and socioeconomic landscape features. Students learn to develop scientific hypotheses about spatial datasets and analytical techniques. Topics include exploratory data analysis, methods for quantifying spatial pattern, development of explanatory models to test spatial hypotheses, and development of predictive models for spatial interpolation. Prerequisites: One graduate level course in statistics (e.g. STAT 541 or equivalent). Cross-Listed: GEOG 743.

GSE 760 - Advanced Methods in Geospatial Modeling: Topical Credits: 3
Selected topics in advanced methods in geospatial modeling. May be repeated for credit. Specific topics covered will change each semester. Recent topics have included: Image Geometry and Photogrammetry; Change Analysis; Land Cover Mapping. Prerequisites: Graduate standing in a degree program. Specific prerequisites dependent on topic. Cross-Listed: GEOG 760.

GSE 766 - Advanced Remote Sensing Applications: Topical Credits: 3
Selected topics in advanced applications in remote sensing. May be repeated for credit. Specific topics covered will change each semester. Recent topics have included: Water Resources; Conservation; Weather & Climate. Prerequisites: Graduate standing in a degree program. Specific pre-requisites dependent on topic. Cross-Listed: GEOG 766.

GSE 767 - Fire and Ecosystems Credits: 3
This course is a broad treatment of how fire and ecosystems combine to form the landscapes that we see. Course material examines the contributions of climate, topography, weather, and fuels to the fire environment and how these factors influence wildland fire behavior. We will explore the interactions between ecological processes and fire regimes in ecosystem dynamics and the ways in which human land use and land management affect the outcomes. Cross-Listed: GEOG 767/BIOL 767.

GSE 790 - Seminar in Geospatial Science and Engineering Credits: 1
GSE 791 - Independent Study Credits: 1-3
GSE 792 – Topics Credits: 1-3
GSE 898 – Dissertation Credits: 1-12

GSR (Graduate School Research)

GSR 600 - Graduate School Tracking Credits: 0
Course used to track students who are enrolled at a different university for a given semester. The course keeps students active so they can qualify for financial aid at SDSU. Restrictions: Advisor or Department Head Approval.

GSR 601 - Research Regulations Compliance Credits: 1
The course consists of lecture/seminars on compliance with governmental regulations in research at SDSU. The course includes completion of educational modules and associated paperwork required for the performance of research at South Dakota State University. The course also serves as the foundation for SDSU's education program for compliance with current and pending regulatory guidelines. Topics to be covered include: Animal Care and Use, Human Subjects Research, Recombinant DNA, Radiation Safety, Laboratory/Biological Safety, Integrity in Research, Conflict of Interest in Research, Financial Accountability, and Intellectual Property Issues.

GSR 602 - Program Continuation Credits: 1
This course is suitable for graduate students to maintain enrollment in their programs of study.

HDFS (Human Development and Family Studies)

HDFS 501 - Foundations and Principles of Community Service Credits: 3
An introduction to the field of family studies and related professions that involve working with families and communities.

HDFS 510 – Parenting Credits: 3
The study of theories, models, research and skills regarding parenting effectiveness and parent-child relations in the context of Western, Native American, and other cultures living in the U.S. Included are comparisons of the relative strengths and weaknesses of various parenting approaches, historical perspective on parenthood and children, and the developmental perspectives of children and parenting. Best practices for individual and community parent education programs will be addressed.

HDFS 525 - Family Resiliency Credits: 3
Literature on stress experienced by individuals and families with an emphasis on a systemic analysis of the conceptual/clinical literature of individual and family resilience will be examined. Individual and family characteristics of resilient families and prevention and solution-based principles will be explored in order to understand and promote family resilience in a developmental and ecological context. Students in counseling and human development as well as education, nursing, and other behavioral, social, and health sciences may benefit from this course.

HDFS 586 - Service Learning Credits: 1-3
Service learning in Human Development and Family Studies, including service planning, interaction with community, and reflection.

HDFS 591 - Independent Study Credits: 1-3
HDFS 592 – Topics Credits: 1-3

HDFS 601 - Orientation in Graduate Study Credits: 1
An orientation to graduate studies including exposure to graduate procedures and policies as well as writing skills. Notes: Taught online.

HDFS 602 - Research and Evaluation in Counseling and Human Development Credits: 3
The course explores various research designs and methodologies applicable to the field of counseling. The course will emphasize qualitative and quantitative research, critical evaluation of research reports, the use of internet databases for writing a research paper, a thorough understanding of APA format.

HDFS 605 - Program Administration and Management Credits: 3
An introduction to the development, administration, and management of youth, family, and community service organizations.

HDFS 610 - Family Resource Management Credits: 3
Survey course of personal finance and family resource management literature to provide an overview of how individual and family members develop and exercise their capacity to obtain and manage resources to meet life needs. Resources include the self, other people, time, money, energy, material assets, space, and environment.

HDFS 614 - Adult Development Credits: 3
Study of research, theoretical adult development; physical, intellectual and personality development of the adult integrates issues of individual, family, gender, and career development and provides opportunity for application in working with adults.

HDFS 620 - Family Dynamics Credits: 3
An examination of theories of family function and dysfunction, techniques of assessment, and models of family intervention.

HDFS 630 - Lifespan Development Credits: 3
An examination of human development from both lifespan and bio-ecological perspectives focusing on major theories of development and current research on micro-macro relationship.

HDFS 635 - Crises Across the Lifespan Credits: 3
Exploration of resources related to managing stress and coping with crises across the lifespan including the bio psychosocial nature of stress; methods of coping with stress, anxiety, and conflict; models of effective family functioning in the presence of stress and crises; and the current literature on how families cope with a variety of life transitions and crises.

HDFS 640 - Interpersonal Relationships Credits: 3
An in-depth examination of interpersonal relationships, including theoretical perspectives, research methods, relationship forms, relationship processes, and how context affects relationships.

HDFS 710 - Program Design, Evaluation, and Implementation Credits: 3
An overview of the program development process and outcome evaluation of community, children, and family programs. Modes of outcome scholarship and their implications for community-based programs are discussed. Students will develop knowledge through participating in a community-based project involving the practical application of program design and evaluation methods.

HDFS 711 - Child Development Theory and Application Credits: 3
In-depth study of human development. Emphasis upon current theories and their application to an understanding of the developmental growth processes; relationship between cognitive, social, physical and emotional development and behavior; range of normality in growth and behavior. Focus on normal development but with consideration of impact of deviance from normative development on child, family, neighborhood.

HDFS 730 - Grant Writing Credits: 3
An overview of the complete grant writing process and potential outcomes. Students will develop knowledge through the actual grant writing, budgeting, and reviewing grant proposals.

HDFS 742 - Family Theory and Research Credits: 3
Current theoretical approaches to family interactions; impact of various forces (social, personal, intrapersonal) upon dynamic aspects of family relationships; patterns and sequences of coalitions and alliances; factors which result in stress and breakdown or enhanced and rewarding relationships. Emphasis upon normal families but families but family problems are also studied.

HDFS 745 - Work and Family Credits: 3
The Work and Family course utilizes a bioecological perspective to explore the challenges individuals, families, employers, and communities of managing work and family in today's world. Topics include the history of the work-family relationship, gender roles and the work-family relationship, demographic and cultural changes within the workforce, leisure and the work-family relationship, and organizational work-family policies.

HDFS 753 - Family Public Policy Credits: 3
The impact of the professional in shaping family policy and effecting positive family policy formation; study of family policy priority issues and alternative strategies.

HDFS 790 – Seminar Credits: 1-3
HDFS 791 - Independent Study Credits: 1-3
HDFS 792 – Topics Credits: 1-3
HDFS 794 – Internship Credits: 1-7
HDFS 798 – Thesis Credits: 1-7

HIST (History)

HIST 592 – Topics Credits: 1-4

HLTH (Health)

HLTH 520 - K-12 Methods of Health Instruction Credits: 2
Curriculum content at elementary and secondary levels. Methods of presentation including direct, correlated, and integrated health instruction. Organization of health and safety education. Cross-Listed: HSC 520.

HMGT (Hospitality Management)

HMGT 788 - Individual Research & Study Credits: 1-7
HMGT 798 – Thesis Credits: 1-7

HNS (Health and Nutritional Science)

HNS 590 – Seminar Credits: 1
HNS 591 - Independent Study Credits: 1-3
HNS 592 – Topics Credits: 1-3
HNS 593 – Workshop Credits: 1-3
HNS 594 – Internship Credits: 1-6
HNS 595 – Practicum Credits: 1-3
HNS 596 - Field Experience Credits: 1-6
HNS 597 - Cooperative Education Credits: 1-6

HNS 783 - Research Methods in Health and Nutritional Sciences Credits: 3
By studying prevalent quantitative and qualitative research techniques, students will become critical consumers and potential producers of research relevant to Health, Nutrition, Physical Education, Sport, and Recreation. Computer work, development of grant and research proposals, and preparation for writing for professional papers.

HNS 788 - Master's Research Problems/Projects Credits: 1-7
HNS 790 – Seminar Credits: 1
HNS 791 - Independent Study Credits: 1-3
HNS 792 – Topics Credits: 1-3
HNS 793 – Workshop Credits: 1-3
HNS 794 – Internship Credits: 1-7
HNS 795 – Practicum Credits: 1-9
HNS 796 - Field Experience Credits: 1-9
HNS 798 – Thesis Credits: 1-7
HNS 890 – Seminar Credits: 1
HNS 898D – Dissertation Credits: 1-12

HO (Horticulture)

HO 511 - Fruit Crop Systems Credits: 1-6
Studies in perennial fruit crop production and management systems. Credit earned will depend on the number of 1 credit modules taken. Course may be repeated as long as the topic module(s) are not repeated. Topic modules could include: tree fruit production systems; small fruit production systems; viticulture; perennial fruit integrated pest management; native fruit production systems; fruit harvest, quality, and postharvest care; vines and wines; fruit value-added systems; pruning fruit crops; cover crop management, marketing specialty fruit crops. Prerequisites: HO 111 or module instructor consent.

HO 534 - Local Food Production Credits: 2
Topics include planning, planting, cultivation, harvest, season extension and marketing of fruits and vegetable crops. Experiential learning model. Cross-Listed: PS 534.

HO 540 - Vegetable Crop Systems Credits: 1-6
Studies in vegetable crop production and management systems. Credit earned will depend on the modules taken. Course may be repeated as long as the module(s) are not repeated. Potential topic modules could include: root crop systems; cucurbit production systems; vegetable legumes; herbs; solanaceous crops; heirloom vegetable crops; integrated pest management; market gardening; organic production systems; extended season crop management; leaf and cool season crops: annual crop rotation systems; marketing specialty crops. Prerequisites: HO 111 or instructor consent.

HO 592 – Topics Credits: 1-3

HSC (Health Science)

HSC 520 - K-12 Methods of Health Instruction Credits: 2
Curriculum content at elementary and secondary levels. Methods of presentation including direct, correlated, and integrated health instruction. Organization of health and safety education. Cross-Listed: HLTH 520.

HSC 533 - Occupational Health Credits: 3
Occupational Health is a survey course dealing with health concerns in the workplace and the scope, objectives, and functions of occupational programs. Work related injuries and diseases and the effects of harmful exposure to chemical and physical agents which cause discomfort, stress, inefficiency or disease are examined. Emphasis is placed on preventative measures and early intervention to assure a reasonable, healthful work environment.

HSC 631 - Biostatistics I Credits: 3
Basic principles of statistics applied to health science. Emphasis is on the role of statistics in evaluation of human health data and the use of a statistical computing package to input and manipulate datasets; explore, analyze, and interpret data; and present results. Topics include probability distributions, point and interval estimations, hypothesis tests, linear regression, correlation tests of association for categorical data, and analysis of variance.

HSC 731 - Biostatistics II Credits: 3
Continuation of Biostatistics I. Intermediate principles and methods of statistics applied to health science. Emphasis is on the role of statistics in evaluation of human health data and the use of a statistical computing package to input and manipulate datasets; explore, analyze, and interpret data; and present results. Topics include introductions to multiple linear regression, logistic regression, survival analysis, selected ANOVA designs, and selected multivariate. Prerequisites: HSC 631.

HSC 733 - Environmental Health Credits: 3
This is a survey course of major topic areas of environmental health. It will examine sources, routes, media, and health outcomes associated with biological, chemical, and physical agents in the environment. It will cover how these agents affect human health, water and air quality, food safety, and land resources in community and occupational settings. Prerequisites: Admission into the Master of Public Health program or permission of instructor.

HSC 760 - Program Evaluation Credits: 3
An introduction to the fundamentals of research study design, methods and data collection. It serves as an introduction to quantitative, qualitative, mixed method and participatory approaches to research, as well as ethical issues in conducting research. Through course work, students will build skills for conducting research and evaluation. Prerequisites: Admission into the Master of Public Health program or permission of instructor.

HSC 782 – Epidemiology Credits: 3
The course introduces concepts and methodologies for the study of health and disease in human populations. Different study designs and their methods of analysis will be discussed, as well as sources, handling, and interpretation of epidemiologic data. Cross-Listed: BIOL 782/NUTR 782.

HSC 785 - Advanced Epidemiology Credits: 3
This is an advanced course on epidemiologic methods designed to improve the student's ability to conduct and interpret epidemiologic studies. Prerequisites: PUBH 710 or BIOL 782/HSC 782/NUTR 782.

HSC 832 - Mixed Methods Research Credits: 3
An introduction to the design and conduct of mixed methods research in health and human sciences including theoretical underpinnings, method designs, sampling strategies, analysis, and ethical issues common to mixed methods. Students will develop skills in conducting and evaluating mixed methods research. Prerequisites: NURS 825 and NURS 830. Cross-Listed: NURS 832.

LING (Linguistics)

LING 520 - The New English Credits: 3
Diverse new theories and applications in English linguistics: lexicography, pragmatics, stylistics, sociosemantics, semiotics, and discourse theory.

LING 525 - The Structure of English Credits: 3
Use of traditional, structural, and transformational grammars for describing the English language. Practical application in teaching. Strongly recommended for majors planning to teach.

LING 543 - Development of the English Language Credits: 3
Historical survey of phonology, grammar, syntax, and lexicon of English leading to an understanding of the present state of the language and future developments.

LING 552 - General Semantics Credits: 3
Relations between symbols; human behavior in reaction to symbols including unconscious attitudes, linguistics assumptions; and the objective systematization of language.

MATH (Mathematics)

MATH 511 - Theory of Numbers Credits: 3
A study of the theory of prime numbers, distribution of primes, congruencies, quadratic reciprocity, numerical functions, Diophantine equations, simple continued fractions, and algebraic numbers.

MATH 540 - Mathematics of Finance Credits: 3
An introduction to the fundamental concepts of financial mathematics. Topics include simple and compound interest, annuities, amortization, sinking funds, bonds, stocks, rates of return, term structure of interest rates, cash-flow duration and immunization. Prerequisites: STAT 225.

MATH 541 - Applied Probability Theory Credits: 3
Topics in probability including an introduction to the axiomatic development of probability, random variable and distributions with emphasis on the exponential, binomial and Poisson distributions. Applications to discrete stochastic processes such as Markov chains and queuing theory are covered in some detail. Prerequisites: Pre-requisite: STAT 381 or instructor consent.

MATH 571 - Numerical Analysis I Credits: 3
Analysis of rounding errors, numerical solutions of nonlinear equations, numerical differentiation, numerical integration, interpolation and approximation, numerical methods for solving linear systems. Prerequisites: MATH 225.

MATH 574 - Scientific Computation II Credits: 3
A continuation of Scientific Computation I. Topics will include computational methods used for mathematical modeling, such as numerical methods for solving linear systems and methods for solving initial value problems. Numerical methods will be applied to mathematical models. Simulation and validation of models will be discussed. Prerequisites: MATH 321 and MATH 374.

MATH 575 - Operations Research Credits: 3
Philosophy and techniques of operations research, including game theory; linear programming, simplex method, and duality; transportation and assignment problems; introduction to dynamic programming; and queuing theory. Applications to business and industrial problems. Pre-requisites: Introductory statistics and one year of calculus; STAT 575 and CSC 575, or instructor consent.

MATH 591 - Independent Study Credits: 1-3
MATH 592 - Topics Course Credits: 1-3

MATH 716 - Theory of Algebraic Structures I Credits: 3
Abelian Groups, homomorphisms, permutation groups, Sylow theorems, group representations and characters. Prerequisites: MATH 413.

MATH 717 - Theory of Algebraic Structures II Credits: 3
Rings, Modules, Fields, Galois theory, solvable groups, commutative rings and modules. Prerequisites: MATH 716.

MATH 725 - Advanced Calculus I Credits: 3
Topics will include set theory; point set topology in Rn and in metric spaces; limits and continuity; infinite series; sequences of functions. Prerequisites: MATH 425.

MATH 732 - Ordinary Differential Equations Credits: 3
Existence theorems for solutions of ordinary differential equations, theory of linear differential equations and systems of linear differential equations oscillation theory. Prerequisites: MATH 321and MATH 725 or MATH 321 and MATH 425.

MATH 733 - Complex Variables I Credits: 3
Algebra of complex numbers, classifications of functions, differentiation, integration, mapping, transformations, infinite series. Prerequisites: MATH 725.

MATH 741 - Measure and Probability Credits: 3
Fundamentals of measure theory and measure-theoretic probability, and their applications in advanced probabilistic and statistical modeling.

MATH 742 - Partial Differential Equation Credits: 3
Series, solutions, total differential equations, simultaneous equations, approximate solutions, partial differential equations of first and second orders, applications. Prerequisites: MATH 321 and MATH 225.

MATH 751 - Applied Functional Analysis Credits: 3
Selected topics from functional analysis and its applications to differential equations and numerical methods, concept and theory of functional analysis, variational formulation of boundary value problem. Existence and uniqueness of solutions, variational methods of approximation, finite element methods.

MATH 770 - Numerical Linear Algebra Credits: 3
Analysis of numerical methods for solving linear systems of equations. Methods for solving underdetermined and overdetermined systems. Methods for numerically calculating eigenvalues and eigenvectors of symmetric and non-symmetric matrices. Knowledge of programming language and of matrix algebra. Prerequisites: MATH 315 and MATH 571.

MATH 771 - Numerical Analysis II Credits: 3
Continuation of MATH 571 including approximation theory, matrix iterative methods and boundary value problems for ordinary and partial differential equations. Prerequisites: MATH 571.

MATH 773 - Numerical Optimization Credits: 3
This course will survey widely used methods for continuous optimization, focusing on both theoretical foundations and implementation using numerical software. Topics include linear programming (optimization of a linear function subject to linear constraints), line search and trust region methods for unconstrained optimization, and a selection of approaches (including active-set, sequential quadratic programming, and interior methods) for constrained optimization.

MATH 774 - Advanced Scientific Computation Credits: 3
Advanced topics in scientific computation. This course may cover topics such as matrix factorizations, finite element methods, multivariable optimizations, stochastic differential equations, and parallel programming for scientific computations. Prerequisites: MATH 771.

MATH 775 - Operations Research II Credits: 3
A continuation of Operations Research I. Topics include the theory of the simplex method, duality theory and sensitivity analysis, game theory, transportation and assignment problems, network optimization models, and integer programming. Prerequisites: MATH 475-575.

MATH 788 - Research Paper Credits: 1-2
MATH 791 - Independent Study Credits: 1-3
MATH 792 – Topics Credits: 1-3
MATH 798 – Thesis Credits: 1-7

MCOM (Mass Communication)

MCOM 513 - International Media Credits: 3
This course is a survey of international media systems, news and related issues, the role and characteristics of international journalists, and issues facing media around the world.

MCOM 516 - Mass Media in Society Credits: 3
Rights and responsibilities of the press; relation of the media to individuals and society; role of media in a free society.

MCOM 517 - History of Journalism Credits: 3
Development, impact and importance of individual journalists and media in U.S.

MCOM 519 - Women in Media Credits: 3
This course examines contributions of women to the mass media from colonial era to present. It also studies the portrayal of women by the news media and by advertising, and it studies the roles currently played by women in the media and in supporting areas of advertising and public relations. Cross-Listed: WMST 519.

MCOM 530 - Media Law Credits: 3
Study of the sources, processes, content and application of law and regulation in the mass communication context and of the ethics of communications practitioners.

MCOM 574 - Media Administration and Management Credits: 3
Business practices, newspaper, magazine, and broadcast management.

MCOM 585 - Science Writing Credits: 3
This class explores the process of science writing and examines various kinds of science writing through readings, guest speakers, and writing assignments. A Key emphasis is how to present scientific information to a lay audience.

MCOM 592 – Topics Credits: 1-5

MCOM 615 - Opinion Writing Credits: 3
Opinion function of periodicals; great editorials and editorial writers; writing editorials, shaping policy.

MCOM 653 - Mass Communications Teaching Methods Credits: 1-4
Techniques, materials and resources for teaching mass communication in the classroom and supervising student media. For secondary school or college instructors and publication advisors. Notes: Mass Communications teacher education candidates are required to earn at least 3 credits.

MCOM 682 - Travel Studies Credits: 1-5
This travel study course is designed to provide extra-mural educational experiences, as approved by, and under the direction of a faculty member, and may be in cooperation with faculty and administrators of other institutions. Students will participate in hands-on activities, and design educational activities for presentation at selected locations. Includes pre-travel orientation, post-travel self-evaluation, and a written report.

MCOM 691 - Independent Study Credits: 1-3
MCOM 692 – Topics Credits: 1-3
MCOM 693 – Workshop Credits: 1-4

MCOM 704 - Introduction to Graduate Studies Credits: 3
This course provides orientation to graduate studes in MCOM including graduate procedures and polices, online library resources, foundational literature, and an introduction to research.

MCOM 705 - Introduction to Master of Mass Communication Credits: 3
This course introduces students to the online professional master's degree program in Mass Communication. Students will become familiar with graduate procedures, program requirements, coursework, D2L, and online university resources.

MCOM 710 - Cross-Platform Storytelling Credits: 3
In this course, students will explore several forms of professional journalistic and media writing. Students create a portfolio of writing samples.

MCOM 730 - Media Law Case Studies Credits: 3
In this course, students will examine current legal issues that effect professional media practice. Students produce a collaborative case study.

MCOM 742 - Health Campaigns Credits: 3
Health campaigns often cut across a number of disciplines including advertising, journalism and marketing for the health and wellness issues and the healthcare professions. This course provides both background and practical experience in the design, implementation and evaluation of multimedia health campaigns.

MCOM 746 - Cross-Platform Campaigns Credits: 3
In this course, students will investigate and create public relations, marketing and social media campaigns. Includes research, design, implementation and evaluation.

MCOM 760 - Social Marketing for Health and Behavioral Change Credits: 3
This course is designed to give students a thorough orientation to marketing for the public good and its application to a range of problems in health contexts. Students will acquire practical skills in the design, implementation, and evaluation of health intervention initiatives that use social marketing.

MCOM 785 - Health Journalism Credits: 3
In this course, students will learn to identify health news, translate medicalese, question experts, interview patients, and get published. In addition to many in-class exercises, you write a magazine-style article. Guest speakers introduce aspects of writing for various healthcare audiences.

MCOM 786 - Conducting Professional Research Credits: 3
In this course, students will learn the application of research methods commonly used in the media professions, including but not limited to surveys, elementary statistical procedures, focus groups and media analytics.

MCOM 787 - Research Methods in Communication Credits: 3
Application of social science research methods and techniques to the study of interpersonal and mass communication. Prerequisites: Elementary statistical procedures.

MCOM 788 - Master's Research Problems/Projects Credits: 1-6
MCOM 791 - Independent Study Credits: 1-3
MCOM 794 – Internship Credits: 1-3
MCOM 798 – Thesis Credits: 1-6

ME (Mechanical Engineering)

ME 510 - Principles of HVAC Engineering Credits: 3
Comfort and health requirements for space conditioning. Psychrometrics, steady-flow processes involving air-vapor mixtures. Heating and cooling load calculations. Basic air conditioning systems. Emphasis on systems design approach. Corequisites: ME 515. Prerequisites: Take ME 312 and EM 331 or ME 314 and EM 331.

ME 512 - Internal Combustion Engines Credits: 3
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. Prerequisites: ME 312 and EM 331.

ME 513 – Turbomachinery Credits: 3
Theory, design, operation and energy transfer in Turbo-machines. Steam, gas and hydraulic turbines. Pumps, fans and centrifugal and axial flow compressors. Prerequisites: ME 312 and EM 331.

ME 514 - Air Pollution Control Credits: 3
Control of particulates and gaseous pollutants. Design and operating characteristics of gravity settlers, cyclones, electrostatic precipitators, fabric filters, scrubbers, incinerators, adsorption beds and absorption towers. Prerequisites: ME 311.

ME 516 - Renewable Energy Systems Credits: 3
Students will learn to apply the principles of energy conversion, energy conservation, and value engineering to the analysis of energy conversion systems, renewable energy generation equipment and systems. Students will become familiar with energy consumption requirements for conventional systems and the applications of renewable energy systems to provide alternative energy sources. Energy efficiency and global environmental sustainability are emphasized. A background in basic thermodynamics is assumed.

ME 517 - Computer-Aided Engineering Credits: 3
Introduction to applied structural and thermal design and analysis using the ANSYS finite element software package. One-, two-, or three-dimensional static structural problems modeled using the direct generation method as well as solid modeling techniques. Steady-state and transient thermal analyses are performed. Thermally-induced stressed and displacements that occur in non-uniform temperature structures, solutions of two- or three-dimensional fluid mechanics problems, and optimization techniques are discussed. Corequisites: ME 517L required.

ME 517L - Lab/Computer Aided Engineering Credits: 0
Corequisites: ME 517 required.

ME 518 - Desgin of Thermal Systems Credits: 3
Systems approach to design, mathematical modeling, simulation and optimization of systems, with particular emphasis on thermal systems. Prerequisites: ME 312, ME 415 and EM 331.

ME 531 – Aerodynamics Credits: 3
Airfoil characteristics, wing shapes, static and dynamic forces, viscosity phenomena, boundary layer theory, flaps and slots, propellers, stability, control and performance. Prerequisites: EM 331.

ME 533 - Non-Destructive Testing and Evaluation Credits: 3
Various non-destructive testing techniques will be introduced with emphasis on ultrasound techniques. For ultrasound, physical principles of acoustic waves in solid media will be introduced, and acoustic sensor design and properties will be discussed. For other techniques, including eddy current techniques, X-ray techniques, acoustic emission, etc., basic physics of the method and modern applications will be introduced. Experiments and demonstrations will be conducted to enhance students' understanding of the concepts and applications. Corequisites: ME 533L.

ME 533L - Non-Destructive Testing and Evaluation Lab Credits: 0
Various non-destructive testing techniques will be introduced with emphasis on ultrasound techniques. For ultrasound, physical principles of acoustic waves in solid media will be introduced, and acoustic sensor design and properties will be discussed. For other techniques, including eddy current techniques, X-ray

techniques, acoustic emission, etc., basic physics of the method and modern applications will be introduced. Experiments and demonstrations will be conducted to enhance students' understanding of the concepts and applications. Corequisites: ME 533.

ME 537 - Gas Dynamics I Credits: 3
Objectives, applications, and scope of the subject. Methods of fluid dynamics and thermodynamics. Compressible flow in ducts, nozzles and diffusers. Propagation of plane waves; shock dynamics, characteristics, interaction of waves. General theorems of gas dynamics. Prerequisites: EM 331and MATH 331.

ME 539 - HVAC System Design Credits: 3
Analysis of heating, ventilating, and air conditioning requirements. Design of heating, ventilating, and air conditioning systems. Economic, energy, and environmental considerations. Use of computers as design aids. Corequisites: ME 539L. Prerequisites: ME 410.

ME 539L - HVAC System Design Lab Credits: 0
Accompanies ME 539. Corequisites: ME 539.

ME 540 - Computer-Aided Design Credits: 3
The use of digital computer as a design tool. Techniques and algorithms which increase the rationality of the design process. Design principles and optimization theory. General approach to constrained optimization. Probabilistic approaches to design. Computer-aided design to reliability specification. Application of computer graphics to engineering design. The emphasis is on extending the designer's potential and not on automating those activities. Prerequisites: Competence of FORTRAN and instructor consent.

ME 542 - Applications of Computational Fluid Dynamics Credits: 3
This course provides a background and working knowledge of software analysis tools, techniques and methodologies utilized in modern engineering practice in computational fluid dynamics (CFD). The course builds upon fundamental concepts of thermodynamics, fluid mechanics, and computer-aided design and analysis and applies these principles within high-fidelity computational models to solve theoretical and practical problems commonly encountered with thermal fluid and energy systems. This course provides students with team-centered collaborative opportunities to practice CFD analysis in engineering design applications.

ME 561 - Analysis and Design Industrial System Credits: 3
Problems in product design and development, marketing, forecasting, capacity evaluation, plant layout, materials handling from standpoint of interrelated and integrated systems. Prerequisites: ME 362.

ME 590 – Seminar Credits: 1-2
ME 592 – Topics Credits: 1-5
ME 691 - Independent Study Credits: 1-5
ME 692 – Topics Credits: 1-3

ME 700 - Graduate Colloquium Credits: 0
A topical course in which graduate students present the results of their work for review and critique by faculty members and peers prior to scheduling the final oral exam. Students will normally enroll in this course in the final term of their graduate study. Pre-requisite: Instructor permission

ME 703 - Thermo-Fluid Energy Systems Credits: 3
Review of viscous fluid, basic modes of heat transfer, thermodynamics, and energy conversion. Discussion of energy sources, uses, conversion, transmission, and economics. Analysis of conventional energy generation, storage, and transmission systems, criteria for design and analysis of energy systems such as nuclear, wind, solar, geothermal, etc.

ME 711 - Advanced Heat Transfer I Credits: 3
Review of principles of heat conduction. Multidimensional steady and transient heat conduction in cartesian and cylindrical coordinates. Separation of variables and integral transforms. Review of principles of radiation. Spectral and directional radiative properties. Gaseous radiation. Radiative transport equation.

ME 712 - Convection Heat Transfer Credits: 3
Scale Analysis. Laminar Boundary Layer Flow. Laminar duct flow. Laminar natural convection. Natural convection in enclosures. Turbulent boundary Layer Flow. Turbulent duct flow.

ME 721 - Viscous Flow I Credits: 3
Review of fluid motion with friction. Boundary layer theory. Exact solutions of the Navier-Stokes equations. Creeping flow and the theory of lubrication. Exact similarity solutions and approximate integral methods for boundary layer flow. Wall turbulence. Logarithimic law of the wall. Mixing length model.

ME 731 - Advanced Analytical Methods Credits: 3
Differential systems related to practical engineering problems. Linear ordinary differential equations. Series solutions; Fourier series. Partial differential equations: parabolic, elliptic, hyperbolic. Integral equations.

ME 735 - Modeling and Simulation Credits: 3
A systems approach to the analysis of electrical, mechanical and hydraulic systems. Generalized modeling methods, governing equations, system response, synthesis and design of dynamic systems, and specific applications of modeling technique. Corequisites: ME 735L.

ME 735L - Modeling and Simulation Laboratory Credits: 0
Corequisites: ME 735 required.

ME 739 - Advanced Metallurgy Credits: 3
Crystal lattices and diffraction by crystals. Structure determination, defects, registration by microscopic methods, single crystal orientation and analysis of stress caused by phase transformation.

ME 741 - Advanced Stress Analysis Mechanical Design Credits: 3
Introduction to the theory of elasticity. Equilibrium equations, boundary conditions and compatibility relations. Plane stress and strain. Torsion and curved beams. Rectangular and polar-coordinates. Axisymmetric problems. Energy methods. Introduction to Finite Element methods.

ME 745 - Advanced Machine Design Credits: 3
Experimental, empirical and analytical methods in advanced design. Thermal stresses. Stability. Theories of failure. Creep and fatigue considerations. Introduction to fracture mechanics. Plates and shells.

ME 760 - Quality Control Credits: 3
Application of statistical techniques to the control of quality and the development of economical inspection methods. Collection analysis, and interpretation of operations data; control charts and sampling procedure. Prerequisites: STAT 281 or STAT 381. Cross-Listed: OM 760/STAT 760.

ME 761 - Operations Research Credits: 3
History and organization of operations research, mathematical and statistical models in industrial decisions. The evaluation of alternatives by means of linear programming, queuing theory, deterministic and stochastic inventory models, game theory and simulation.

ME 763 - Topics in Reliability Engineering Credits: 3
Probability concepts and typical models involved in the statistical prediction of reliability. Methods for estimating required parameters from experimental data. Reliability and maintainability techniques in practice, and a survey of recent developments in the field.

ME 765 - Systems Analysis Credits: 3
Analysis of industrial problems as systems of servicing stations with deterministic and stochastic inputs and service times using queuing theory as a principal approach. Development of theoretical models. Digital computer simulation of complex systems.

ME 767 - Decision Theory Credits: 3
Examination and evaluation of modern techniques of decision making. Mathematical models and measurement theory. Certainty, risk, and uncertainty.

ME 787 – Research Credits: 9
ME 788 - Master's Research Problems/Projects Credits: 1-9
ME 790 – Seminar Credits: 1
ME 791 - Independent Study Credits: 1-3
ME 792 – Topics Credits: 1-3
ME 798 – Thesis Credits: 1-7

MFL (Modern Foreign Languages)

MFL 591 - Independent Study Credits: 1-3
MFL 592 – Topics Credits: 1-4

MICR (Microbiology)

MICR 514 - Anaerobic Microbiology Credits: 3
Anaerobic metabolism and ecology of bacteria, culturing techniques for anaerobic microorganisms.

MICR 514L - Anaerobic Microbiology Studio Credits: 0

MICR 521 - Soil Microbiology Credits: 3
Microbial species of agricultural soils, environmental factors affecting their numbers and activity, and biochemical changes brought about by these microorganisms. Corequisites: MICR 521L. Prerequisites: BIOL 151-151L and BIOL 153-153L or BOT 201-201L. Cross-Listed: PS 521.

MICR 521L - Soil Microbiology Laboratory Credits: 0

MICR 524 - Medical and Veterinary Virology Credits: 3
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. Prerequisites: BIOL 204. Cross-Listed: VET 524.

MICR 533 - Medical Microbiology Credits: 3
Principles of medical microbiology including a survey of the most clinically significant bacterial, fungal, parasitic, and viral diseases in the world, with an emphasis on those most prevalent in North America. Case studies will address: morphology, physiology, and virulence of the microbes and the epidemiology, treatment, and prevention of the diseases they cause.

MICR 550 - Application of Microbiology & Biotechnology Credits: 3
The rapid development of biotechnology techniques and their commercial application continues to be a major economic driver in the twenty-first century. Biotechnology uses living cells or their enzymes to produce chemicals, biomaterials, pharmaceuticals, and energy from renewable biomass feedstocks. This interdisciplinary course will examine theoretical and practical aspects of cell metabolism, metabolic engineering, fermentation and fermentor design, product recovery, process control, energy balances, and economics as related to several current bioprocesses. This course will integrate principles from microbiology, biochemistry, and engineering to provide students with the skills needed to fill roles in research, operations and commercialization. Prerequisites: MICR 231.

MICR 592 – Topics Credits: 1-4
Corequisites: MICR 592L.

MICR 592L - Topics Laboratory Credits: 1-4
MICR 788 - Master's Research Problems/Project Credits: 1-3
MICR 791 - Independent Study Credits: 1-4
MICR 792 – Topics Credits: 1-4
MICR 798 – Thesis Credits: 1-7

MNET (Manufacturing Engineering Technology)

MNET 560 - Manufacturing Cost Analysis Credits: 3
Cost estimating for processes and products related to manufacturing operations; engineering economics; analysis, evaluation, and budget justification for capital expenditures. Cross-Listed: OM 560.

MNET 568 - Manufacturing Plant Management Credits: 3
A case-oriented capstone course designed to integrate the technical, managerial, analytical, and communication skills which have been acquired. Prerequisites: MNET 367.

MRCH (Merchandising)

MRCH 510 - Consumer Behavior in Merchandising Credits: 3
Evaluation of psychological, sociological, and cultural theories of consumers' behavior through the examination of factors influencing consumers' decision-making process.

MRCH 520 - Professional Advancement in Merchandising Credits: 3
Analysis of leadership and how it affects organizational culture and change through a prism of past and current experiences. Various leadership styles will be examined and a personal leadership philosophy will be developed for professional advancement in merchandising.

MRCH 530 - Product Design, Development, and Evaluation Credits: 3
Advanced study of issues and management strategies necessary to design and produce a competitively priced product. Examination of the role of globalization and rapidly changing technology on the development of a successful product.

MRCH 540 - Promotional Strategies in Merchandising Credits: 3
Examination of integrated marketing communications Prerequisites: (i.e. promotional strategies and techniques) while fostering cultural and global awareness, social responsibility and ethical decision-making in the field of promotion.

MRCH 550 - Retail Theory and Current Practice Credits: 3
Theoretical and applied analysis of merchandising strategies; assessment of internal and external environmental forces impacting strategic decisions by retail firms; synthesis of past and present trends in order to forecast probable future patterns.

MRCH 580 - Travel Studies Credits: 1-5
This travel-study course is designed to provide extra-mural educational experiences, as approved by and under the direction of a faculty member, and may be in cooperation with faculty and administrators at other institutions. Students will participate in hands-on activities and design educational activities for presentation at selected locations. Includes pre-travel orientation, post-travel self-evaluation, and a written report. Prerequisites: Department consent.

MRCH 591 - Independent Study Credits: 1-3
MRCH 592 – Topics Credits: 1-3

MRCH 610 - History and Contemporary Issues in Trade Credits: 3
Examination of fiber, textile, and apparel industries in a global context. Specifically, a look at the historical development of the global and US textile and apparel industries and how the global environment (economic, political, and social systems) affects textile and apparel production and trade.

MRCH 620 - International Merchandise Management Credits: 3
Comprehensive understanding of theory, practices and trends on international merchandise management. An analysis of global retail systems and the way goods are distributed to consumers in various countries.

MRCH 630 - Research Methods in Merchandising Credits: 3
Overview of the research process used in social science, including an overview and analysis of research methodologies. This class will also include a review of current merchandising literature with implications for future research.

MRCH 640 - Financial Merchandising Implications Credits: 3
The advanced study of financial trends in the merchandising industries; implications related to sole proprietors, partnerships, franchises, S corporations, and C corporations. Foci will be on the financial implications of recent advances in the field that assist graduate students as they embark on careers in academia and/or merchandising industries.

MRCH 650 - Strategic Planning in Merchandising Credits: 3
Examination of the executive planning process utilized to develop successful corporate strategies: emphasis on the importance of a market orientation for building customer value and sustaining a competitive advantage.

MRCH 690 – Seminar Credits: 1-2
MRCH 695 – Practicum Credits: 1-6
MRCH 788 - Master's Research Problems/Projects Credits: 1-3

MRCH 798 – Thesis Credits: 1-6

MUS (Music)

MUS 591 - Independent Study Credits: 1-3
MUS 592 – Topics Credits: 1-5

NRM (Natural Resource Management)

NRM 550 - Freshwater Monitoring and Assessment Credits: 3
This course will introduce policy's related to monitoring assessment of fresh waters, design of freshwater monitoring and assessment programs, standard field and laboratory techniques used by monitoring agencies, analysis and interpretation of monitoring data and uses of monitoring data to improve management of freshwater resources. Corequisites: NRM 550L.

NRM 550L - Freshwater Monitoring and Assessment Lab Credits: 0
Laboratory to accompany NRM 550. Corequisites: NRM 550.

NRM 564 - Ecosystem Ecology Credits: 3
Study of energy and material flows through the living (plants, animals, microbes) and non-living (soils, atmosphere) components of ecological systems. Discussion of the major elements cycles and patterns of energy flow through ecosystems, including how those fluxes and their controls differ for different ecosystems. Linkages between ecosystem structure and function will be emphasized. Prerequisites: BIOL 311

NRM 566 - Environmental Toxicology and Contaminants Credits: 3
This course will prepare students in the area of Ecological Effects of Toxic Substances and other contaminants. Wildlife toxicology and impacts of agriculture on the Northern Plains will be emphasized. Topics covered will include pesticides, heavy metals, aquatic and terrestrial ecotoxicity and other topics related to Wildlife Toxicology.

NRM 582 - Natural Resource Management Biometry Credits: 3
Study and application of advanced quantitative methods used to assess natural resources. Estimation of parameters, hypothesis testing, and use of classical fisheries and wildlife sciences, ecology, environmental science, and range science statistical techniques. Corequisites: NRM 582L. Prerequisites: NRM 282.

NRM 582L - Natural Resource Managment Biometry Lab Credits: 0
Laboratory to accompany NRM 582. Corequisites: NRM 582. Cross-Listed:

NRM 592 – Topics Credits: 1-3

NRM 706 - Landscape Ecology Credits: 3
Study of the structure function and management of landscape ecosystems. Integrates the study of plants, animals and the physical environment at larger spatial scales, and application of these concepts to land management issues. An understanding of ecological principles is recommended prior to enrollment. Corequisites: NRM 706L

NRM 706L - Landscape Ecology Laboratory Credits: 0

NRM 790 – Seminar Credits: 1

NURS (Nursing)

NURS 565 - Intro Clinic Academic Partner Role Credits: 3
This course will introduce registered nurses to a mentoring model to prepare them for clinical teaching-learning experiences with nursing students and/or new nursing employees.

NURS 615 - Foundations of Advanced Nursing Credits: 3
Introduction to contemporary core concepts, issues, and trends common to multiple roles and educational pathways in the nursing discipline beyond basic licensure. Content includes overview of topics emphasized across roles and curricula following advances in nursing knowledge, clinical practice, technology, and priorities of the profession in changing healthcare environments.

NURS 623 - Pathophysiology Across the Lifespan - Application to Advanced Practice Nursing Credits: 4
Normal physiologic and pathophysiologic concepts will be examined with emphasis on problems of the major body systems. Changes in normal function that result in symptoms indicative of illness and assessment of an individual's response to illness will be interpreted. Pathophysiologic changes will be examined in relation to expected growth and development throughout the lifespan. Prerequisites: NURS 615 (or Concurrent).

NURS 626 - Research in Nursing and Health Care Credits: 3
Overview of the research process in nursing science to understand development of the evidence base for nursing practice in healthcare and the discipline of nursing. Content includes research appraisal and basic elements of qualitative and quantitative methods including concepts, frameworks, and approaches in the design, conduct, analysis, and interpretation of nursing research studies. Prerequisites: NURS 615 (or concurrent).

NURS 631 - Advanced Assessment Across the Lifespan Credits: 4
This course builds on basic skills of individual health assessment. It includes assessment of physiological and psychosocial processes relevant to the health of all age groups, and the assessment of selected human pathologies. Advanced assessment skills and tools necessary to identify health care needs and apply health maintenance protocols are included. Corequisites: NURS 631L. Prerequisites: NURS 615.

NURS 631L - Advanced Assessment - Lifespan Clinical Laboratory Credits: 0

NURS 645 - CNL I: Improvement Science: A Microsystem Approach Credits: 2-5
The CNL student will focus on the nursing leader role within complex healthcare systems and across various healthcare settings using evidence based knowledge for strategic leadership. The CNL student will develop skills and knowledge in integrating patient evaluation, risk assessment information, and inter-professional communication. Using information systems within clinical practice experiences, students will perform in depth analyses of microsystems, population focused programs, and strategies that promote health, improve outcomes, and facilitate the design of high-performing systems. Prerequisites: NURS 615, NURS 626, NURS 670, NURS 675, NURS 760, and NURS 860.

NURS 646 - CNL II: Clinical Immersion and Capstone Project Credits: 1-6
This course provides the opportunity for the CNL student to demonstrate understanding of clinical role practice within various healthcare settings and specialties through a guided role immersion experience. Students practice 300 hours with an approved preceptor in a selected clinical setting and complete a quality improvement project. Prerequisites: NURS 645.

NURS 670 - Health Policy, Legislation, Economics and Ethics Credits: 3
Legal, political, economic, and ethical issues related to health policy will be examined from the perspective of advanced practice nursing roles. Prerequisites: NURS 615.

NURS 675 - Cultural Competence in Health Care Credits: 3
This course will increase the student's awareness regarding the dimensions and complexities involved in caring for people from diverse cultural backgrounds. The issues of health care delivery will be explored and contrasted with the choices that people must make when attempting to deal with health care issues. Prerequisites: Admission to a graduate program in nursing or instructor consent.

NURS 690 – Seminar Credits: 1-4
NURS 691 - Independent Study Credits: 1-3
NURS 692 – Topics Credits: 1-3

NURS 710 - Curriculum Development in Nursing Credits: 3
This course introduces the student to traditional and contemporary considerations for curriculum planning, design, instruction, and evaluation as applied to nursing education.

NURS 720 - Technology-Based Instruction for Nurse Educators Credits: 3
This course will explore the educational and psychological underpinnings of technology-based instruction and challenge the participants to apply those theories in the development of working products. Notes: Students will produce media-rich

interactive programs for use in nursing education programs or continuing education courses.

NURS 750 - Transformational Leadership in Nursing Credits: 3
Analysis of effective and efficient methods of providing leadership and management for an education program, administrative unit or clinical area. Discussion of a variety of situations that leaders negotiate with regard to program and personnel development, strategic planning, budget preparation, fundraising, and program evaluation.

NURS 760 - Health Promotion and Disease Prevention Across the Lifespan Credits: 3
Critical analysis and applications of community preventive service guidelines, health promotion and disease prevention theories and models, and implementation strategies. Foundations of social, cultural, behavioral, genomic, political, and environmental factors impacting health. Exploration of provider roles in assessing the health of individuals and aggregates in planning health promotion, disease prevention, and health maintenance programs with a focus on chronic conditions and vulnerable, rural, and underserved populations. Corequisites: NURS 615 (concurrent or prerequisite).

NURS 765 - Family Nurse Practitioner Practicum I Credits: 7 (3, 4)
The emphasis of the course is on the application of evidence-based knowledge to clinical practice in primary care settings. Students will strengthen their health history and physical examination skills in the formulation of differential diagnoses and clinical decision-making relative to common primary care conditions and developmental variations such as pregnancy. Development of initial primary care procedural skills along with ordering and interpreting diagnostic testing will be included. This course provides the basis for integrating clinical data with knowledge of pathophysiology to formulate diagnostic hypotheses for clients across the lifespan. Prerequisites: NURS 615, NURS 623, NURS 626, NURS 631, NURS 631L, NURS 670, NURS 675, NURS 750, NURS 760, NURS 850, NURS 860, HSC 631 and PHA 645.

NURS 771 - Family Nurse Practitioner Practicum II Credits: 7
Emphasizes the integration of pathophysiology and specific disease and symptom complexes in the formulation of differential diagnoses and clinical management of acute and chronic health problems. Prerequisites: NURS 765 and PHA 645.

NURS 774 - Nurse Administrator: Practicum Credits: 5
Provides the opportunity to integrate principles and theories from support courses in health service administration and nursing courses to the administration of a nursing department or agency. Emphasis is placed on advanced nursing practice needed to administer the work of nursing. This is a supervised administrative practicum focused on broad participation in the administrative process in a health care organization. Corequisites: NURS 774L. Prerequisites: Instructor consent.

NURS 774L - Nurse Administrator Practicum Clinical Laboratory Credits: 0

NURS 776 - Family Nurse Practitioner III - Small Group Instruction Credits: 3
Emphasis is placed on the concept synthesis and outcome evaluation of the differential diagnoses and referral to multidisciplinary healthcare team members are emphasized in the development of appropriate interventions for the achievement and maintenance of optimal health. Transition from the student nurse practitioner role to professional practice is facilitated. Corequisites: NURS 777. Prerequisites: NURS 771.

NURS 777 - Family Nurse Practitioner: Practicum III Credits: 3-9
The clinical internship offers the advanced practice nursing student the opportunity to synthesize and apply theoretical concepts derived from nursing and other health-related disciplines to the clinical practice settings for the provision of primary care to clients across the lifespan. Independent and interdependent clinical decision making is expected and interdisciplinary collaboration and referral are emphasized. Corequisites: NURS 776. Prerequisites: NURS 771.

NURS 778 - Nurse Educator Practicum Credits: 5
This course is designed to provide teaching experiences in the classroom and clinical settings under the supervision of a faculty preceptor/ mentor. Students will design, implement, and evaluate classroom and clinical education under the direction of a selected nurse faculty mentor. Corequisites: NURS 778L. Prerequisites: NURS 615, NURS 710 and NURS 720.

NURS 778L - Nurse Education - Practicum Clinical Laboratory Credits: 0

NURS 788 - Problems in Nursing Research Credits: 1-2
Application of the nursing research process with particular emphasis on problems of inquiry in the health care system (project or non-thesis option). Requires five additional credits of electives. Prerequisites: NURS 626.

NURS 790 – Seminar Credits: 1-3
NURS 795 – Practicum Credits: 3
NURS 798 – Thesis Credits: 1-7

NURS 810 - Doctoral Seminar Credits: 1
A one credit doctoral seminar that provides a forum for pre-candidates and dissertators to integrate and apply skills and content from coursework, life experiences, and independent study to doctoral student academic situations while addressing relevant questions related to faculty, doctoral student, and researcher roles toward completion of degree requirements. The goal is to facilitate learning and socialization for successful student progression through pre-candidacy, candidacy, and completion of dissertation.

NURS 815 - Philosophical Basis for Nursing Inquiry Credits: 3
Analysis of philosophy of science traditions and their relationship to knowledge development in nursing. Prerequisites: Admitted to PhD in Nursing. Notes: Offered fall odd years.

NURS 820 - Theory Development in Nursing Credits: 3
Critical analysis of theory development and theory construction in nursing science. Evaluation of the relationship between theory construction and research methods to generate and test theories is explored Emphasis is placed on continued analysis of theories and their relationships with research and practice. The focus is on the fit between theoretical and operational foundations of research. Students conduct an extensive review of the literature on phenomena of concern to nursing in order to generate theory and empirical referents. Strategies for synthesis of concepts, statements, and theories are practiced. Prerequisites: NURS 815. Notes: Offered spring even years.

NURS 825 - Qualitative Research Methods in Nursing Credits: 3
Analysis of qualitative research methods in nursing, paradigmatic, theoretical, and conceptual issues related to these approaches, and the nature of the nursing knowledge generated.

NURS 830 - Quantitative Methods in Nursing Research Credits: 3
Analysis of research designs, problems of measurement, methods of data collection, and analysis and interpretation of data in quantitative research. An integral part of the course is the development and analysis of a pilot research proposal investigating a current nursing problem. Notes: Offered summer even years.

NURS 832 - Mixed Methods Research Credits: 3
An introduction to the design and conduct of mixed methods research in health and human sciences including theoretical underpinnings, method designs, sampling strategies, analysis, and ethical issues common to mixed methods. Students will develop skills in conducting and evaluating mixed methods research. Prerequisites: NURS 825 and NURS 830. Cross-Listed: HSC 832.

NURS 835 - Ethical Issues Influencing Practice and Research in Health Credits: 2
An in-depth critical analysis of ethical dimensions encompassing health care, politics, policy, medicine, research, and clinical practice. Interdisciplinary perspectives are utilized to synthesize ethical positions and viewpoints on health-related issues for individuals, groups, and populations in contemporary society. Notes: Offered fall even years.

NURS 840 - Health Promotion Theory and Research in Underserved Populations Credits: 3
Study of the theoretical foundations of health behavior and health promotion as a basis for nursing research. The theory and principles of how health behavior patterns of individuals, families, and communities are acquired, maintained and changed are emphasized. The influence of social and psychological factors such as ethnicity, socioeconomic status, gender and social support is included. Research application of theories and models of health promotion are analyzed and relevant research methodologies are applied to under-served populations. Prerequisites: NURS 815, NURS 820 and NURS 825. Notes: Offered fall even years.

NURS 845 - Measurement and Instrument Evaluation in Health Sciences Research Credits: 3
Analysis of measurement theories and approaches to measurement in health sciences research. Inductive and deductive processes of constructing and evaluating instruments to measure behavioral, biological, social, cultural, and clinical concepts are examined. Content includes instrument scaling techniques and procedures to evaluate psychometric properties including reliability, validity, and factor analysis. Examination of measurement issues with different concepts and populations. Basic knowledge of concept analysis and inferential statistics is expected prior to enrollment. Prerequisites: NURS 830. Notes: Offered spring odd years.

NURS 850 - Philosophical and Theoretical Foundations for Evidence-Based Care Credits: 3
This course will prepare the student to analyze significant practice issues with the theoretical and scientific underpinnings of knowledge-based practice. The student will employ advanced clinical judgment to assess the evidence from nursing theories and models, interdisciplinary theories, research findings, and value systems of clients.

NURS 855 - Translational Research in Health Care Credits: 3
DNP students will critique the quality of evidence derived from quantitative and qualitative research. Students will determine how evidence derived from research will guide advanced practice and inform quality care for diverse populations, including the rural or underserved. Implications for new advanced nursing practice models based on research and culturally congruent policies and practices to improve care will be explored. Prerequisites: NURS 850.

NURS 860 - Health Operations and Financial Management for Nurse Managers Credits: 3
Focuses on business skills needed by the nurse executive or advance practice nurse to lead, influence, and develop healthcare delivery systems. Principles of financial management, healthcare economics, human resource and productivity management, strategic management, marketing, and information management and their application to healthcare delivery systems will be examined. Students will apply these business skills to selected specialty areas.

NURS 865 - DNP Capstone Credits: 2-6
This capstone experience provides the DNP student with opportunity to apply theoretical concepts and research evidence to advanced nursing practice focused on quality health care with rural or underserved populations. Within the seminar, students will compare and contrast models of care delivery and organizational systems. This course has one hour of classroom instruction per week and fifteen hours of clinical experience per week for a total of 225 clinical hours. Corequisites: NURS 870. Prerequisites: NURS 675, NURS 750, NURS 835, NURS 850 and NURS 855.

NURS 870 - DNP Practice Innovation Project Credits: 1-6
Literature and evidence will be synthesized with stakeholders and inter-professional collaboration to develop and implement a practice innovation project for a rural or underserved population, health system, or community. The advanced practice nursing student will implement, evaluate, and defend an intervention that improves health care practice and quality of care for a rural or underserved population served by a health system. This course has a total of 240 clinical hours guided by a project major advisor whose expertise matches the intent of the practice innovation project. Corequisites: NURS 865. Prerequisites: NURS 675, NURS 750, NURS 835, NURS 850 and NURS 855.

NURS 875 - DNP Practicum Credits: 1-8
This course provides the opportunity for post-certified advance practice nurses (NPs, CRNAs, CNSs, and CNMs) to complete supervised clinical hours to achieve the hours required by accreditation (1000 hours post baccalaureate), and BS-DNP students to achieve clinical hours required by accreditation (1000 hours post baccalaureate). Students will work with the program advisor to plan experiences that augment previous practice expertise and interest. Prerequisites: NURS 850.

NURS 880 - DNP Project Credits: 1-8
Literature and evidence will be synthesized with stakeholders and inter-professional collaborators to develop and implement a practice innovation project for a rural or underserved population, health system, or community. The advanced practice nursing student will implement, evaluate, and defend an intervention that improves health care practice and quality of care. Some seminar content will be followed by work with a project major advisor whose expertise matches the intent of the Practice Innovation Project (PIP). Prerequisites: NURS 675, NURS 750, NURS 835, NURS 850 and NURS 855.

NURS 895 – Practicum Credits: 1-3
NURS 898 - Dissertation – PhD Credits: 18-24

NUTR (Nutrition and Dietetics)

NUTR 522 - Advanced Human Nutrition Credits: 4
Principles of physiological chemistry and physiology applied to nutrition.

NUTR 523 - Medical Nutrition Therapy I Credits: 3
This course introduces the role of nutritional intervention in pathological conditions. Students will demonstrate the ability to screen for nutritional risk, collect data for nutritional assessment and calculate and/or define diets for common conditions.

NUTR 523L - Medical Nutrition Therapy I Laboratory Credits: 0
This course introduces the role of nutritional intervention in pathological conditions. Students will demonstrate the ability to screen for nutritional risk, collect data for nutritional assessment and calculate and/or define diets for common conditions.

NUTR 524 - Community Nutrition Credits: 3
Application of learning principles, teaching methods and knowledge of nutrition in community nutrition education programs and out-patient nutrition counseling. Corequisites: NUTR 524L required. Prerequisites: NFS 315 and NFS 323.

NUTR 524L - Community Nutrition Laboratory Credits: 0
Corequisites: NUTR 524 required.

NUTR 525 - Medical Nutrition Therapy II Credits: 3
Continuation of NFS 523. Prerequisites: NUTR 523.

NUTR 525L - Medical Nutrition Therapy II Laboratory Credits: 0

NUTR 580 - Travel Studies Credits: 1-5
This travel-study course is designed to provide extra-mural educational experiences, as approved by and under the direction of a faculty member, and may be in cooperation with faculty and administrators at other institutions. Students will participate in hands-on activities and design educational activities for presentation at selected locations. Includes pre-travel orientation, post-travel self-evaluation, and a written report.

NUTR 590 – Seminar Credits: 1-2
NUTR 591 - Independent Study Credits: 1-6
NUTR 593 – Workshop Credits: 1-3

NUTR 660 - Maternal and Child Nutrition Credits: 3
Fundamental principles of nutrition during pregnancy, lactation, infancy, and childhood. Topics include: the physiologic and genetic events that occur during the process of conception, pregnancy and growth; nutritionally critical periods during pregnancy, lactation and growth; implications of nutrition on health, growth and mental/emotional development; development of food habits in children; and the current educational and support programs available to the mother and child.

NUTR 662 - Sociocultural Aspect of Nutrition Credits: 2
The study of diverse dietary patterns and their impact on nutritional health including food attitudes, socioeconomic structures, cultural patterns of food intake and their effect on nutrient composition of the diet.

NUTR 702 - Macronutrients in Human Nutrition Credits: 3
The course is an overview of macronutrients, including carbohydrates, lipids and proteins. It will cover recent findings on their functions in human nutrition and health.

NUTR 704 – Phytochemicals Credits: 2
The course is an overview of phytochemicals (non-nutritive biologically active compounds) from fruits, vegetables, cereals, and oilseeds. It will cover recent findings on chemistry, physiological functions, potential health implications of phytochemicals. It has been developed as an Internet-based course.

NUTR 705 - Functional Foods: Disease Prevention Credits: 3
Integrate and evaluate the regulatory principles, food science, nutrient science, and nutritional metabolism for the development of functional foods, mutraceuticals, and dietary supplements for chronic disease prevention

NUTR 706 - Nutrition and Immunology Credits: 3
Principles and issues related to nutrition and immunology. Impact of nutrients and nutritional status on immune responses. Impact of disease states on nutritional status.

NUTR 708 - Evidence Based Analysis Credits: 3
This course will cover the process of evidence-based analysis which uses scientific evidence to formulate and standardize practice guidelines and to develop programs. A variety of disciplines such as dietetics, athletic training, medicine, psychology and education use evidence-based practice and/or programs. The emphasis of the course will be on a transdisciplinary process and how it can be utilized in a student's chosen field. When possible, students will be encouraged to use his/her thesis or dissertation topic in order to complete required assignments and activities.

NUTR 710 - Dietary and Herbal Supplements Credits: 3
Explore the safety and efficacy of botanical/herbal and dietary supplements in health applications including: dietary supplementation in the prevention and treatment of chronic disease. It is advised for students to complete Human Physiology prior to enrollment. Course is designed to meet professional education for the registered dietitian. Notes: Online.

NUTR 715 - Public Health Nutrition Credits: 3
This course provides information and activities related to the broad topic of public health nutrition and will focus on how nutrition research, policies and programs impact populations. Students will gain a broader understanding of public health nutrition through case studies, discussions and experiential learning experiences.

NUTR 722 - Nutrition Counseling/ Ed Methods Credits: 3
Nutrition education for groups and individuals in clinical and community settings. Includes discussion and experience in applying learning theory, assessing educational needs, stating goals and objectives, selecting learning activities, implementing and evaluating instruction, and documenting care provided.

NUTR 723 - Nutrition Focus on Life Stages Credits: 3
The influence of normal physiological stresses on nutritional needs throughout the life span will be explored. Evaluating dietary intake and identifying appropriate community nutrition services will be included in the on-line discussions. Specific considerations, such as the influence of age and cultural heritage, will be incorporated. An opportunity will be given to each student to plan, present, and evaluate a mini nutrition education lesson.

NUTR 724 - Nutrition Education in the Community Credits: 3
Principles and practices of teaching individuals and groups to translate nutrition knowledge into action. Emphasis on research in and evaluation of nutrition education for registered dietitians. Notes: Online.

NUTR 725 - Nutrition and Human Performance Credits: 3
This course is designed to develop an understanding of nutrition, based upon knowledge of the biochemical and physiological process and functions of specific nutrients in meeting nutritional requirements. Emphasis will be placed upon the relationship of optimal nutrition and physical efficiency and performance.

NUTR 726 - Nutrition and Wellness Credits: 3
Course will address wellness promotion through nutrition. Nutritional risk and protective factors will be examined as they relate to public health and individual nutrition.

NUTR 727 - Obesity Across the Lifespan Credits: 3
Exploration of the effects that obesity has on public health, the healthcare system, and society in general. Overview of strategies to prevent obesity across the lifespan.

NUTR 728 - Pediatric Clinical Nutrition Credits: 3
This course examines the physiological, biochemical, and nutritional aspects of disease processes relevant to infants and children up to 18 years of age. Medical nutrition therapy for a variety of medical conditions found in this population will be discussed including inborn errors of metabolism, food hypersensitivity, obesity, and diseases of all major organ systems.

NUTR 729 - International Nutr/World Hunger Credits: 3
Advanced study of the magnitude, cause, and nature of hunger and undernutition in low income countries; emphasis on programs, policies, and planning directed toward alleviating hunger.

NUTR 730 - Nutritional Aspects of Oncology Credits: 3
Students will gain understanding of basic cancer biology and methodology used to study nutrition and cancer relationships. Using current research as a basis, the role of nutrition in specific cancers will be explored. Students will learn about sources of information for cancer prevention programs, and how to apply this information to clinical patient management. Course is designed to meet professional education for the registered dietitian. Notes: Online.

NUTR 734 - Research Methods in Dietetics Credits: 3
Dietetics, including the use of various research designs for answering research questions, methods for conducting research, evaluation of research articles, development of research proposals, communication of research findings, and demonstration of understanding of ethical issues in research. Basic components of the research process and the application of various research methods in dietetics.

NUTR 735 - Current Trends in Dietetics Practices Credits: 3
Review of current issues in the economic, social, ethical, political, legal, technological, and ecological environments and the effect of these changes on dietetics practice. Notes: Online.

NUTR 741 - Grant Writing in Dietetics Credits: 3
Grant writing, identifying external funding, managing grants, preparing manuscripts for peer reviewed publications, and preparing papers and posters for presentation at professional meetings.

NUTR 742 - Entrepreneurship in Dietetics Credits: 3
Development and management of small businesses or private practice within the dietetics industry. Business plan development, marketing, cost considerations. Overview of consulting to healthcare and hospitality operations and examination of skills required for success.

NUTR 743 - Foundations in Leadership Credits: 3
This course builds upon leadership theories to develop the fundamental concepts and skills to bridge the gap between theory and practice. After completing this course, students will be able to successfully evaluate leadership theories (classic and contemporary); investigate current trends in leadership and identify positive applications in the dietetic community. Students will formulate a plan for professional growth as a leader in the field of dietetics and nutrition. The student will be asked to respond to critical thinking opportunities and demonstrate their understanding of key concepts through exercises, discussion questions, quizzes, a Learning Journal, and their Leadership Growth Plan.

NUTR 750 - Trandisciplinary Childhood Obesity Prevention I Credits: 3
This course will expose students to the transdisciplinary nature of childhood obesity prevalence, prevention, and treatment. Using a transdisciplinary team of experts in childhood obesity, students will be introduced to the interrelationship of topics such as: school environments, nutrition environments, physical activity environments, messaging environments, and weight bias & stigmas. Invited guest lecturers will introduce the complex issues surrounding childhood obesity and students will have the opportunity to explore topics that directly impact childhood obesity, but may not be their primary area of study. An emphasis will be placed on student interdisciplinary teamwork to address the transdisciplinary issues surrounding childhood obesity prevention.

NUTR 751 - Trandisciplinary Childhood Obesity Prevention II Credits: 3
The purpose of this course is to allow students to gain knowledge of and experience with transdisciplinary obesity prevention research. Students will be taught how to find obesity prevention related grant opportunities, expose students to different types of funding opportunities, allow them to learn the common components of grant applications, and gain experience writing grants in transdisciplinary teams. Students will be introduced to community based participatory research, the clinical approach to childhood obesity prevention, and the art of partnership and working in transdisciplinary groups. The course will also teach scientific writing techniques for peer reviewed journals, abstract writing, poster creation, and how to write articles for the lay public. Prerequisites: HNS 783.

NUTR 760 - Vitamins and Minerals in Human Nutrition Credits: 3
The study of the functional rolls of vitamins and minerals in human nutrition. Course content will include: identification of essential functions for the vitamins and minerals; health implications of varying amounts vitamins and minerals in the diet; interactions between vitamins; interactions between minerals; vitamin and mineral interactions and the process of establishing nutrient requirements.

NUTR 761 - Nutrition and Aging Credits: 3
Physiological and behavioral changes associated with aging and their impact on nutrition. Effect of nutrition on aging and lifespan. Common health problems of the aged and their implications.

NUTR 765 - Dietetic Accounting Concepts Credits: 3
An emphasis on financial statement analysis is the main objective of the course. A review of all major accounts in the income statement, balance sheet, and statement of cash flows is made in determining a firm's performance and financial condition in relation to what matters most to shareholders and investors.

NUTR 769 - Healthcare Administration for Dietetics Credits: 3
Comprehensive review of current health care institutions and their response to the economic, social/ethical, political/legal, technological, and ecological environments. Current issues in today's healthcare environment and challenges which must be met by healthcare administrators. Notes: Online.

NUTR 770 - Food Writing for Professionals Credits: 3
Understanding and appreciating how to communicate effectively in writing about food and food-related topics. Hands-on experience in research and writing for various audiences and types of media. Course is designed for the registered dietitian.

NUTR 775 - Nutrigenomics and Health Credits: 3
Nutritional genomics (nutrigenomics), the junction between health and diet can be seen as the combination of molecular nutrition and genomics. Diet is the most important environmental factor influencing expression of genetic information because of the constant exposure to nutrients in foods. The advent of omics-based sciences has created unprecedented opportunities for increasing our understanding of how nutrients modulate gene expression, influence cellular and organismal metabolism and ultimately influence health. The course will be taught using integrative concepts of nutritional biochemistry, gene function, signal transduction and molecular biology in context of human diseases. Prerequisites: CHEM 464 and BIOL 371 (waiver by petition only).

NUTR 782 – Epidemiology Credits: 3
The course introduces concepts and methodologies for the study of health and disease in human populations. Different study designs and their methods of analysis will be discussed, as well as sources, handling, and interpretation of epidemiologic data. Cross-Listed: BIOL 782/HSC 782.

NUTR 795 – Practicum Credits: 3
NUTR 798 – Thesis Credits: 1-7

OM (Operations Management)

OM 560 - Manufacturing Cost Analysis Credits: 3
Cost estimating for processes and products related to manufacturing operations; engineering economics; analysis, evaluation, and budget justification for capital expenditures. Prerequisites: MENT 231.

OM 562 - Quality Management Credits: 3
Course focus is on managerial philosophies and techniques of quality planning and control. This includes quality improvement tools, reliability, cost of quality, and human factors that effect the quality initiatives. Prerequisites: STAT 281 or instructor consent.

OM 563 - Supply Chain Management Credits: 3
Study and analysis of activities in the flow of materials from the supplier to the consumer. These include physical supply, operations planning and control, storage and warehousing, and physical distribution.

OM 569 - Project Management Credits: 2-3
An overview of project management as it relates to integrated systems, product/project life cycle, and organizational change. Defining, estimating, scheduling, risk management, and project team leadership issues will be covered as they relate to projects. Cross-Listed: GE 569.

OM 650 - Manufacturing Systems Management Credits: 3
Production planning and control methods to improve efficiency. Study and application of low cost production for small to large systems. Workplace organization, value stream mapping, demand flow, and other management tools will be covered. Prerequisites: STAT 541 or STAT 582.

OM 660 - Operations Management Credits: 3
Product planning, demand forecasting and management, capacity planning, scheduling, inventory planning and timing, materials management, quality, work standards and measurement.

OM 665 - Quality Control Applications Credits: 3
Quality control theory applied to problems in production systems, including probability concepts, control chart concepts, sampling inspection plans; mean time between failure; and, application of statistics for quality control in discrete-item manufacturing systems.

OM 670 - Research Methods in Management Credits: 3
Principles and methods of applied research in business and industry. Examination of appropriate methods to conduct literature reviews, design methodology, develop proposals for research projects, and present results.

OM 690 – Seminar Credits: 1

OM 760 - Quality Control Credits: 3
Application of statistical techniques to the control of quality and the development of economical inspection methods. Collection analysis, and interpretation of operations data; control charts and sampling procedure. Prerequisites: STAT 281 or STAT 381. Cross-Listed: ME 760/STAT 760.

OM 767 - Decision Theory Credits: 3
Examination and evaluation of modern techniques of decision making. Mathematical models and measurements theory. Certainty, risk, and uncertainty.

OM 788 - Master's Research Problems/Projects Credits: 1-2
OM 789 – Thesis Credits: 1-7

PE (Physical Education)

PE 550 - Clinical Exercise Physiology Credits: 3
This course is designed to provide the clinical exercise physiology student with assessment and prescription techniques appropriate to special populations. Prerequisites: PE 350.

PE 555 - ECG and Clinical Stress Testing Credits: 3
This course is designed to fill the needs of students who desire the ability to interpret the normal and abnormal, resting and exercise ECG, as well as provide opportunities to learn and practice the basic components of maximal stress testing during a variety of exercise conditions. Since clinical stress testing and ECG interpretation is a vital component of the laboratory skills needed by today's exercise physiologist, emphasis in this course will be focused on understanding and interpreting ECG tracings and related pathophysiology, preparation of the exercise 12-lead ECG, and interpretation of maximal stress test results regarding exercise tolerance for various clinical populations and comparing them to normal individuals. In addition, an overview of other diagnostic procedures that involve the use of exercise will be given. Prerequisites: Consent.

PE 585 - Travel Studies Credits: 1-5
This travel study course is designed to provide extra-mural educational experiences, as approved by, and under the direction of a faculty member, and may be in cooperation with faculty and administrators of other institutions. Students will participate in hand-on activities, and design educational activities for presentation at selected locations.

PE 593 – Workshop Credits: 1-3

PE 705 - Sports Medicine Credits: 2
A review of the basic fundamentals of athletic training and exposure to recent developments in the sports medicine field. Undergraduate Prevention and Care of Athletic Injuries or consent.

PE 706 - Motor Learning and Development Credits: 3
The study of human behavior as it relates to the learning and performance of motor skills. The understanding of motor learning as an essential foundation underlying the development of successful instruction and training strategies critical for skill acquisition. Laboratory work. Prerequisites: Instructor consent.

PE 730 - Physical Education Teacher Education Credits: 3
Readings, lectures, and discussions designed to analyze the process of preparing physical educators for the teaching profession. Includes discussion of external influences, problems and possible solutions, socialization and effective teaching in the field. Prerequisites: Instructor consent.

PE 732 - Analyses and Strategies of Teaching and Supervision of PE and Sports Credits: 3
Study and application of theoretical and practical knowledge of effective teaching/coaching, designed to improve teaching and coaching in physical education, including techniques of analysis and supervision. Notes: Restricted to Sport and Recreation Studies majors only

PE 742 - Psychological Aspects of Sport and Exercise Credits: 3
Psychological theories and principles applied to physical education, sport, and exercise. Interpretation and analysis of human behavior. Pre-requisite: instructor consent. Topics include personality, arousal and anxiety, motivation, self efficacy and self-esteem, attentional focus, audience effects, aggression, leadership, as well as intervention strategies.

PE 745 - Applied Biomechanics Credits: 3
This course provides students with an advanced application of mechanical principles to human movement. Specific topics will include the force-motion relation, kinetics and kinematics of human motion, and neuromuscular adaptations. Emphasis within these topics will be placed on evaluating and developing rehabilitation and performance techniques using motion capture, force platforms, and electromyography. Current research literature in each of the areas will be discussed and critically reviewed.

PE 750 - Advanced Exercise Physiology Credits: 3
Physiological basis of factors which influence physical fitness and physical performance; application of physiological measures to fitness programs, critical analysis of current literature; emphasis on bioenergetics, neuromuscular and circulorespiratory function, body composition and physical training. Prerequisites: NEFS Majors only.

PE 751 - Laboratory Techniques in Exercise Physiology Credits: 2
Laboratory experience using methods, measurements, and instruments for conducting research in the area of exercise physiology. Corequisites: PE 751L. Prerequisites: Consent.

PE 751L - Techniques in Exercise Physiology Laboratory Credits: 0
Laboratory to accompany PE 751 Corequisites: PE 751.

PE 755 - Applied Exercise Physiology Credits: 3
Focuses on the applied aspect of exercise physiology. Includes areas of environmental influences on performance, optimizing performance by developing and implementing training programs appropriate to the individual. In addition, training and performance characteristics of adolescent athletes and older adults as well as gender differences will be discussed. Notes: For NEFS majors only.

PE 770 - Advanced Administration of Interschool Athletics Credits: 2
Budgets, public relations problems, subsidization, objectives of athletics, staff organization, control of athletics, both interscholastic and intercollegiate, and general policies of athletics. Prerequisites: Instructor consent.

PE 771 - Current Trends in HPER and Athletics Credits: 3
The study of trends in athletics that affect the performance, safety, and attitude of athletes; administrative practices; and public perception and support of athletics.

PE 772 - Financial Aspects of Sport Management Credits: 3
A course that gives the student interested in sports administration an opportunity to take an in-depth look into various areas of financial management. Examples of some of these areas but not a complete list, are: fund raising, guarantees, budgeting, scholarship programs, TV and Radio, receipts, and marketing.

PE 780 - Introduction to Graduate Study and Research Credits: 1
Orientation to graduate studies, policies and procedures. Introduction to the development of research proposals, critical thinking, and critiquing research.

PHA (Pharmacy)

PHA 610 - Introductory Practice Experience II Credits: 3
Students apply the academic and theoretical knowledge they have acquired in didactic courses to practical situations within a pharmacy setting. The drug dispensing process, patient counseling, and management of the pharmacy will be emphasized during the course. Notes: Pass/fail grading.

PHA 645 - Pharmacotherapeutics Across the Lifespan: Application to Advanced Practice Credits: 2-4
To provide the student with the knowledge and skills to assess, diagnose and manage (including the prescription of pharmacologic agents) a client's common health problems throughout the lifespan in a safe, high quality, and cost-effective manner. Notes: Graduate nursing students only.

PHA 647 - Pharmacological Issues in Mental Health Counseling Credits: 3
An overview and discussion of medications and medication issues that mental health counselors encounter. The role of the counselor with clients requiring counseling and pharmacotherapy treatments will be emphasized.

PHA 650 - Introduction to Advanced Concepts in Pharmaceutical Sciences Credits: 3
An introduction to advanced concepts in pharmaceutical sciences. Prerequisites: Instructor consent.

PHA 699 - Advanced Clinical Research I Credits: 1
This course is part one of a two course series providing student with an advanced experience in clinical research. In part one, students gain knowledge and experience in research design and IRB submission.

PHA 699 - Advanced Clinical Research II Credits: 1
This is the second course in a two course series that will provide the student with an advanced experience in clinical research. In this course, students analyze data, draw conclusions, and format the information for publication or presentation.

PHA 700 - Directed Studies Practice Experience Credits: 4-5
Advanced experiential course in pharmacy.

PHA 701 - Home Health/Hospice Practice Experience Credits: 5
PHA 702 - Indian Health Services Practice Experience Credits: 5
PHA 703 - Pharmacy Administration Practice Experience Credits: 5
PHA 704 - Nutrition Support Practice Experience Credits: 5
PHA 705 - Clinical Research Practice Experience Credits: 5
PHA 706 - Critical Care Practice Experience Credits: 5
PHA 707 - Infectious Disease Practice Experience Credits: 5
PHA 708 - Surgery Practice Experience Credits: 5
PHA 709 - Nephrology Practice Experience Credits: 5
PHA 710 - Pharmacokinetics Practice Experience Credits: 5
PHA 711 - Oncology Practice Experience Credits: 5
PHA 712 - Nuclear Pharmacy Practice Experience Credits: 5
PHA 713 - Managed Care Practice Experience Credits: 5

PHA 714 - Community Pharmacy Practice Experience Credits: 5
Clerkship experience at an affiliated site. Prerequisites: 6th year standing.

PHA 715 - First Steps in Pharmacy Care Practice Experience Credits: 4
Students apply knowledge and skills of professional pharmacy practice in community and hospital/institutional health care settings. The fundamentals of patient monitoring and communication with patients and health care practitioners are emphasized.

PHA 716 - Hospital/Institutional Pharmacy Practice Experience Credits: 5
Clerkship experience at an affiliated site. Prerequisites: 6th year standing.

PHA 717 - Community Health and Patient Monitoring Practice Experience Credits: 5
Clerkship experience in pharmaceutical care in a community pharmacy.

PHA 723 - Ethics in Healthcare Practice Credits: 2
Overview of ethical principles and theory, with emphasis on the professional-client relationship. Prerequisites: P3 standing.

PHA 727 - Professional Resources Management Credits: 3
Professional, economic, and social considerations influencing the organization and management of the delivery of pharmaceutical services. Prerequisites: 5th year standing.

PHA 729 - Advanced Pharmacy Marketing and Management Credits: 2
Discussion of strategic marketing and advanced management principles for the pharmacy practitioner.

PHA 741 - Public Health and Wellness Credits: 2
This course explores the role of the pharmacist in public health, disease prevention and health promotion, as well as key concepts and theoretical frameworks used in developing health promotion and health behavior interventions. Pharmaceutical care skills for assessment of humans in health and disease are also developed and applied. Corequisites: PHA 741L. Prerequisites: P3 standing.

PHA 741L - Public Health and Wellness Laboratory Credits: 0

PHA 742 - Patient Assessment and Self Care Credits: 2
Discussion of over-the-counter and dietary supplement products, common medical conditions amenable to self treatment, and recognition of situations when self-treatment is appropriate. Pharmaceutical care skills for assessment of humans in health and disease are also developed and applied. Corequisites: PHA 742L. Prerequisites: P3 standing.

PHA 742L - Patient Assessment and Self Care Laboratory Credits: 0

PHA 744 - End of Life Care Credits: 1
Discussion of the dying process and how to improve end-of-life care for patients and families. An emphasis will be placed on legal and ethical principles relative to end-of-life care, resources available for end-of-life care, financial aspects, pain management, non-pain symptom management, and overview of cultural and spiritual diversity related to end-of life.

PHA 745 - Ambulatory Care Practice Credits: 2
This course is designed to provide the student with an introduction to ambulatory care. Various aspects of ambulatory care practice settings and opportunities for pharmacist involvement in ambulatory care practices will be discussed. At the end of the course, the student should have an increased ability to provide quality pharmaceutical care for patients in an ambulatory care setting, specifically through the development of clinical skills, including drug information, and oral and written communication.

PHA 746 - Professional Pharmacy Leadership Skills Credits: 1
This course will provide advanced instruction in professional leadership skills for students with an interest in becoming effective leaders and role models in the profession of pharmacy. Prerequisites: P3 year standing.

PHA 747 - Advanced Clinical Nutrition Credits: 1
Advanced study of clinical nutrition including parenteral and enteral nutrition regimens, compounding of nutrition products, and assessment of nutritional status and need. Prerequisites: P3 year standing.

PHA 748 - Topics in Neonatal and Pediatric Pharmacotherapy Credits: 1
Advanced study of organ development and system maturation that includes drug delivery, drug therapy, patient safety, medication error prevention, and drug related problem identification and problem solving in the pediatric patient population. Prerequisites: P3 year standing.

PHA 749 - Care of the Geriatric Patient Credits: 1
This course will enhance the student's ability to care for geriatric patients by providing the student with an understanding of age related socio-behavioral aspects that influence care, skills in the management of geriatric syndromes, practice in managing drug therapy for complex, frail geriatric patients, and training in the provision of pharmaceutical care in select settings and in a team approach. Prerequisites: P3 year standing.

PHA 750 - Critical Care Therapeutics Credits: 2
Principles of medication use in the critically ill patient. Prerequisites: P3 standing.

PHA 752 - Drugs of Abuse and Addiction Credits: 2
Discussion of psychoactive drugs, both legal and illegal, that have potential for abuse. Prerequisites: P3 standing.

PHA 753 - Women and Children's Health Credits: 2
Diseases and drug-related issues pertaining to women's and children's health. Prerequisites: P3 standing.

PHA 754 - Complementary and Alternative Medicine Credits: 1
Discussion of alternative, natural, and homeopathic medicines, with emphasis on their appropriate evaluation and use.

PHA 755 - Forensic Pharmacology Credits: 2
This course will provide the student with an introduction to forensic pharmacology using interactive teaching technology that will include topics like forensic case evaluation, legal policy, depositions, parliamentary procedure, and document development for forensic evaluations.

PHA 756 - Pharmacotherapeutics III Credits: 4
Discussion of pharmacotherapeutic principles for the development of patient specific drug regimens in patients with acute and chronic disease states and conditions. Prerequisites: P3 standing.

PHA 757 - Pharmacotherapeutics IV Credits: 4
This course is a continuation of PHA 756, Pharmacotherapeutics I with an emphasis on the discussion of pharmacotherapeutic principles for the development of patient specific drug regimens in patients with acute and chronic disease states and conditions. Prerequisites: P3 standing.

PHA 761 - Pharmacotherapeutics V Credits: 5
This course is the continuation of PHA 757, Pharmacotherapeutics IV with an emphasis on the discussion of pharmacotherapeutic principles for the development of patient specific drug regimens in patients with acute and chronic disease states and conditions. Prerequisites: P3 standing.

PHA 762 - Pharmacotherapeutics VI Credits: 5
This course is a continuation of PHA 761, Pharmacotherapeutics V with an emphasis on the discussion of pharmacotherapeutic principles for the development of patient specific drug regimens in patients with acute and chronic disease states and conditions. Prerequisites: P3 standing.

PHA 767 - Pharmacy Practice V Credits: 3
Continuation of the skills taught and developed in Pharmacy Practice I-IV. Advanced skills in patient evaluation, therapeutic medication evaluation, professional communication skills, and verbal and written drug information skills are developed. Application of pharmacotherapeutic concepts and principles to access diseases, evaluate and solve therapeutic problems, create drug therapy regimens, and develop monitoring plans. Introductory practice experiences are also incorporated into this course. Corequisites: PHA 767L. Prerequisites: P3 standing.

PHA 767L - Pharmacy Practice V Lab Credits: 0
Corequisites: PHA 767. Prerequisites: P3 standing.

PHA 768 - Pharmacy Practice VI Credits: 3
Continuation of the skills taught and developed in Pharmacy Practice V. Advanced skills in patient evaluation, therapeutic medication evaluation, professional communication skills, and verbal and written drug information skills are developed. Application of pharmacotherapeutic concepts and principles to assess diseases, evaluate and solve therapeutic problems, create drug therapy regimens, and develop monitoring plans. Activities are designed to prepare students for upcoming Advanced Practice Experiences. Introductory practice experiences are also incorporated into this course. Corequisites: PHA 768L. Prerequisites: P3 standing.

PHA 768L - Pharmacy Practice VI Lab Credits: 0
Corequisites: PHA 768. Prerequisites: P3 standing.

PHA 770 - Pediatrics Practice Experience Credits: 5
PHA 771 - Geriatrics Practice Experience Credits: 5
PHA 772 - Internal Medicine I Practice Experience Credits: 5
PHA 773 - Internal Medicine II Practice Experience Credits: 5
PHA 774 - Ambulatory Care Practice Experience Credits: 5
PHA 775 - Psychiatry Practice Experience Credits: 5

PHA 780 - International Pharmacy Practice Experience Credits: 5
Study of healthcare systems and the practice of pharmacy at designated international sites. Prerequisites: P4 standing with consent.

PHA 791 - Independent Study Credits: 1-3
PHA 792 – Topic Credits: 1-3

PHA 820 - Advanced Concepts in Medicinal Chemistry Credits: 3
A study of the current advances in the area of drug design and discovery. Prerequisites: PHA 340, PHA 341 or equivalent or instructor consent.

PHA 825 - Topics in Advanced Medicinal Chemistry Credits: 3
A detailed study of the selected topics in the area of drug design and discovery. Prerequisites: PHA 820 or equivalent or instructor consent.

PHA 840 - Advanced Concepts in Pharmacology Credits: 3
A study of the current advances in the area of pharmacology especially at molecular level. Prerequisites: PHA 441, PHA 442, PHA 443 or equivalent or instructor consent.

PHA 845 - Topics in Advanced Pharmacology Credits: 3
A detailed study of the selected topics in the area of pharmacology. Prerequisites: PHA 840 or equivalent or instructor consent.

PHA 846 - Techniques in Pharmaceutical Research Credits: 3
A study of the current techniques in pharmaceutical research. Prerequisites: Instructor consent.

PHA 847 - Grant Writing and Academic Development Credits: 3
A study of the current policies, procedures and skills required for successful grants writing. An understanding of ethics and scientific conduct needed for academic development. Prerequisites: Instructor consent.

PHA 859 - Advanced Concepts in Pharmaceutics Credits: 3
A study of the current advances in the area of drug formulations and delivery. Prerequisites: PHA 331, PHA 332 or equivalent or instructor consent.

PHA 865 - Topics in Advanced Pharmaceutics Credits: 3
A detailed study of the selected topics in the area of drug formulations and delivery. Prerequisites: PHA 859 or equivalent or instructor consent.

PHA 890 – Seminar Credits: 1
PHA 898 – Dissertation Credits: 1-10

PHIL (Philosophy)

PHIL 554 - Environmental Ethics Credits: 3
Presents humanity's relationship to the environment, its responsibility to nature, and its obligations to future generations, attending to both theory and applications, including the debate over causes of environmental crisis; the value of endangered species, the wilderness, and natural objects; the seriousness of the growing global population and obligations to feed the poor; the feasibility of sustaining an ecological responsible society.

PHIL 570 - Philosophy of Religion Credits: 3
Presents critical inquiry concerning the concept of faith and its relation to reason and belief, the nature of religious experience, concepts of the sacred and the divine, and problems of cross-cultural understanding.

PHIL 592 – Topics Credits: 3

PHYS (Physics)

PHYS 521 – Electromagnetism Credits: 4
Principles of electricity and magnetism, with applications to dielectric and magnetic materials. Development of Maxwell's equations, and applications.

PHYS 533 - Nuclear and Elementary Particle Physics Credits: 3
Radioactivity, nuclear spectra and structure, nuclear models, elementary particle theories and high energy physics. Prerequisites: PHYS 471 or instructor consent.

PHYS 539 - Solid State Physics Credits: 3-4
Electronic processes with reference to electrical properties of metals, semiconductors and insulators. Prerequisites: MATH 225, MATH 321 and PHYS 331.

PHYS 551 - Classical Mechanics Credits: 4
Newton's Laws, motion in one and three dimensions, central forces, harmonic oscillations, non-inertial reference frames, rotations of rigid bodies, and Lagrangian Mechanics. Prerequisites: MATH 225 and MATH 321.

PHYS 571 - Quantum Mechanics Credits: 4
This is a systematic introduction to quantum mechanics, emphasizing the Schrodinger equation. Topics include simple soluble problems, the hydrogen atom, approximation methods and other aspects of quantum theory. Prerequisites: MATH 225, MATH 321 and PHYS 331.

PHYS 581 - Mathematical Physics I Credits: 3
The first of two-semester sequence covering mathematical methods essential to the study of physics. The topics include differential and integral Vector Calculus, theory and applications of complex variables, ordinary differential equations and applications of series and transform methods in their solutions. Prerequisites: MATH 225 and MATH 321.

PHYS 590 – Seminar Credits: 1-2
PHYS 591 - Independent Study Credits: 1-3
PHYS 592 – Topics Credits: 1-3

PHYS 683 - Mathematical Physics II Credits: 3
A continuation of PHYS 581. The topics of emphasis are partial differential equations, boundary value problems, special functions, Green's Functions, and linear algebra. Additional topics of interest will be chosen; possible topics include differential forms and geometry, tensors in physics, group theory, distributions, statistical methods, integral equations, difference equations, numerical methods, variation techniques, etc. Prerequisites: PHYS 581.

PHYS 691 - Independent Study Credits: 1-3

PHYS 721 - Electrodynamics I Credits: 3
Electrostatics and magnetostatics, including a study of boundary value problems and the multi-pole expansions, leading to the study of Maxwell's equations. The relationship between special relativity and electromagnetism will also be discussed. Prerequisites: PHYS 421.

PHYS 723 - Electrodynamics II Credits: 3
This course is the second course in a two-semester sequence and covers advanced topics in electrodynamics. Prerequisites: PHYS 721.

PHYS 739 - Condensed Matter Physics I Credits: 3
Topics include crystal structure an the reciprocal lattice, quantum theory of electrons and phonons, x-ray diffraction, crystal binding energies, and energy band theory. Additionally topics may be chosen from the properties of metals, semiconductors, and insulators. Prerequisites: PHYS 439 or PHYS 539.

PHYS 743 - Statistical Mechanics Credits: 3
This is a one-semester course in classical and quantum statistical mechanics. Topics include ensembles, partition functions, identical particles, Fermi-Dirac and Bose-Einstein statistics. Other topics will be chosen from mean field theory, phase transformations, renormalization group theory, Monte Carlo techniques, and other topics of interest. Prerequisites: PHYS 341.

PHYS 749 - Condensed Matter Physics II Credits: 3
This course is the second course in a two-semester sequence and covers advanced topics in condensed matter physics. Prerequisites: PHYS 739.

PHYS 751 – Classical Mechanics Credits: 3
This is a one-semester course in classical mechanics. Topics include Newtonian Mechanics, Hamilton's Principle, Non-Inertial Frames of Reference, Lagrangian Mechanics. Other topics will be chosen from such areas of study as Rigid Body Motion, Chaos theory, Hamilton-Jacobi theory, Perturbation Theory, Quaternion applications to rotations, Lagrangian/Hamiltonian formulations for Continuous systems and fields, and other topics of interest. Prerequisites: PHYS 451.

PHYS 771 - Quantum Physics I Credits: 3
This is the first course of a two-semester sequence in quantum physics. Topics include the Schrodinger equation and its solutions, matrix mechanics, operator methods, the harmonic oscillator, the hydrogen atom, spin and angular momentum.

PHYS 773 - Quantum Physics II Credits: 3
This is the second course in a two-semester sequence. Additional topics include perturbation methods. Applications will be chosen from such topics as scattering theory, second quantization, theory of identical particals, relativistic quantum mechanics, creation and annihilation operators and other topics of interest. Prerequisites: PHYS 771.

PHYS 775 - General Relativity Credits: 3
This course includes study of Minkowski Space, tensor algebra and calculus, non-Euclidean Geometry, and the Einstein Field Equations. Applications will be chosen from such topics as the Schwarzchild, Kerr, and Reisner-Nordstrom solutions, gravitational waves, Post-Newtonian Formulisms, 3 + 1 formulism, and other topics of interest. Prerequisites: PHYS 421 and PHYS 451.

PHYS 779 - Group Theory of Quantum Mechanics Credits: 3
Topics may include symmetry transformations, continuous groups, finite groups, applications to valence theory, Lorentz group, and fundamental particles. Prerequisites: PHYS 471.

PHYS 781 - Nuclear and Particle Physics Credits: 3
This is a one-semester course in nuclear and elementary particle physics. Nuclear physics topics may include nuclear structure (nuclear form factors, multipole moments, liquid and shell models); nuclear decay; nuclear reactions; and other topics of interest. Elementary particle physics topics may include the role of symmetry in particle physics. Quantum Electrodynamics and Quantum Chromodynamics; the Standard Model of Particle Physics; Strong and Weak interactions; Accelerator and Experimental Particle Physics; and other selected topics beyond the Standard Model. Prerequisites: PHYS 771.

PHYS 783 - Quantum Field Theory Credits: 3
This course is the study of relativistic quantum field theory and its application to the standard model. The course covers quantization of relavistic field; perturbation theory and Feynman diagram; S-matrix; introduction to gauge theories and the standard model; and other topics of interest. Prerequisites: PHYS 771.

PHYS 785 - Astrophysics and Cosmology Credits: 3
This course introduces the broad base of fundamental topics in astrophysics and cosmology. Topics include observational properties of stars; stellar physics; stellar atmospheres; distance scales; galactic structures; interstellar medium, normal and peculiar galaxies and high energy astrophysics, cosmological observations and Friedmann models; the early universe at different epochs; the origin of dark matter and formation of galaxies and large scale structure. Prerequisites: PHYS 771.

PHYS 787 – Research Credits: 1-9
PHYS 788 - Master's Research Problems/Projects Credits: 1-2
PHYS 791 - Independent Study Credits: 1-3
PHYS 792 – Topics Credits: 1-3
PHYS 798 – Thesis Credits: 1-7

PLAN (Planning)

PLAN 571 - Principles of State, Regional and Community Planning Credits: 3
Purpose, structure, and dynamics of the planning process. Identification of different types of planning. Inter-dependencies 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.

PLAN 572 - Techniques of State, Regional and Community Planning Credits: 3
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. Prerequisites: PLAN 571.

POLS (Political Science)

POLS 592 – Topics Credits: 1-4
POLS 594 – Internship Credits: 1-12

PUBH (Public Health)

PUBH 720 - Public Health Practice (COM) Credits: 3
This is a supervised graduate practicum in a public health environment for MPH students to integrate program curriculum in an applied setting. Special attention will be given to ethical considerations of public health practices.

PUBH 730 - Public Health Project (COM) Credits: 6
This culminating course in the MPH program allows students to integrate and synthesize the curriculum in seminar discussion and through a large research paper on contemporary public health science and practices that can be published in a peer-reviewed journal or presented at a state or national professional meeting.

PS (Plant Science)

PS 512 - Environmental Soil Chemistry Credits: 3
Fundamentals of soil chemical properties and processes important for the sound management of soil resources. Topics include sorption/desorption of inorganic and organic compounds, bioavailability of nutrients and contaminants, oxidation/reduction, phase equilibria, soil organic matter, soil mineralogy, ion exchange, and saline/sodic soils. Prerequisites: PS 213-213 and CHEM 108-108L or CHEM 120-120L.

PS 515 – Mycology Credits: 2-3
Comprehensive taxonomic survey of the Kingdom Fungi; reproductive biology, physiology, genetics, and ecology of fungal organisms; relationship of fungi to human affairs. Corequisites: PS 515L. Cross-Listed: BIOL 515.

PS 515L - Mycology Laboratory Credits: 0-1

PS 521 - Soil Microbiology Credits: 2
Microbial species of agricultural soils, environmental factors affecting their numbers and activity, and biochemical changes brought about by these organisms. Corequisites: PS 521L. Prerequisites: BIOL 151-151L, BIOL 153-153L or BOT 201-201L. Cross-Listed: MICR 521.

PS 521L - Soil Microbiology Laboratory Credits: 1

PS 524 - Wheat Production Credits: 2
Topics in this course address agronomic management for spring and winter wheat production. Topics covered in this course include determining wheat crop insurance; seeding rates; seed treatments; weed management; wheat impact on crop rotations; nitrogen, phosphorus, potassium, chloride, and sulfur fertilizer management; fungicide and disease management; fertilizing for grain protein and yield; estimating yield in season; harvest parameters; and cover crops.

PS 525 - Soybean Production Credits: 2
Soybean crop production and management across all growth stages. Among the topics addressed in this course include soybean crop insurance; variety selection; seeding rates; seed treatments and inoculations; weed, disease, and pest management; fertilizers and applications; crop maturity factors that impact harvest.

PS 526 - Corn Production Credits: 2
The objective of this course is corn production management ranging across a year. Topics addressed in this course include corn crop insurance; variety selection; seeding rates; fertilizers and application methods; weed, disease and pest management; harvest issues; crop rotations and cover crops.

PS 531 - Insect Ecology and Biological Control Credits: 3
This course will examine the ecological relationships between insects and their environment. Topics will include natural history; population dynamics; interactions between insects and their food plants, predators, and diseases; insect evolutionary ecology; and insect agroecology. These topics will also be explored in the context of the biological control of arthropod and weed pests by natural enemies.

PS 534 - Local Food Production Credits: 2
Topics include planning, planting, cultivation, harvest, season extension and marketing of fruits and vegetable crops. Experiential learning model. Cross-Listed: HO 534.

PS 543 - Bioenergy Feedstock Production System Credits: 3
Overview of production and characteristics of cultivated crops, perennial grasses, and woody species as feedstocks for bioenergy. Fundamentals of plant growth factors, culture, harvest and storage, quality and improvement, and introduction to environmental impact, modeling, and resource utilization. Prerequisites: MATH 102, BIOL 101, or PS 103.

PS 546 – Agroecology Credits: 3
Agroecology is the study of the ecological principles important in agricultural systems. Topics in this course will include energy flow and nutrient cycling, population and community ecology, weed and insect ecology, and water and nutrient conservation.

PS 550 - Field Study of Plant Diseases Diagnosis Credits: 1
Diagnoses of diseases in field and horticultural crops; observing and studying the relationships among hosts, pathogens, and their environments. Emphasis on field disease recognition and laboratory diagnostic techniques. Corequisites: PS 550L. Prerequisites: Consent.

PS 550L - Field Study of Plant Diseases Diagnosis Laboratory Credits: 1

PS 553 - Advanced Genetics Credits: 3
Procedures in genetic studies as they relate to molecular and classical genetic applications. Prerequisites: BIOL 202, BIOL 204, or BIOL 371. Cross-Listed: BIOL 553 .

PS 573 - Rural Real Estate Appraisal Credits: 2
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. Tax loan and other specialized rural appraisal procedures. Half-day field trips to area farms are required. Half-day field trips to area farms are required. Corequisites: PS 573L.

PS 573L - Rural Real Estate Appraisal Laboratory Credits: 1

PS 664 - Molecular Plant Physiology Credits: 6
This course will serve as the core to the plant biochemistry, physiology, growth and development students in the BIOS and PS graduate programs. The course will emphasize current theories and concepts of plant metabolism. The regulations of development, and the molecular genetic approaches used to elucidate our current understanding of these processes.

PS 704 - Viral and Bacterial Diseases of Plants Credits: 2
Plant diseases caused by viroids, viruses, bacteria and mycoplasma-like organisms including identification, development, symptoms, and control. Advanced laboratory research methods used in isolation, transmission, culture, purification, microscopy, serology and investigation of the nature and properties of important plant pathogens. Corequisites: PS 704L.

PS 704L - Viral and Bacterial Diseases of Plants Laboratory Credits: 2

PS 714 - Genetics of Disease Resistance and Host-Plant Pathogen Interactive Credits: 3
Physiology, genetics, and molecular biology of host-plant pathogen interactions and disease resistance; pathogenic diversity and virulence dynamics of plant pathogens; crop vulnerability and plant disease epidemiology; and breeding plants for disease resistance. Corequisites: PS 714L. Prerequisites: Consent.

PS 714L - Genetics of Disease Resistance and Host-Plant Pathogen Interactive Laboratory Credits: 1

PS 721 - Advanced Integrated Pest Management Credits: 3
The biological and ecological basis of integrated pest management for midwestern crop insects and the understanding of economic thresholds are emphasized. Pest scouting techniques for major crop pests and simulated management decisions are discussed. Prerequisites: PS 305.

PS 723 - Hydrologic Modeling Credits: 1
This course will involve simulation of water, sediment and chemical movement at watershed scale using the Soil Water Assessment Tool (SWAT) model. The course will cover different methods used to estimate and measure the surface hydrologic processes (infiltration, evapotranspiration, runoff, peak runoff rate, soil water erosion, and chemical movement) include both field scale measurement method and empirical model. Students will use the process based hydrologic (SWAT) model with a better understanding of the underlying process to predict the stream flow and water quality parameters at watershed scale. The course involves detail understanding of the step involved in modeling, model setup, sensitivity analysis, calibration, validation and long-term scenario analyses. Corequisites: PS 723L. Prerequisites: PS 103 or PS 543.

PS 723L - Hydrologic Modeling Lab Credits: 2
This course will involve simulation of water, sediment and chemical movement at watershed scale using the Soil Water Assessment Tool (SWAT) model. The course will cover different methods used to estimate and measure the surface hydrologic processes (infiltration, evapotranspiration, runoff, peak runoff rate, soil water erosion, and chemical movement) include both field scale measurement method and empirical model. Students will use the process based hydrologic (SWAT) model with a better understanding of the underlying process to predict the stream flow and water quality parameters at watershed scale. The course involves detail understanding of the step involved in modeling, model setup, sensitivity analysis, calibration, validation and long-term scenario analyses. Corequisites: PS 723.

PS 732 - Field Studies in Pedology Credits: 2
Field techniques used in soil classification will be learned by studying soils during a week-long field exercise. Soil genesis and land use applications will be investigated. The impact of soils upon agronomic management and research will be presented. The class may be repeated for a maximum of 4 credits. Prerequisites: PS 310-310L or GEOG 310-310L.

PS 733 - Advanced Soil Genesis Credits: 3
Detailed study of the processes of soil genesis and an examination of soil and ecosystems with respect to the soil forming factors of time, parent material, topography, climate and organisms.

PS 741 - Crop Breeding Techniques Credits: 1
A techniques course where artificial hybridization of crop plants will be demonstrated and carried out. Background material will be offered with each crop. Both field and horticultural crops are included.

PS 743 - Environmental Soil Physics Credits: 2
The exchange of energy and water at soil surfaces, infiltration and redistribution of water and soil physical properties related to plant growth. Emphasis on applications in development and utilization of soil and water resources in a manner consistent with preservation of environmental quality. Corequisites: PS 743L.

PS 743L - Environmental Soil Physics Lab Credits: 1
The exchange of energy and water at soil surfaces, infiltration and redistribution of water and soil physical properties related to plant growth. Emphasis on applications in development and utilization of soil and water resources in a manner consistent with preservation of environmental quality. Corequisites: PS 743.

PS 744 - Soil N, P and K Credits: 3
Plant-soil nutrient relationships including nutrient sink development, uptake, transport to roots, labile soil sources, nutrient deficiencies, and their corrections. Emphasis on nitrogen, phosphorus and potassium.

PS 746 - Plant Breeding Credits: 3
Plant Breeding applied to field crops and horticultural varieties with particular emphasis on the relationship of genetics and allied subjects. Prerequisites: PS 103-103L and BIOL 371.

PS 753 - Soil/Water Quality Bioenergy Feedstock Credits: 3
An examination of the fundamentals of soil and water quality applied to proposed and existing bioenergy feedstock production systems. Current research results related to biomass removal and by-product addition to soils will be discussed and evaluated. Prerequisites: PS 213 or PS 543.

PS 756 - Quantitative Genetics Credits: 3
Theory and application of quantitative genetic analysis to applied breeding problems; estimation and partitioning of genetic variances; genetic covariance and regression; heritability and selection response; index selection; linkage and quantitative trait loci (QTL) analysis. Prerequisites: BIOL 371 and STAT 541.

PS 761 - Taxonomy of Insects Credits: 3
Collection, identification and classification of insects. Techniques of identifying the groups of economic insect pests that affect the production of feed, food and fiber. Corequisites: PS 761L.

PS 761L - Taxonomy of Insects Laboratory Credits: 1

PS 763 - Environmental and Physiological Aspects of Crop Production Credits: 3
Systems analysis of factors which limit or increase crop production and the potential for qualitative and quantitative adjustments. Prerequisites: BOT 327-327L.

PS 781 - Plant Science Graduate Seminar Credits: 1

PS 785 - Soil and Plant Analysis Credits: 2
The analysis of soil and plant material for constituent elements. Topics include: Material sampling and preparation, extraction and determination method, theoretical principles of analysis, accuracy and precision. Emphasis on common soil and plant test indices. Co-requisites: PS 785L. Prerequisites: Instructor consent.

PS 785L - Soil and Plant Analysis Laboratory Credits: 1

PS 787 - Advanced Plant Breeding Credits: 3
Consideration of issues relating to germplasm selection, hybridizataion, evaluation, and perpetuation through a plant breeding program where improved cultivar and/or germplasm release is the objective.

PS 788 - Master's Research Problems/Projects Credits: 1-3
PS 791 - Independent Study Credits: 1-2
PS 792 – Topics Credits: 1-6
PS 798 – Thesis Credits: 1-7
PS 898D – Dissertation Credits: 1-7

PSYC (Psychology)

PSYC 582 - Travel Studies Credits: 1-4
This travel study course is designed to provide extra-mural educational experiences, as approved by, and under the direction of a faculty member, and may be in cooperation with faculty and administrators of other institutions. Students will participate in hand-on activities, and design educational activities for presentation at selected locations. Includes pre-travel orientation, post-travel self-evaluation, and a written report.

PSYC 591 - Independent Study Credits: 1-4
PSYC 592 – Topics Credits: 1-4

RANG (Range Science)

RANG 510 - Grassland Monitor & Assessment Credits: 2
A course emphasizing the quantitative measures used in vegetation analysis, root growth, and utilization. Vegetation sampling theory and plot selection will be covered. Use of similarity index, health, and trend for grassland monitoring and assessment will be explained. Basic statistics and the microcomputer will be used to analyze biomass, basal cover, frequency, and density data.

RANG 520 - Watershed Management Credits: 3
Study of the management of physical/biological settings and processes along with the human activities on water and watershed considering preventative and restorative strategies in a natural resource rangeland setting.

RANG 521 - Grassland Fire Ecology Credits: 3
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 use 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. Cross-Listed: WL 521.

RANG 525-525L - Rangeland Assessment and Monitoring Lab Credits: 3
Principles and practical application of the assessment and monitoring of rangeland plant communities. Course will be offered in a hybrid format. In the online portion of the course, students will learn how to set objectives, determine parameters to measure, select appropriate techniques, and analyze quantitative data. The laboratory portion is a 1-week intensive field session held in late summer, providing substantial field experiences including performing a wide variety of sampling techniques, collection and analysis of assessment and monitoring data, and learning how state and federal agencies assess and monitor rangelands. Students will also work in teams to develop a monitoring plan for a specific property, collect and analyze initial data, and present the plan and results to the land owner. Corequisites: RANG 525L-525. Prerequisites: STAT 281.

RANG 530 - Ecology of Invasive Species Credits: 3
Ecological principles and their application to invasive species. Discussion of population, community, and ecosystems level characteristics affecting a wide variety of invasive plant and animal species. Discussions will include current global consequences and governmental policies/programs designed to limit the spread of invasives.

RANG 540 - Grassland Plant Identification Credits: 2
Study of plants that have ecological and/or agricultural importance in the Great Plains, Plant identification, Grassland ecosystems and plants forage value, palatability, and utilization by both domestic livestock and wildlife. Cultural and historical uses of grassland.

RANG 591 - Independent Study Credits: 1-3
RANG 592 – Topics Credits: 1-4

RANG 710 - Principles of Forage Quality Credits: 3
The course provides an in-depth study of the chemical characteristics of forage components and the interactions with ruminant physiology and digestion that influence forage feeding value and the laboratory procedures used to evaluate forages for grazing livestock. Students should have knowledge of the basic principles of chemistry, ruminant nutrition, and plant physiology so that they can develop an understanding of the chemical characteristics of forages and how they affect the value of forages to grazing livestock.

RANG 750 - Grazing Ecology and Management Credits: 3
Ecological principles of domesticated livestock grazing and their application to manage grazing lands will be discussed. Theoretical and applied models of plant/animal interactions will be presented. Grazing systems and their management of ecosystem services will be presented as balance between production and conservation outcomes.

RECR (Recreation)

RECR 515 - Recreation and Sport Facility Management Credits: 3
Advanced study of recreation and sport operations and facility management including planning and design, fiscal and personnel management (including fundraising), legal considerations, safety and control, maintenance, and equipment, as these relate to indoor and outdoor recreation/sport facilities.

REL (Religion)

REL 501 - Early Christian Era Credits: 3
This course surveys important issues in western religious history and identity from first-century Christian origins through the "great medieval synthesis" of the thirteenth century. While Jewish and Islamic developments are examined, emphasis is placed upon the rise, development, and diversity, and consolidation of Christianity.

SE (Software Engineering)

SE 592 – Topics Credits: 1-5

SEED (Secondary Education)

SEED 592 – Topics Credits: 1-5
SEED 593 – Workshop Credits: 1-3

SEED 748 - Secondary Curriculum Practicum Credits: 1
Field-based problem-centered secondary curriculum development experience. Corequisites: EDFN 747.

SOC (Sociology)

SOC 533 - Leadership and Organizations Credits: 3
Emphasis is on the emergence of leadership patterns, group dynamics, small groups, and leadership in management.

SOC 562 - Population Studies Credits: 3
A study of human populations with respect to size, distribution, and structure, with emphasis on theories of population growth and decline, population policies, and impacts on the environment.

SOC 701 - The Research Process Credits: 3
Topics include conceptions of research, the philosophy of science, formal and grounded theory construction, the use of research literature, and qualitative, quantitative, and mixed approaches to research design.

SOC 702 - Sociological Inquiry Credits: 3
The course focuses on the use of sociological theory in both basic research and sociological practice. It examines the nature and uses of the broad orienting theories that guide sociological work, and also the production and application of unit theories which provide answers to specific research questions. Students participate in class activities through which they learn various aspects of theorizing.

SOC 709 - Evaluation Research Credits: 3
Focus on the conceptualization and design of evaluation studies of various governmental programs. Design includes clarification of objectives, selection of appropriate collection techniques, and specification of target groups.

SOC 710 - Research Methods Credits: 3
Major emphasis will be given to research design, problems of measurement, methods of data collection, and analysis and interpretation of data. An integral part of the course will be the development of a research project dealing with some current sociological problem. Prerequisites: Instructor consent.

SOC 711 - Qualitative Research Methods Credits: 3
Qualitative research methods of data collection, analysis, and presentation are examined; emphasis on fieldwork involving participant observation and intensive interviewing; includes consideration of the rationale, theoretical underpinnings and limitation of qualitative research. Prerequisites: Instructor consent.

SOC 712 - Sociological Theory I Credits: 3
Critical examination of the main schools of sociological theory beginning with the system of Auguste Conte and ending with World War II. Prerequisites: Instructor consent.

SOC 713 - Sociological Theory II Credits: 3
Sociological theories and issues from World War II to present. Prerequisites: Instructor consent.

SOC 714 - Race, Class, Gender Intersections Credits: 3
This class examines past and current research and theory in the discipline of sociology addressing race, class and gender intersections. Students will explore the transformation of these frameworks into concrete research at the micro-, meso- and macro-levels.

SOC 720 - Scholarship of Teaching and Learning for Sociologists Credits: 3
Course designed for those planning a career in teaching Sociology at the college/university level; course is applied with hands-on experiences in preparation for college teaching.

SOC 721 - Social Stratification Credits: 3
Theories of social stratification. Relationship between social class and education, occupational choice, political preference, religious affiliation and social mobility. Prerequisites: Instructor consent.

SOC 725 - Social Organization Credits: 3
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. Prerequisites: Instructor consent.

SOC 740 - Rural Community Development Credits: 3
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. Prerequisites: Instructor consent.

SOC 762 - Applied Demography Credits: 3
Focus on demographic publications and resources including Census data material; areas included are population, housing, agriculture, economics, vital statistics reports, special surveys and international materials. Emphasis on a variety of applications across disciplines.

SOC 764 - Modern Demographic Theory Credits: 3
Overview of the explanatory factors and determinants related to the population process of fertility, mortality, and migration. Emphasis on theoretical models that focus on developed and developing countries.

SOC 766 - World Population Issues Credits: 3
Focus on policy formulation and program evaluation as related to population issues; the political economy of national and international efforts are considered; planning a micro- and macro-level decision-making is examined; issues covered are population and resources, the value of children, international migration and major health problems.

SOC 788 - Master's Research Problems/Projects Credits: 1-3
SOC 790 – Seminar Credits: 1-4
SOC 791 - Independent Study Credits: 1-3
SOC 792 – Topics Credits: 1-6
SOC 794 – Internship Credits: 1-6
SOC 798 – Thesis Credits: 1-7
SOC 898D – Dissertation Credits: 1-12

SPAN (Spanish)

SPAN 591 - Independent Study Credits: 1-6

SPCM (Speech Communication)

SPCM 501 - Advanced Interpersonal Communications Credits: 3
Advanced study of contemporary issues that have significant impact on interpersonal relationships (e.g., abusive communications, alternative lifestyles, virtual relationships). Students develop an understanding of the current communication research and social practices related to these issues. Prerequisites: SPCM 201.

SPCM 510 - Organizational Communication Credits: 3
Explores communication processes in organizational contexts, theories of leadership, decision making and conflict, the application of principles that facilitate communication in organizations, and other selected topics.

SPCM 516 - Rhetorical Criticism Credits: 3
Critical evaluation of American speakers from Colonial to contemporary. Prerequisites: Instructor consent.

SPCM 540 - Health Communication Credits: 3
This course will examine the contexts and processes of communication about health, focusing on how professionals, patients, and practitioners interact in ways that constitute and influence health and medicine.

SPCM 541 - Health Communication Research Methods Credits: 3
Creation of evidence-based communication interventions to address the health needs of communities. The course requires students to identify contemporary health needs, select appropriate forms of health communication intervention, develop intervention messages and create a plan for assessing effectiveness of interventions. Students will also learn how to collect, analyze and interpret data using techniques such as surveying, interviewing, and moderating focus groups.

SPCM 582 - Travel Studies Credits: 1-5
This travel study course is designed to provide extra-mural educational experiences, as approved by, and under the direction of a faculty member, and may be in cooperation with faculty and administrators of other institutions. Students will participate in hand-on activities, and design educational activities for presentation at selected locations. Includes pre-travel orientation, post-travel self-evaluation, and a written report.

SPCM 591 - Independent Study Credits: 1-3
SPCM 592 – Topics Credits: 1-5
SPCM 605 - Current Approaches to Communication Credits: 3

SPCM 700 - Instructional Methods in Communication Credits: 3
Problems and issues in teaching the basic communication course, development of communication courses, and issues relevant to communication education.

SPCM 701 - Introduction: Graduate Studies Credits: 3
This class is an examination of methods of research, writing, & documentation. It also explores communication as a discipline. Required of all Masters students.

SPCM 787 - Research Methods in Speech Communications Credits: 3
This course is an examination of the methods of social science research in the area of Speech Communication. The course includes planning and designing communication research, methodologies for conducting communication research, and analyzing and interpreting quantitative and qualitative data.

SPCM 791 - Independent Study Credits: 1-2
SPCM 792 – Topics Credits: 1-3
SPCM 798 – Thesis Credits: 1-7

STAT (Statistics)

STAT 510 - SAS Programming I Credits: 3
Base SAS language and procedures for accessing data, manipulating data, creating data structures, managing data, producing graphs, producing reports, and handling errors. Notes: Information and presentation graphics.

STAT 514 - R Programming Credits: 1
An introduction to the R programming language. Topics will include the R programming language and environment, preparation and summarization of data, presentation of data, programming basics, and additional selected advanced topics.

STAT 535 - Applied Bioinformatics Credits: 3
This practical course is designed for students with biological background to learn how to analyze and interpret genomics data. Topics include finding online genomics resources, BLAST searches, manipulating/editing and aligning DNA sequences, analyzing and interpreting DNA microarray data, and other current techniques of bioinformatics analysis.

STAT 541 - Statistical Methods II Credits: 3
Analysis of variance, various types of regression, and other statistical techniques and distributions. Sections offered in the areas of Biological Science and Social Science. Prerequisites: STAT 281, MATH 381, or STAT 381. Credit not given for both STAT 541 and STAT 581.

STAT 545 - Nonparametric Statistics Credits: 3
Covers many standard nonparametric methods of analysis. Methods will be compared with one another and with parametric methods where applicable. Attention will be given to: (1) analogies with regression and ANOVA; (2) emphasis on construction of tests tailored to specific problems; and (3) logistic analysis. Prerequisites: STAT 281 or STAT 381.

STAT 551 - Predictive Analytics I Credits: 3
Introduction to Predictive Analytics. This course will examine the fundamental methodologies of predictive modeling used in financial and predictive modeling such as credit scoring. Topics covered will include logistic regression, tree algorithms, customer segmentation, cluster analysis, model evaluation, and credit scoring. Prerequisites: STAT 582.

STAT 560 - Time Series Analysis Credits: 3
Statistical methods for analyzing data collected sequentially in time where successive observations are dependent. Includes smoothing techniques, decomposition, trends and seasonal variation, forecasting methods, models for time series: stationarity, autocorrelation, linear filters, ARMA processes, nonstationary processes, model building, forecast errors and confidence intervals. Prerequisites: STAT 582.

STAT 582 - Statistics for Physical Science Credits: 3
Introduction to statistical design, one-way completely randomized design, testing contrasts and multiple comparison procedures, simple and multiple linear regression, factorial designs, fractional factorial designs and mixed models. SAS software is used extensively. Prerequisites: MATH/STAT 381. Credit will not be given for both STAT 482 and STAT 441.

STAT 591 - Independent Study Credits: 1-3
STAT 592 – Topics Credits: 1-3

STAT 700 - Statistical Programming Credits: 3
Fundamentals of statistical programming languages including descriptive and visual analytics in R and SAS, and programming fundamentals of SAS and R including logic, loops, macros, and functions. Prerequisites: STAT 410 or STAT 510 or CSC 150.

STAT 701 - Modern Applied Statistics I Credits: 3
This course will build upon STAT 541 and assume students have knowledge of SLR, MLR, ANOVA, and basics of statistical inference. The class will start by covering statistical graphics and the associated modern statistical computing language(s). The next section of the class will focus on non- and semi-parametric methods with a focus on the application and interpretation of the methods. The last section of the class will focus on longitudinal and repeated measure models and conclude with an overview of techniques from meta-analysis and large-scale inference. Prerequisites: STAT 541 and STAT 700.

STAT 702 - Modern Applied Statistics II Credits: 3
This course will start with an introduction to data mining techniques from multivariate data such as Principal Component Analysis, Multidimensional Scaling, and Cluster Analysis. From there we will move on to an introduction to supervised learning methods and pattern recognition with a focus on algorithmic methods. The course will finish with an overview of statistical prediction analysis relevant to business intelligence and analytics. Prerequisites: STAT 701.

STAT 715 - Multivariate Analysis I Credits: 3
Multiple, partial, canonical correlation test of hypothesis on means; multivariate analysis of variance; principal components; factor analysis; and discriminant analysis. Prerequisites: STAT 482 or STAT 582.

STAT 716 - Asymptotic Statistics Credits: 3
This course will cover modern statistical approximation theorems relating to the current statistical and machine learning literature in Mathematical Statistics. Specific topics to be covered are: Review of Stochastic Convergence (Almost-Sure representations, Convergence of Moments, Lindeberg-Feller Central Limit Theorem, etc.), Delta Method, Moment Estimators, and M- and Z-Estimators. An additional selection of 2-4 topics will also be covered that are related to the research focus of the PhD students in the class. Prerequisites: STAT 715, STAT 784, and MATH 741.

STAT 721 - Statistic Computing/Simulation Credits: 3
Computationally intensive statistical methods that would not be feasible without modern computational resources and statistical simulation techniques, including random variable generation methods, Monte Carlo simulation and importance sampling, Kernel smoothing and smoothing splines, bootstrap, jackknife and cross validation, regulation and variable selection in regression, EM algorithm, concepts of Bayesian inference, Markov chain Monte Carlo methods such as Gibbs sampling, and the Metropolis-Hasting algorithm. Prerequisites: STAT 582 or STAT 786.

STAT 731 – Biostatistics Credits: 3
Statistical methods commonly used in the biological and health sciences, including study designs such as parallel, crossover, adaptive designs, randomization procedure, sample size determination, data collection process and analysis methods including survival data analysis. Prerequisites: STAT 541 or STAT 582.

STAT 736 – Bioinformatics Credits: 3
This course is an introduction to bioinformatics for students in mathematics and physical sciences. This course will include a brief introduction to cellular and molecular biology and will cover topics such as sequence alignment, phylogenetic trees and gene recognition. Existing computational tools for nucleotide and protein sequence analysis, protein functional analysis and gene expression studies will be discussed and used.

STAT 742 - Spatial Statistics Credits: 3
Geostatistical data analysis with variogram, covariogram and correlogram modeling. Spatial prediction and kriging, spatial models for lattices, spatial patterns. Prerequisites: STAT 541 or STAT 560 or STAT 784 or STAT 786.

STAT 751 - Predictive Analytics II Credits: 3
This course will examine advanced methodologies used in financial and predictive modeling. Topics covered include segmented scorecards, population stability, ensemble models, neural networks, MARS regression, and support vector machines. Prerequisites: STAT 451/STAT 551.

STAT 752 - Advanced Data Science Credits: 3
This course will cover current research in the Mathematical and Statistical Sciences. The focus of the class is to introduce PhD students to the ongoing research programs of the faculty and advanced methodologies outside of the traditional core classes related to the rapidly evolving disciple of Data Science. This class can be taken multiple times for credit. Prerequisites: Instructor permission.

STAT 756 - Quantitative Genetics Credits: 3
Theory and application of quantitative genetic analysis to applied breeding problems; estimation and partitioning of genetic variances; genetic covariance and regression; heritability and selection response; index selection; linkage and quantitative trait loci (QTL) analysis. Prerequisites: BIOL 371 and STAT 541.

STAT 760 - Quality Control Credits: 3
Application of statistical techniques to the control of quality and the development of economical inspection methods. Collection, analysis, and interpretation of operations data; control charts and sampling procedure. Prerequisites: STAT 281 or STAT 381. Cross-Listed: ME 760/OM 760.

STAT 761 - Design of Experiments I Credits: 3
Analysis of variance, block designs, fixed and random effects, split plots and other experimental designs. Includes use of SAS proc GLM, Mixed, etc. Prerequisites: STAT 541 or STAT 582.

STAT 784 - Statistical Inference I Credits: 3
A theoretical study of the foundations of statistics, including probability, random variables, expectations, moment generating functions, sample theory, and limiting distributions. Prerequisites: STAT 381.

STAT 785 - Statistical Inference II Credits: 3
A theoretical study of the foundations of statistics, including most powerful tests, maximum likelihood tests, complete and sufficient statistics, etc. Corequisites: STAT 784.

STAT 786 - Regression Analysis I Credits: 3
Methodology of regression analysis, including matrix formulation, inferences on parameters, multiple regression, non-linear regression, outlier detection, diagnostics, and multicollinearity. Prerequisites: STAT 381.

STAT 787 - Regression Analysis II Credits: 3
Advanced regression methodology, including nonlinear regression, logistic regression, Poisson regression, and correlation analysis. Prerequisites: STAT 786.

STAT 788 - Research Paper Credits: 1-2
STAT 791 - Independent Study Credits: 1-3
STAT 792 – Topics Credits: 1-3
STAT 798 – Thesis Credits: 1-7

THEA (Theatre)

THEA 791 - Independent Study Credits: 1-2

VET (Veterinary Science)

VET 503 - Animal Diseases and Their Control Credits: 3
This course will discuss the various factors that contribute to the development of animal disease and how these factors can be manipulated to prevent or control disease. Emphasis will be placed on understanding disease control concepts and how production and management techniques influence the expression of disease in domestic animals and wildlife.

VET 523 - Advanced Mammalian Physiology Credits: 4
An advanced study of the physiological mechanisms utilized by mammals to regulate body functions with the nervious and endocrine systems, to acquire and use chemical energy from their environment, and to integrate the functions of the organs systems to maintain the health of the animal. Emphasis is placed on applying physiological concepts and principles to solve problems. Notes: Previous courses in anatomy, physiology, and biochemistry are recommended.

VET 524 - Medical and Veterinary Virology Credits: 3
Basic course discussing the characterization, structure, and replication of viruses and the pathogenesis of viral disease in man and animals. Prerequisites: BIOL 204 or instructor consent. Cross-Listed: MICR 524.

VET 591 - Independent Study Credits: 1-3
VET 592 – Topics Credits: 1-3
VET 788 - Master's Research Problems Credits: 1-3
VET 791 - Independent Study Credits: 1-4
VET 792 – Topics Credits: 1-3
VET 793 – Workshop Credits: 1-4

WL (Wildlife and Fisheries Sciences)

WL 515 - Upland Game Ecology and Management Credits: 3
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. Corequisites: WL 515L.

WL 515L - Upland Game Ecology and Management Laboratory Credits: 0

WL 517 - Large Mammal Ecology and Management Credits: 3
Large mammal 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 large mammals. Corequisites: WL 517L.

WL 517L - Large Mammal Ecology and Management Laboratory Credits: 0

WL 519 - Waterfowl Ecology and Management Credits: 3
Analysis of ecological and socio-economic factors affecting waterfowl habitat and waterfowl populations. State and federal programs affecting wetland drainage and preservation. Field inspection of waterfowl habitat in the north-central states. Corequisites: WL 519L.

WL 519L - Waterfowl Ecology and Management Laboratory Credits: 0

WL 521 - Grassland Fire Ecology Credits: 3
The course describes the ecological effects of fire on grassland ecosystem components, from soil and vegetation to wildlife and beef cattle. It also provides insight into the history of fires, the people who use 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. Cross-Listed: RANG 521.

WL 525 - Wildlife Nutrition and Disease Credits: 3
Emphasis is placed on nutrient requirements and acquisition, conditions and characteristics of important diseases, and their management implications. Focal areas include the biochemical, physiological, and ecological bases for studying

nutrition and disease; nutrition and disease relationships to wildlife and habitat; protein, energy, vitamin, and mineral requirements and their relationships to diseases; and strategies for satisfying nutritional requirements. Corequisites: WL 525L.

WL 525L - Wildlife Nutrition and Disease Laboratory Credits: 0

WL 527 – Limnology Credits: 4
Physical, chemical, and biological characteristics of lentic freshwater ecosystems. Analysis of and methods for quantifying processes that function in lentic freshwater ecosystems. Corequisites: WL 527L.

WL 527L - Limnology Lab Credits: 0
Laboratory to accompany WL 527. Corequisites: WL 527.

WL 529 - Ecology of Fishes and Habitat Credits: 3
Study of fish as an organism and the interrelations of fish with other organisms and with their habitat. Corequisites: WL 529L.

WL 529L - Ecology of Fishes and Habitat Lab Credits: 0
Laboratory to accompany WL 529. Corequisites: WL 529.

WL 531 - Advanced Fisheries Management Credits: 3
Advanced management and ecology of public and private water bodies through manipulation of habitat, organisms, and human users. The course will address water body design and construction, limnology, hydrology, channel morphology, water quality, biological production, fish management, troubleshooting, and pond and stream opportunities. Corequisites: WL 531L. Prerequisites: WL 412.

WL 531L - Advanced Fisheries Management Lab Credits: 0
Laboratory to accompany WL 531. Corequisites: WL 531. Prerequisites: WL 412L.

WL 592 – Topics Credits: 1-3
Corequisites: WL 592L.

WL 592L - Special Topic in Wildlife and Fisheries Laboratory Credits: 0

WL 712 - Wetlands Ecology and Management Credits: 3
Botanical, zoological, hydrological, pedological, and biogeochemical components of wetland systems are studied. Course includes the management of wetlands for various functional values, government jurisdiction in wetland regulation, and wetland classification. North American wetland systems are discussed with emphasis on northern glaciated prairie wetlands. Corequisites: WL 712L.

WL 712L - Wetlands Ecology and Management Laboratory Credits: 0

WL 713 - Animal Population Dynamics Credits: 3
Methods of analysis and interpretation of vital statistics of animal populations. Current theories on natural regulation of animal populations. Particular emphasis on vertebrate species of economic and/or recreational importance. Comparison of environmental controls on of various animal groups. Corequisites: WL 713L.

WL 713L - Animal Population Dynamics Laboratory Credits: 0

WL 715 - Wildlife Research Design Credits: 3
Use of the scientific method for designing wildlife research and developing proposals. Familiarization with field and laboratory methods. Practical experience with statistical data analysis. Corequisites: WL 715L.

WL 715L - Wildlife Research Design Laboratory Credits: 0

WL 717 - Aquatic Trophic Ecology Credits: 3
Analysis of selected biological processes influencing the organization of aquatic communities. Complex trophic interactions and their effects on the life histories and bioenergetics of aquatic organisms are examined. Corequisites: WL 717L.

WL 717L - Aquatic Trophic Ecology Laboratory Credits: 0

WL 718 - Ecology of Aquatic Invertebrates Credits: 3
The identification of and ecological relationships associated with aquatic invertebrates; aquatic ecosystems of the north-central states are emphasized. Corequisites: WL 718L.

WL 718L - Ecology of Aquatic Invertebrates Laboratory Credits: 0

WL 720 - Quantitative Fisheries Science Credits: 3
An advanced analytical fisheries course that focuses on quantitative techniques. Emphasis is placed on populations (e.g., recruitment, growth, mortality), and quantitative assessment of communities (e.g., predatory-prey interactions) and ecosystems (e.g., biostressors). Suggested background courses include population dynamics, experimental design, and graduate statistics and/or biometry. Corequisites: WL 720L.

WL 720L - Quantitative Fisheries Science Laboratory Credits: 0

WL 723 - Fisheries Ecology & Management Credits: 3
Principles and techniques of selected practices for reservoir, lake, pond and lotic fisheries management. Corequisites: WL 723L.

WL 723L - Fisheries Ecology & Management Laboratory Credits: 0
Laboratory to accompany WL 723. Corequisites: WL 723.

WL 791 - Independent Study Credits: 1-3
WL 798 – Thesis Credits: 1-7
WL 898D – Dissertation Credits: 1-12

WMST (Women's Studies)

WMST 519 - Women in Media Credits: 3
This course examines contributions of women to the mass media from colonial era to present. It also studies the portrayal of women by the news media and by advertising, and it studies the roles currently played by women in the media and in supporting areas of advertising and public relations. Cross-Listed: MCOM 519.

WMST 592 – Topics Credits: 1-3

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South Dakota Board of Regents

Randy Schaefer
President
Madison, Term expires 2015

Bob Sutton
Vice President
Pierre, Term expires 2019

Terry Baloun
Secretary
Sioux Falls, Term expires 2016

John W. Bastian
Belle Fourche, Term expires 2016

Harvey C. Jewett
Aberdeen, Term expires 2017

Kathryn Johnson
Hill City, Term expires 2017

Jim Morgan
Brookings, Term expires 2021

Joseph Schartz
Student Regent
Humboldt, Term expires 2016

Kevin Schieffer
Sioux Falls, Term expires 2021

Michael G. Rush
Pierre, Executive Director

Graduate Council

Kinchel C. Doerner
Dean of Graduate School, permanent position

Kristi Tornquist
Chief University Librarian, ex-officio voting member

Chris Briddick
Associate Professor of Counseling & Human Development, Term expires 2017

Brad Bowser
Assistant Professor of Health & Nutritional Sciences, Term expires 2016

Jihong Cole-Dai
Professor of Chemistry & Biochemistry, Term expires 2017

Cynthia Elverson
Associate Professor of Undergraduate Nursing, Term expires 2018

Zhengrong Gu
Assistant Professor of Ag and Biosystems Engineering, Term expires 2018

Trisha Jackson
Assistant Professor of Geography, Term expires 2016

Radhey Kaushik
Associate Professor of Biology & Microbiology, Term expires 2016

Huitian Lu
Professor of Construction and Operations Management, Term expires 2018

Surachat Ngorsuraches
Associate Professor of Pharmacy Clinical, Term expires 2018

Thomas Stenvig
Associate Professor of Undergraduate Nursing, Term expires 2017

Hemachand Tummala
Associate Professor of Pharmaceutical Sciences, Term expires 2017

Michael Wimberly
Professor of Natural Resource Management, Term expires 2017

SDSU Administration

President
David L. Chicoine, Ph.D.

Provost and Vice President for Academic Affairs
Laurie Stenberg Nichols, Ph.D.

Vice President for Finance and Business/CFO
Wesley G. Tschetter, M.B.A.

Vice President for Research and Economic Development
Kevin D. Kephart, Ph.D.

Vice President for Student Affairs
Vacant

Vice President for Technology and Security
Michael F. Adelaine, Ph.D.

Associate Vice President for Academic Affairs
Mary Kay Helling, Ph.D.

Associate Vice President for Research Assurance and Sponsored Programs
James Doolittle, Ph.D.

Associate Vice President for Student Affairs
Douglas Wermedal, Ph.D.

Assistant Vice President for Academic Affairs – International Affairs and Outreach
Kathleen Fairfax, M.A.

Assistant Vice President for Facilities and Services
Dean Kattelmann, M.S.

Assistant Vice President for Finance and Business/Controller
Jeff A. Siekmann, M.B.A.

Assistant Vice President for Human Resources
Marc Serrett, M.S.

Assistant Vice President for Safety and Security
Don Challis, M.A.

Assistant Vice President for Technology
Ryan Knutson, M.S.

Assistant Vice President for Technology Transfer and Commercialization
William Aylor, J.D.

College Deans, Associate & Assistant Deans

College of Agriculture and Biological Sciences
Barry Dunn, Ph.D., Dean
Donald M. Marshall, Ph.D., Associate Dean
Daniel Scholl, Ph.D., Associate Dean

College of Arts and Sciences
Dennis Papini, Ph.D., Dean
Kathleen Donovan, Ph.D., Associate Dean

College of Education and Human Sciences
Jill Thorngren, Ph.D., Dean
Jane Hegland, Ph.D., Associate Dean
CY Wang, Ph.D., Associate Dean

Jerome J. Lohr College of Engineering
Lewis F. Brown, Ph.D., Dean
Richard A. Reid, Ph.D., Associate Dean
Dennis Helder, Ph.D., Associate Dean

College of Nursing
Nancy Fahrenwald, Ph.D., Dean
Linda Herrick, Ph.D., Associate Dean
Mary Minton, Ph.D., Associate Dean
Barbara Hobbs, Ph.D., Assistant Dean

College of Pharmacy
Dennis Hedge, Pharm.D., Dean
Jane Mort, Pharm.D., Associate Dean
Xiangming Guan, Ph.D., Assistant Dean
Daniel Hansen, Pharm.D., Assistant Dean

Van D. and Barbara B. Fishback Honors College
Timothy J. Nichols, Ph.D., Dean

University College
Keith Corbett, Ed.D., Dean

Graduate School
Kinchel C. Doerner, Ph.D., Dean
Nicole B. Lounsbery, Ph.D., Assistant Dean

Library
Kristi Tornquist, Ph.D., Chief University Librarian

Office of Student Affairs
Samuel A. Jennings II, Ph.D., Dean of Students

University Staff

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.

General Administration

Chicoine, David L., President, Professor of Economics, Graduate Faculty, 2007; B.S., South Dakota State University, 1969; M.S., University of Delaware, 1971; M.A., Western Illinois University, 1978; Ph. D., University of Illinois, 1979.

Nichols, Laurie Stenberg, Provost and Vice President for Academic Affairs, Professor of Counseling and Human Development, Graduate Faculty, 1994, 2009; B.S., South Dakota State University, 1978; M.Ed., Colorado State University, 1984; Ph.D., Ohio State University, 1988.

Adelaine, Michael F., Vice President for Technology and Security, Graduate Faculty, 1990, 2003; B.S., Michigan State University, 1974; M.S., University of Nebraska, 1985; Ph.D., 1989.

Kephart, Kevin D., Vice President for Research and Economic Development, Professor of Plant Science, Graduate Faculty, 1986, 2005; B.S., Montana State University, 1979; M.S., University of Wyoming, 1982; Ph.D., Iowa State University, 1987.

Tschetter, Wesley G., Vice President for Finance and Business, 1982, 2000; B.S., South Dakota State University, 1969; M.B.A., University of South Dakota, 1971.

Helling, Mary Kay, Associate Vice President for Academic Affairs and Professor of Human Development, Graduate Faculty, 1978, 2003; B.S., South Dakota State University, 1977; M.S., 1982; Ph.D., Purdue University, 1992.

Doolittle, James J., Associate Vice President for Research Assurance and Sponsored Programs, Professor of Plant Science, Graduate Faculty, 1991, 2012; B.S., Purdue University, 1982; M.S., Texas A&M University, 1986; Ph.D., 1991.

Wermedal, Douglas, Associate Vice President for Student Affairs, 1998, 2007; B.S., South Dakota State University, 1985; M.S.Ed., Eastern Illinois University, 1987; Ph.D., South Dakota State University, 2008.

Kattelmann, Dean E., Assistant Vice President for Facilities and Services, 2002; B.S., Missouri State University, 1976; M.S., University of Missouri, 1989.

Fairfax, Kathleen, Assistant Vice President for International Affairs and Outreach, 2011; B.A., DePauw University, 1984; M.A., Indiana University Bloomington, 1989.

Challis, Donald R., Assistant Vice President for Safety and Security, 2014; B.A., University of Iowa, 1993; M.A., St. Ambrose University, 2002.

Knutson, Ryan, Assistant Vice President for Technology, 2010, 2014; B.S., South Dakota State University, 2000; M.S., Dakota State University, 2005.

Aylor, William, Assistant Vice President for Technology Transfer and Commercialization, 2012; B.S., Frostburg State University, 2000; M.S., North Carolina State University, 2002; J.D., West Virginia University, 2005.

Academic Deans

Brown, Lewis F., Dean of the Jerome J. Lohr College of Engineering, Professor of Electrical Engineering, Graduate Faculty, 1992, 2000; B.S., South Dakota State University, 1984; M.S., Iowa State University, 1986; Ph.D., 1988.

Corbett, Keith W., Dean of the University College, Professor of Educational Leadership, Graduate Faculty, 1981, 2004; B.S., South Dakota State University, 1976; M.Ed., 1987; Ed.D., University of South Dakota, 2001.

Donovan, Kathleen, Associate Dean of the College of Arts and Sciences, Professor of English, Graduate Faculty, 1994, 2000; B.A., Spalding College, 1968; M.A., University of Nebraska, 1988; Ph.D., University of Arizona, 1994.

Doerner, Kinchel, Dean of the Graduate School, Professor of Biology and Microbiology, Graduate Faculty, 2012, B.S., Southern Illinois University, 1986; M.S., University of Illinois, 1989; Ph.D., University of Illinois at Urbana-Champaign, 1992.

Dunn, Barry, South Dakota Corn Utilization Council Endowed Dean of the College of Agriculture and Biological Sciences, Professor of Animal Science, Graduate Faculty, 2000, 2010; B.S., South Dakota State University, 1975; M.S., 1977; Ph.D., 2000.

Fahrenwald, Nancy, Dean of Nursing, Associate Professor of Nursing, Graduate Faculty, 1995, 2006; B.S., South Dakota State University, 1983; M.S., University of Portland, 1988; Ph.D., University of Nebraska, 2002.

Hansen, Daniel J., Assistant Dean for Student Services, College of Pharmacy, Associate Professor of Pharmacy Practice, 2007, 2010; B.S., South Dakota State University, 2003; Pharm.D., 2005.

Hedge, Dennis, Dean of the College of Pharmacy, Professor of Pharmacy Practice, Graduate Faculty, 1992, 2009; Pharm.D., University of Kansas, 1991.

Hegland, Jane E., Associate Dean of Education and Human Sciences, Professor and Head of Consumer Sciences, Graduate Faculty, 2001, 2006; B.A., Saint Olaf College, 1985; M.A., University of Minnesota, 1991; Ph.D., 1995.

Herrick, Linda M., Associate Dean of Undergraduate Nursing, Professor of Nursing, Graduate Faculty, 2012; B.S., Winona State University, 1979; M.S., University of Minnesota, 1991; Ph.D., University of Minnesota, 1998.

Jennings II, Samuel A., Dean of Students, 2012; B.S., Lewis-Clark State College, 1996; M.S. Portland State University, 1999; Ph.D., Capella University, 2005.

Lounsbery, Nicole B., Assistant Dean of the Graduate School, 2008, 2015; B.A., University of South Dakota 1995; M.A., University of South Dakota, 1998; Ph.D., South Dakota State University, 2014.

Marshall, Donald M., Associate Dean and Director of Academic Programs, College of Agriculture and Biological Sciences, Professor of Animal Science, Graduate Faculty, 1984, 2002; B.S., University of Missouri, 1979; M.S., Oklahoma State University, 1981; Ph.D., 1984.

Minton, Mary, Associate Dean of Graduate Nursing, Associate Professor of Nursing, Graduate Faculty, 2007, 2013; B.A., Augustana, 1979; M.S., University of Michigan, 1984; Ph.D., University of Nebraska, 2007.

Mort, Jane R., Associate Dean for Academic Programs, College of Pharmacy, Professor of Pharmacy Practice, Graduate Faculty, 1986, 2010; Pharm.D., University of Nebraska, 1985.

Nichols, Timothy J., Dean of the Van D. and Barbara B. Fishback Honors College, Professor of Sociology and Rural Studies, Graduate Faculty, 1994, 2014; B.S., Washington State University, 1986; M.A.Ed., 1993; Ph.D., South Dakota State University, 2001.

Papini, Dennis, Dean of the College of Arts and Sciences, Professor of Psychology, Graduate Faculty, 2012; B.S., Western Illinois University, 1979; M.S., West Virginia University, 1982; Ph.D., West Virginia University, 1984.

Reid, Richard A., Associate Dean of the Jerome J. Lohr College of Engineering, and Professor of Civil and Environmental Engineering, Graduate Faculty, 1995, 2004; B.S., The Citadel, 1981; M.S., Georgia Institute of Technology, 1987; Ph.D., 1995.

Scholl, Daniel, Associate Dean of the College of Agriculture and Biological Sciences, Ag Experiment Station Director, Professor, Graduate Faculty, 2000, 2010; B.S., University of California, 1985; D.V.M., University of California, 1987; M.P.V.M., University of California, 1988; Ph.D., State University of Utrecht (the Netherlands) 1992.

Thorngren, Jill M., Dean of the College of Education and Human Sciences, 2011; B.A., Idaho State University, 1994; M.S., 1996; Ph.D., 1999.

Tornquist, Kristi M., Chief University Librarian, Professor, Graduate Faculty, 2011; B.A. University of Minnesota - Morris, 1980; M.L.S., University of Wisconsin, 1982; Ph.D., University of Minnesota, 1992.

Wang, C.Y., Professor of Dairy Science and Associate Dean of the College of Education and Human Sciences, Graduate Faculty, 1993, 2002; B.S., Shenyang Agricultural University, 1985; M.S., Iowa State University, 1989; Ph.D., 1993.

Regental Distinguished Professors

Bailey, Harold S., Vice President for Academic Affairs Emeritus, Distinguished Professor of Higher Education, 1951, 1985; B.S., Massachusetts College of Pharmacy, 1944; M.S., 1948; Ph.D., Purdue University, 1951.

Distinguished Professors

Brown, Michael L., Distinguished Professor of Natural Resource Management, Graduate Faculty, 1994, 2013; B.S., Arkansas Technical University, 1986; M.S., Texas A&M University, 1989; Ph.D., 1993.

Burns, Robert V., Distinguished Professor Emeritus of Political Science, Dean Emeritus of Honors College, Graduate Faculty, 1970, 1994; B.S., South Dakota State University, 1964; M.A., University of Missouri, 1966; Ph.D., 1973.

Dwivedi, Chandradhar, Distinguished Professor Emeritus, Graduate Faculty, 1987, 2000; B.S., Gorakhpur University, 1964; M.S., 1966; Ph.D., Lucknow University, 1972.

Evenson, Donald P., Distinguished Professor Emeritus of Biology and Microbiology, Graduate Faculty, 1981, 1996; B.A., Augustana College, 1964; Ph.D., University of Colorado, 1968.

Flake, Lester D., Distinguished Professor Emeritus of Wildlife and Fisheries Sciences, Graduate Faculty, 1972, 1999; B.S., Brigham Young University, 1965; M.S., 1966; Ph.D., Washington State University, 1971.

Granholm, Nels H., Distinguished Professor Emeritus of Biology and Microbiology, Graduate Faculty, 1968, 2011; B.A., University of Massachusetts, 1964; Ph.D., Iowa State University, 1968.

Gritzner, Charles F., Distinguished Professor Emeritus of Geography, Graduate Faculty, 1980, 1995; B.A., Arizona State University, 1958; M.A., Louisiana State University, 1960; Ph.D., 1969.

Hegge, Margaret J., Distinguished Professor Emerita of Nursing, Graduate Faculty, 1969, 1999; B.A. Gustavus Adolphus College, 1969; M.Ed., South Dakota State University, 1972; Ed.D., University of South Dakota, 1983; M.S., University of Minnesota, 1984.

Helder, Dennis L., Associate Dean of Research of the Jerome J. Lohr College of Engineering and Distinguished Professor of Electrical Engineering, Graduate Faculty, 1983, 2011; B.S., South Dakota State University, 1979; B.S., 1980; M.S., 1985; Ph.D., North Dakota State University, 1991.

Hess, Donna J., Distinguished Professor and Head of Rural Sociology, Graduate Faculty, 1974, 1998; B.A., Marquette University, 1965; M.A., State University of New York, 1971; Ph.D., Michigan State University, 1974.

Jenks, Jonathan A., Distinguished Professor of Natural Resource Management, Graduate Program Coordinator, Graduate Faculty, 1991, 2006; A.A., Unity College, 1982; B.S., 1984; M.S., University of Maine, 1986; Ph.D., Oklahoma State University, 1991.

Johnson, James L., Distinguished Professor Emeritus of Communication Studies and Theatre, Director of Theatre, Graduate Faculty, 1973, 2001; B.S., Kansas State University, 1960; M.A., University of South Dakota, 1961; Ph.D., University of Kansas, 1973.

Johnson, W. Carter, Distinguished Professor of Natural Resource Management, Graduate Faculty, 1989, 2006; B.S., Augustana College, 1968; Ph.D., North Dakota State University, 1971.

Malo, Douglas D., Distinguished Professor of Plant Science, Graduate Faculty, 1975, 1999; B.S., Iowa State University, 1971; M.S., North Dakota State University, 1974; Ph.D., 1975.

Muthukumarappan, K., Distinguished Professor and Graduate Coordinator of Agricultural and Biosystems Engineering, Graduate Faculty, 1997, 2013; B.S., University of Madras (India), 1981; B.E., Tamil Nadu Agricultural University (India), 1986; M.E., Asian Institute of Technology, 1988; Ph.D., University of Wisconsin, 1993.

Pritchard, Robbi H., Distinguished Professor of Animal Science, Graduate Faculty, 1984, 2005; A.A.S., Black Hawk College, 1975; B.S., Southern Illinois University, 1977; M.S., 1978; Ph.D., Washington State University, 1983.

Ryder, Mary R., Distinguished Professor of English, Graduate Faculty, 1989, 2002; B.A., Monmouth College, 1972; M.A., Illinois State University, 1981; Ph.D., University of Illinois, 1987.

Schingoethe, David J., Distinguished Professor Emeritus of Dairy Science, Graduate Faculty, 1969, 2003; B.S., University of Illinois, 1964; M.S., 1965; Ph.D., Michigan State University, 1968.

Wahlstrom, Richard C., Distinguished Professor Emeritus of Animal and Range Sciences, 1952, 1988; B.S., University of Nebraska, 1948; M.S., University of Illinois, 1950; Ph.D., 1952.

Woodard, Charles L., Distinguished Professor of English, Graduate Faculty, 1975, 2002; B.S., Dakota State University, 1964; M.A., University of Nebraska, 1966; Ph.D., University of Oklahoma, 1975.

Wrage, Leon J., Distinguished Professor Emeritus of Plant Science, Extension Specialist, 1961, 1994; B.S., South Dakota State University, 1961; M.S., 1964.

Faculty, Staff

Aaron, David, Assistant Professor of Physics, 1986; B.S., South Dakota State University, 1975; M.S., University of Wisconsin, 1981.

Abeln, Kristin, Instructor of General Studies, 2010; B.A., Southwest Minnesota State University, 2003; M.S., South Dakota State University, 2007.

Abraham, Julie B., Instructor of English, 2002; B.A., Augustana College, 1990; M.A., South Dakota State University, 2003.

Abraham, Ross P., Professor of Mathematics and Statistics, Graduate Faculty, 1997, 2006; B.S., Augustana College, 1990; M.A., University of Montana, 1993; Ph.D., University of Houston, 1997.

Ackman, John D., Professor of Communication Studies and Theatre, Graduate Faculty, 1978, 2002; B.S., South Dakota State University, 1978; M.F.A., University of Montana, 1984.

Adams, Wells E., Jr., Adjunct Assistant Professor of Natural Resource Management, 2011; B.S., Iowa State University, 2002; M.S., South Dakota State University, 2004.

Adamson, Dwight W., Associate Professor of Economics, Graduate Faculty, 1989, 1995; B.A., Washington State University, 1976; M.A., 1983; Ph.D., 1988.

Adamyan, Luiza, Instructor of Modern Language and Global Studies, 2012; B.A., University of Nebraska-Lincoln, 2009; M.A., 2012.

Adolph, Eric, Assistant Strength and Conditioning Coach; Intercollegiate Athletics; 2012; B.A., Dakota Wesleyan University, 2009; M.S. South Dakota State University, 2012.

Agostini, Thomas, Assistant Professor of History, Political Science, Philosophy, and Religion, Graduate Faculty, 2009; B.A., Virginia Military Institute, 1990; M.A., James Madison University, 1993; Ph.D., Lehigh University, 2002.

Ahmed, Patricia, Lecturer of Sociology and Rural Studies, 2011, 2015; Ph.D., University of California - Los Angeles, 2005.

Ahrendsen, Wendy, Instructor of Mathematics and Statistics, 1995; B.A., Wartburg College, 1995; M.S., South Dakota State University, 1999.

Ali, Shaukat, Associate Professor of Plant Science, Graduate Faculty, 2012; M.Sc., University of Agriculture, Faisalabad (Pakistan), 1978; M.S., South Dakota State University, 1993; Ph.D., North Dakota State University, 2001.

Alsaker, William, Instructor of Mathematics and Statistics, 2010; B.S., South Dakota State University, 2008; M.S., South Dakota State University, 2010.

Alfson, Troy M., Assistant Director of Conference and Special Services, 2003, 2005; B.S., Bemidji State University, 1994; M.S., University of Wisconsin, 1996.

An, Wenfeng, Associate Professor of Pharmaceutical Sciences, 2014; M.B., Peking University Health Science Center (China), 1993; M.P.H., Peking University Health Science Center (China), 1996; Ph.D., University of Michigan Medical School, 2003.

Alvarez, Jose J., Assistant Professor of Modern Languages and Global Studies, 2013; B.A., Pontificia Universidad Catolica del Peru, 2005; M.A., Pennsylvania State University, 2007; Ph.D., Pennsylvania State University, 2013.

Anand, Sanjeev, Professor of Dairy Science, Graduate Faculty, 2006, 2014; B.S., D.S. College (India), 1978; M.S., National Dairy Research Institute (India), 1981; Ph.D., 1986.

Andersen, Brenda F., Associate Director of Student Health Services, 1982, 1984; B.S., South Dakota State University, 1979; M.S., 1986.

Anderson, Carla L., Student Services Coordinator and Professional Academic Advisor, College of Education and Human Sciences, 2004; B.S., South Dakota State University, 2002; M.S., 2007; Ed.D., University of South Dakota, 2013.

Anderson, Gary A., Professor of Agricultural and Biosystems Engineering, Graduate Faculty, 1987, 1999; B.S., South Dakota State University, 1975; M.S., Iowa State University, 1985; Ph.D., 1987.

Anderson, Jenn, Assistant Professor of Communication Studies and Theatre, 2012; B.A., Truman State University, 2004; M.A., Miami University, 2008; Ph.D. Michigan State University, 2012.

Anderson, Jill L., Assistant Professor of Dairy Science, 2012; B.S., University of Delaware, 2003; M.S., South Dakota State University, 2005; Ph.D., 2012.

Anderson, Randi, Instructor of English, 2011; B.A., Black Hills State University, 2007; M.A., South Dakota State University, 2011.

Anteau, Michael, J., Adjunct Assistant Professor of Natural Resource Management, 2011; B.S., University of Alaska Fairbanks, 1997; M.S., Louisiana State University, 2002; Ph.D., 2006.

Arends, Robin, Clinical Assistant Professor, 2011; B.S., Briar Cliff, 2001; M.S., South Dakota State University, 2008; D.N.P., 2014.

Arneson, Angela, Instructor of Modern Languages and Global Studies, 2012; B.A., South Dakota State University, 2001; M.A., Bowling Green State University, 2006.

Arnold, Mary P., Professor and Head of Journalism and Mass Communication, Graduate Faculty, 2002, 2005; B.A., Dakota Wesleyan University, 1969; M.A., University of South Dakota, 1973; Ph.D. University of Iowa, 1994.

Aro, Carlene D., Professor/Serials Librarian, 1989, 1998; B.A., Oregon State University, 1981; M.L.S., University of Michigan, 1982; M.Ed., South Dakota State University, 1993.

Arwood, Donald, Professor of Sociology and Rural Studies, Graduate Faculty, 1986, 1999; B.S., South Dakota State University, 1980, M.S., 1982; Ph.D., 1989.

Atteberry-Gustafson, Anna, Instructor of Nursing/Academic Advisor/Sioux Falls Center Coordinator, 2008; A.S., University of South Dakota, 1994; B.S., South Dakota State University, 1998, 1999; M.S., 2002.

Auger, Donald L., Associate Professor of Biology and Microbiology, Graduate Faculty, 2003, 2008; B.A., Saint John's University, 1975; Ph.D., University of North Dakota, 1995.

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Schmidt, Robert C., Professor of Mathematics and Statistics, Graduate Faculty, 1981, 1996; B.S., South Dakota State University, 1979; M.S., Iowa State University, 1981; Ph.D., 1987.

Schmit, Christopher G., Professor of Civil and Environmental Engineering, Director of Water and Environmental Engineering Research Center, Graduate Faculty, 1998, 2008; B.S., University of Wisconsin, 1991; M.S., Iowa State University, 1992; Ph.D., 1997.

Schmitt, Melissa, L., Assistant Manager, Dairy Research and Training Facility, 2011; B.S., Iowa State University, 2011.

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Scholten, Lisa, Collections Coordinator, 1999; B.A., Ashland University, 1985; M.S., The Ohio State University, 1986.

Schrage, David, Head Baseball Coach, Intercollegiate Athletics, 2011; B.S., Creighton University, 1983; M.S., Saint Thomas University, 1987.

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Schultz, Aaron C., Professor and Head of Military Science, 2012; B.S., Southwest Minnesota State University, 1992; M.B.A., University of Sioux Falls, 2009.

Schulz, Marlene, Instructor of Sociology and Rural Studies, 2010; B.S., South Dakota State University, 1984; M.S.W., University of Nebraska Omaha, 1995.

Schumacher, Joseph, Research Engineer, Plant Science, 1987; B.S. South Dakota State University, 1987; M.S., 1990.

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Berry, Jr., Charles R., Professor Emeritus of Wildlife and Fisheries Sciences, Graduate Faculty, 1985, 2010; B.S., Randolph-Macon College, 1967; M.S., 1970; Ph.D., Virginia Polytechnic Institute and State University, 1976.

Blazey, Charles H., Professor Emeritus of Health Science, 1965, 1987; B.S., State University of New York, 1950; M.S., 1960; D.Ed., University of Oregon, 1971.

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Brown, Mary, M., Professor Emerita of English, 1955, 1982; B.A., Briar Cliff College, 1938; M.A., University of South Dakota, 1947; Ed.D., 1964.

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Cecil, Charles F., Instructor Emeritus of Journalism and Mass Communication, 1965, 1987; B.S., South Dakota State University, 1959; M.A., 1970.

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Heusinkveld, Marion, Professor Emeritus of General Engineering, 1984, 1990; B.S., University of South Dakota, 1959, M.N.S., 1962.

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Higgins, Kenneth F., Professor Emeritus of Wildlife and Fisheries Sciences, Graduate Faculty, 1985, 1994; B.S., Colorado State University, 1965; M.S., South Dakota State University, 1968; Ph.D., North Dakota State University, 1981.

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Johnson, James R., Professor Emeritus of Animal and Range Sciences, 1966, 2001; B.S., Montana State University, 1964; M.S., 1966; Ph.D., Oregon State University, 1974.

Johnson, LeRoy C., Associate Professor Emeritus of Horticulture, Forestry, Landscape and Parks, 1965, 1988; B.S., Michigan State University, 1951; M.S., Kansas State University, 1964.

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Reger, Michael P., Executive Vice President Emeritus for Administration, Assistant Professor of Education, Graduate Faculty, 1979, 2000; B.A., Western Illinois University, 1970; M.S., 1972; Ph.D., Ohio State University, 1983.

Richardson, Jay R., Professor Emeritus of Human Development, Consumer and Family Sciences, 1963, 1970; B.S., Brigham Young University, 1957; M.S., 1958; Ed.D., Pennsylvania State University, 1969.

Richardson, Marilyn, Associate Professor Emerita of Health, Physical Education and Recreation, 1963, 1994; B.A., Brigham Young University, 1956; M.A., Pennsylvania State University, 1963.

Richter, Anthony H., Professor Emeritus of German, Graduate Faculty, 1971, 1981; B.A., Northwestern University, 1965; M.A.T., 1966; Ph.D., 1971.

Rickerl, Diane Holland, Professor Emerita of Plant Science, Graduate Faculty, 1986, 2011; B.S., Iowa State University, 1972; M.A., 1976; M.S., Auburn University, 1984; Ph.D., 1986.

Roberts, Ardelle A, Lundeen, Professor Emerita and Head of Economics, 1976, 1977; B.S., South Dakota State University, 1970; M.S., 1971; Ph.D., Iowa State University, 1976.

Rogers, Lawrence., Professor Emeritus of Education and Human Sciences, Professor of Teaching, Learning and Leadership, Graduate Faculty, 1995, 2011; B.A., University of Nebraska, 1964; Ph.D., 1975.

Rollag, Dwayne A., P.E., Professor and Head of Civil and Environmental Engineering, Graduate Faculty, 1965, 1979; B.S., University of Minnesota, 1959; M.S., South Dakota State University, 1966; Ph.D., Purdue University, 1975.

Rose, Madeleine S., Associate Professor Emerita of Nutrition, Food Science & Hospitality, Science Fair Coordinator, Graduate Faculty, 1990, 2000; B.S., University of California, 1970; M.S., University of Maryland, 1972; Ph.D., Texas Woman's University, 1985.

Rose, Robert, Associate Professor Emeritus of Nutrition, Food Science & Hospitality, 1988, 2000; B.S., South Dakota State University, 1970; M.S., University of Maryland, 1972; Ph.D., Texas Woman's University, 1991.

Rue, Rolland R., Professor Emeritus of Chemistry and Biochemistry, 1962, 1983; B.A., Macalester College, 1957; Ph.D., Iowa State University, 1962.

Ruffolo, John J., Professor Emeritus of Biology and Microbiology, Graduate Faculty, 1999; B.S., Loyola University, 1965; M.S., University of Iowa, 1969; Ph.D., 1972

Ryder, Mary R., Distinguished Professor Emerita of English, Graduate Faculty, 1989, 1997; B.A., Monmouth College, 1972; M.A., Illinois State University, 1981; Ph.D., University of Illinois, 1987.

Sander, Duane, Dean and Professor Emeritus of Electrical Engineering, 1967, 1999; B.S., S.D. School of Mines and Technology, 1960; M.S., Iowa State University, 1962; Ph.D., 1964.

Sandness, Roger K., Professor and Head Emeritus of Geography, Graduate Faculty, 1971, 1992; B.S., University of North Dakota, 1967; M.S., 1968; Ph.D., University of Iowa, 1986.

Satterlee, James L., Professor Emeritus and Head of Rural Sociology, Graduate Faculty, 1962, 1976; B.S., South Dakota State University, 1962, M.S., 1963; Ph.D., 1970.

Scalet, Charles G., Professor Emeritus of Wildlife and Fisheries Sciences, Graduate Faculty, 1973, 1982; B.A., Southern Illinois University, 1964; M.A., 1967; Ph.D., University of Oklahoma, 1971.

Schingoethe, David J., Distinguished Professor Emeritus of Dairy Science, Graduate Faculty, 1969, 2011; B.S., University of Illinois, 1964; M.S., 1965; Ph.D., Michigan State University, 1968.

Schipull, Martin A., Professor Emeritus of Agricultural and Biosystems Engineering, 1981; B.S., University of Wisconsin, 1974; M.Ed., University of Minnesota, 1981.

Schliessmann, Michael R., Assistant Dean and Professor Emeritus of Communication Studies and Theatre, Institutional Management Officer, Graduate Faculty, 1973, 2001; B.S., South Dakota State University, 1973, M.S., 1974; Ph.D., University of Kansas, 1981.

Schumacher, Thomas E., Professor Emeritus of Plant Science, Graduate Faculty, 1983, 2012; B.A., Bluffton College, 1972; M.S., Michigan State University, 1979; Ph.D., 1982.

Sckerl, Jo Ann, Director Emerita of Academic Evaluation and Assessment, 1984, 2014; B.A., South Dakota State University, 1973; M.A., Mississippi University for Women, 1980; Ed.D., University of South Dakota, 2002.

Selim, Ali A., Professor Emeritus of Civil and Environmental Engineering and Director of Local Transportation Assistance Program, Graduate Faculty, 1977, 2008; B.S., Ain-Shams University (Egypt), 1967; M.S., University of Missouri, 1974; Ph.D., 1976.

Shane, Richard C., Professor Emeritus of Economics, Graduate Faculty, 1977, 2008; B.S., South Dakota State University, 1969; M.S., University of Arizona, 1971; Ph.D., Washington State University, 1978.

Shank, D. Boyd, Professor Emeritus of Plant Science, 1946; 1980; B.S., University of Nebraska, 1935; Ph.D., Iowa State University, 1941.

Shubeck, Fred E., Professor Emeritus of Plant Science, 1951, 1985; B.S., South Dakota State University, 1940; Ph.D., University of Minnesota, 1951.

Sigl, Arden B., Professor Emeritus of Civil and Environmental Engineering, Graduate Faculty, 1967, 1984; B.S., South Dakota State University, 1967; M.S., 1969; Ph.D., Northwestern University, 1977.

Singh, Yadhu N., Professor Emeritus of Pharmaceutical Sciences, Graduate Faculty, 1988, 1997; B.S., University of Otago (New Zealand), 1967; M.S., University of Strathclyde (Scotland), 1974; Ph.D., 1979.

Slyter, Lowell, Professor Emeritus of Animal and Range Sciences, Graduate Faculty, 1970, 2001; B.S., Kansas State University, 1964; M.S., University of Nebraska, 1966; Ph.D., Kansas State University, 1969.

Smith, Howard, Associate Dean Emeritus of the College of Education and Counseling and Professor Emeritus of Counseling and Human Resource Development, 1978, 2003; B.A., University of Sioux Falls, 1965, M.Div., Central Baptist Theological Seminary, 1968; M.Ed., South Dakota State University1974; Ed.D., University of South Dakota, 1980.

Sorenson, Jerry A., Professor Emeritus of General Engineering Technology, Graduate Faculty, 1984, 2000; B.S.E., University of South Dakota, 1963; M.Ed., University of Illinois, 1967.

Spinar, Leo H., Professor Emeritus of Chemistry and Biochemistry, 1966, 1970; B.A., University of South Dakota, 1951; M.S., University of Wisconsin, 1953; Ph.D., 1958.

Spinar, Melvin F., Professor Emeritus of Visual Arts, 1969, 1989; B.A., Dakota Wesleyan University, 1962; M.A., University of Iowa, 1965; M.F.A., 1966; M.F.A., 1966.

Steinley, Gary L., Professor Emeritus of Education and Counseling, Graduate Faculty, 1979, 1992; B.S., Black Hills State University, 1963; M.A., Fresno State University, 1967; Ph.D., University of Utah, 1970.

Stover, Ronald G., Professor Emeritus of Sociology and Rural Studies, 1983, 2014; B.A., University of Georgia, 1970; M.A., 1973; Ph.D., 1975.

Stuart, Signe, Professor Emerita of Visual Arts, 1972, 1974; B.A., University of Connecticut, 1959; M.A., University of New Mexico, 1960.

Stymiest, Clair, Associate Professor of Plant Science Emeritus, 1967, 2004; B.S., South Dakota State University, 1966; M.S., 1970.

Sunde, Carl R., Professor Emeritus of Modern Languages, 1970, 1980; B.A., Luther College, 1962; M.A., University of Iowa, 1967; Ph.D., 1974.

Swanson, Robert N., Professor Emeritus of Veterinary Science, 1965, 1996; B.S., Ft. Hays Kansas State College, 1953; M.S., Kansas State University, 1960; D.V.M., 1960; Ph.D., 1964.

Swedlund, Harriet, P., Director of International Programs Emerita and Assistant Professor Emerita of Apparel Merchandising, 1984, 1994; B.S., Iowa State University, 1954; M.S., 1957.

Sweeney, Jerry K., Professor Emeritus and Head of History, Graduate Faculty, 1970, 2000; B.A., Fort Hays Kansas State University, 1962; M.A., Kansas State University, 1967; Ph.D., Kent State, 1970.

Taylor, Donald C., Professor Emeritus of Economics, 1980, 1996; B.S. Cornell University, 1959; M.S., University of Minnesota, 1964; Ph.D., 1965.

Thiex, Nancy, Professor Emerita of the SDSU Veterinary and Biomedical Sciences Department and the SD Agricultural Experiment Station, 1970, 2012; B.A., Northern State University, 1970; M.Ed., South Dakota State University, 1972; M.S., 1974.

Thompson, John E., Professor Emeritus of Economics, 1952, 1985; B.S., University of South Dakota, 1950, M.S., South Dakota State University, 1953; Ph.D., University of Wisconsin, 1960.

Tidemann, Gail Dobbs, Dean Emerita of Continuing and Extended Education, Graduate Faculty, 1986, 2012; B.S., Jacksonville State University, 1977; M.A., University of Alabama, 1978; Ph.D., 1986.

Tidemann, Larry J., Director Emeritus of Cooperative Extension Service, 1970, 1999; B.S., South Dakota State University, 1970; M.S., 1972.

Tiltrum, Charles A., Associate Professor Emeritus of Civil and Environmental Engineering, 1981, 2005; B.S., South Dakota State University, 1972; M.S., 1974.

Tolle, Gordon J., Professor Emeritus of Political Science, Graduate Faculty, 1967, 2012; B.A., Oberlin College, 1965; M.A., University of Notre Dame, 1967; Ph.D., University of Colorado, 1978.

VanRiper, Gary, Assistant Professor Emeritus of Pharmaceutical Sciences, 1972, 2007; B.S., South Dakota State University, 1969; M.S., 1972.

Wadsworth, Jr., William S., Professor Emeritus of Chemistry, 1962, 1970; B.S. Trinity College, 1950; M.S., 1952; Ph.D., Pennsylvania State University, 1955.

Wahlstrom, Richard C., Distinguished Professor Emeritus of Animal Science, 1952, 1988; B.S., University of Nebraska, 1948; M.S., University of Illinois, 1950; Ph.D., 1952.

Walker, Darwin E., Professor Emeritus of Music, 1973, 1979; B.S., Northern State University, 1959; M.A., University of Northern Colorado, 1968; Ed.D., 1972.

Werner, Hal D., Professor Emeritus of Agricultural and Biosystems Engineering, 1970, 1992; B.S., South Dakota State University, 1970; M.S., 1971; Ph.D., University of Minnesota, 1984.

West, George A., Professor Emeritus of English, Graduate Faculty, 1969, 2000; B.S., South Dakota State University, 1965; M.A., University of Nebraska, 1967; Ph.D., 1972.

Whalen, Richard H., Professor Emeritus of Biology and Microbiology, Graduate Faculty, 1967, 1990; B.S., College of Saint Thomas, 1954; M.S., University of Illinois, 1956; Ph.D., Purdue University, 1965.

White, Everett M., Professor Emeritus of Plant Science, 1954, 1990; B.S., Iowa State University, 1948; M.S., 1950; Ph.D., 1953.

Widvey, Harold W., Professor Emeritus of Communication Studies and Theatre, 1972, 1978; B.S.Ed., Northern State University, 1957; M.S.Ed., 1961; Ph.D., University of Nebraska, 1971.

Williams, Louis P., Professor Emeritus of English, Graduate Faculty, 1965, 1983; B.A., University of Texas, 1960; M.A., 1965; Ph.D., University of Minnesota, 1976.

Wilson, Ann L., Professor Emerita of Teaching, Learning, and Leadership, 2002, 2014; B.A., Lewis and Clark College, 1969; M.A., Michigan State University 1973; Ph.D., 1975; M.S., SDSU, 1994; M.A., Augustana College, 1995.

Witherington, Paul, Professor Emeritus of English, 1970, 1993; B.A., Baylor University, 1954; M.A., University of Texas, 1960; Ph.D., 1964.

Woodard, Charles L., Distinguished Professor Emeritus of English, 1975, 2015; B.S., Dakota State University, 1964; M.A., University of Nebraska, 1966; Ph.D., University of Oklahoma, 1975.

Wrage, Leon J., Distinguished Professor of Plant Science Emeritus, Extension Specialist, 1961, 2004; B.S., South Dakota State University, 1961; M.S., 1964.

Yarbrough, Jerry W., Professor Emeritus of English, 1968, 1976; B.A., Abilene Christian University, 1960; M.A., University of Texas, 1962; Ph.D., 1968.

Yocom, Kenneth L., Professor Emeritus of Mathematics and Statistics, Graduate Faculty, 1962, 1980; B.S., SD School of Mines and Technology, 1960; M.S., University of Wyoming, 1962; Ph.D., 1972.

Zeman, David H., Professor Emeritus of Veterinary and Biomedical Sciences, 1986, 2013; B.S., North Dakota State University, 1976; D.V.M., Oklahoma State University, 1980; Ph.D., Louisiana State University, 1986.

Frequently Called Numbers

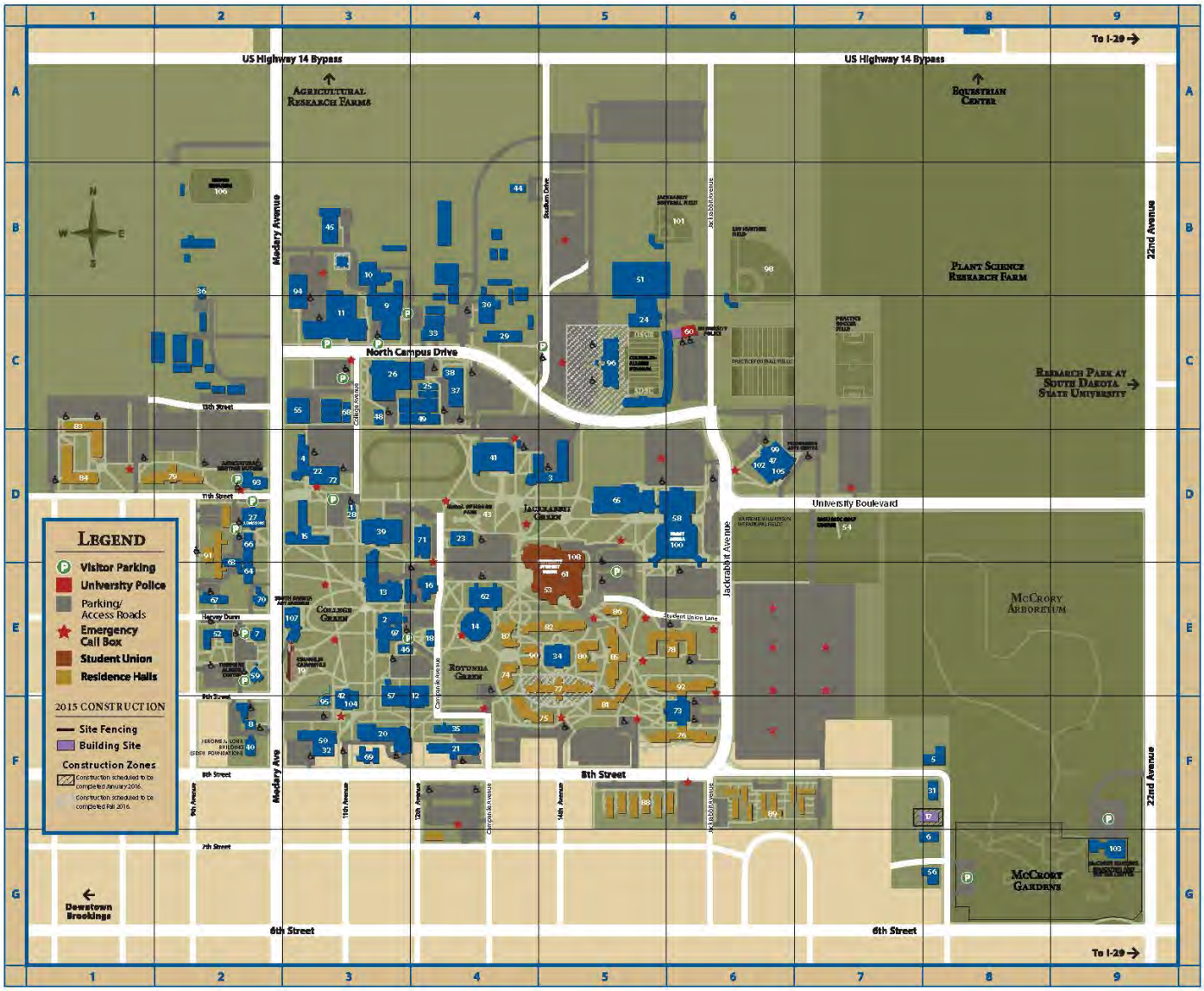
General Numbers

Undergraduate Admissions Office	605-688-4121 or 1-800-952-3541
Administrative Information Services	605-688-6134
Advising, First Year Advising Center	605-688-4155
Agricultural Experiment Station	605-688-4149
Agricultural Heritage Museum	605-688-6226
Alumni Association Office	605-697-5198
American Indian Education and Cultural Center	605-688-6416
Art Museum	605-688-5423
Board of Regents	605-773-3455
Bookstore	605-688-4163
Capital University Center-Pierre	605-773-2160
Career Center Office	605-688-4425
Counseling Services	605-688-6146
Dining Services	605-697-2550
Disability Services Office	605-688-4504
Diversity, Equity, & Community Office	605-688-6556
Environmental Health & Safety	605-688-4264
Extension Service	605-688-4792
Facilities & Services	605-688-4136
Financial Aid Office	605-688-4695
Graduate School	605-688-4181
Health Services	605-688-4157
Human Resources	605-688-4128
Information Exchange	605-688-6127
International Affairs	605-688-4913
Library	605-688-5107
Multicultural Affairs Office	605-688-6129
Registrar	605-688-6195
Transcripts (ordering)	605-688-6637
Research Office	605-688-6696
Residential Life	605-688-5148
SDSU Foundation	605-697-7475
South Dakota Art Museum	605-688-5423
Student Activities	605-688-6129
Student Affairs Vice President	605-688-4493
Theatre Box Office	605-688-6045
Ticket Office, Jackrabbit Athletics	605-688-5422 or 1-866-GO-JACKS
University Police Department	605-688-5117
University Marketing and Communications	605-688-6161
University Center-Sioux Falls	605-367-5640
University Center-Rapid City	605-394-6823
Veterans Advising	605-688-4700

Administrative Numbers

President's Office	605-688-4111
Provost and Vice President for Academic Affairs	605-688-4173
Vice President for Finance and Business/CFO	605-688-4492
Vice President for Research & Economic Development	605-688-5642
Vice President for Student Affairs	605-688-4493
Vice President for Technology and Security	605-688-4988
College of Agriculture and Biological Sciences	605-688-4148
College of Arts and Sciences	605-688-4723
College of Education and Human Sciences	605-688-6181
Jerome J. Lohr College of Engineering	605-688-4161
College of Nursing	605-688-5178
College of Pharmacy	605-688-6197
Continuing and Distance Education	605-688-4154
Graduate School	605-688-4181
Van D. and Barbara B. Fishback Honors College	605-688-5268
University College	605-688-4153

Campus Map



South Dakota State University

2015–2016

GENERAL INFORMATION
(605) 688-4151

WWW.SDSTATE.EDU

MAP EFFECTIVE JULY 1, 2015. UPDATED JUNE 2015.

MAIN

1	Academic Evaluation & Assessment	SFND F2
2	Administration Building	SAD E3
3	Agricultural Engineering	SAE D5
4	Alfred Dairy Science Hall	SDS D3
5	Alpha Gamma Rho Fraternity (Men's)	F8
6	Alpha Xi Delta Fraternity (Women's)	G8
7	Alvilda Myre Sorenson Center	SSOR E2
8	American Indian Education & Cultural Center	SFND F2
9	Animal Disease Research	SAR C3
10	Animal Resource Wing	SAW B3
11	Animal Science Complex	SAS C3
12	Architecture, Mathematics & Engineering	SAME E4
13	Avera Health & Science Center	SAV E3
14	Bailey Rotunda	SRO E4
15	Berg Agricultural Hall	SAG D3
16	Central Heating Plant	SCP E4
17	Ceres Fraternity (Women's)	F8
18	Communications Center	SCM E4
19	Coughlin Campanile	E3
20	Crothers Engineering Hall	SCEH F3
21	Daktronics Engineering Hall	SDEH F4
22	Davis Dairy Plant	SDSP D3
23	DePuy Military Hall	SDP D4
24	Dykhouse Student-Athlete Center	SDSC C5
25	East Headhouse	SEHH C4
26	Edgar S. McFadden Biostress Lab	SNP C3
27	Enrollment Services Center Admissions Financial Services	SESC D2
28	Ethel A. Martin Building	SEM D3
29	Facilities & Services	SFS C4
30	Facilities & Services Customer Service Center	SFCS C4
31	Farmhouse Fraternity (Men's)	F8
32	Fishback Center for Early Childhood Education	SPC F3
33	Foundation Seed Conditioning	SFSS C4
34	Grove Hall	SGH E5
35	Harding Hall	SHH F4
36	Horse Unit	B2
37	Horticulture Greenhouse	SHG C4
38	Horticulture & Forestry	SHF C4
39	Intramural Building	SIM D3
40	Jerome J. Lohr Building (SDSU Foundation)	F2
41	Library (Hilton M. Briggs)	SBL D4
42	Lincoln Music Hall	SLM E3
43	Medal of Honor Park	D4
44	Motor Pool Complex	SMPC C2
45	North Headhouse	SNHH B3
46	Old Horticulture	SOHO E3
47	Performing Arts Center	SPAC D6
48	Physiology Laboratory	SPL C3
49	Plant Science Building	SPSB C4
50	Pugsley Center	SPC F3
51	Sanford-Jackrabbit Athletic Complex	SSJC B5
52	Scobey Hall	SSB E2
53	SDSU Bookstore	SSU E5
54	SDSU Disc Golf Course	D7
55	Seedhouse	SSD C3
56	Sigma Alpha Epsilon Fraternity (Men's)	G8
57	Solberg Hall	SSO E3
58	Stanley J. Marshall HPER Center	SPE D6
59	Tompkins Alumni Center	STA E2
60	University Police Department	C6
61	University Student Union	SSU E5
62	Wagner Hall	SWG E4
63	Wecota Annex	SWX D2
64	Wecota Hall	SWC E2
65	Wellness Center	SSWC D5
66	Wenona Hall	SWE D2
67	West Hall	SWH E2
68	Wheat Commission Greenhouse	SWCD C3
69	Wintrode Student Success Center	SWSC F3
70	Woodbine Cottage	SWBC E2
71	Yeager Hall	SYE D4

FOOD SERVICE

61	University Student Union	SSU E5
72	Dairy Bar	SDM D3
79	Hansen Hall	SHN D2
73	Larson Commons	SLC F6

RESIDENCE HALLS

74	Abbott Hall	SAH E4
75	Ben Reifel Hall	SREF F4
76	Binnewies Hall	SBN F6
77	Brown Hall	SBH E5
78	Caldwell Hall	SCH E6
79	Hansen Hall	SHN D2
80	Honors Hall	SHON E5
81	Hyde Hall	SHYD F5
82	Mathews Hall	SMH E5
83	Meadows North Apartments	SMN C1
84	Meadows South Apartments	SMS D1
85	Pierson Hall	SPR E5
86	Schultz Hall	SSCH E5
87	Spencer Hall	SSH E4
88	State Court Family Housing	SSC F6
89	State Village Family Housing	SSV F6
90	Thorne Hall	STH E4
91	Waneta Hall	SWN D2
92	Young Hall	SYH E6

EVENT LOCATIONS

93	Agricultural Heritage Museum	SAGM D2
94	Animal Science Arena	SAA B3
95	Coolidge Sylvan Theatre	SSY F3
96	Coughlin-Alumni Stadium	SCS C5
97	Doner Auditorium	SAD E3
98	Erv Huether Field	B6
99	Fishback Studio Theater	SPAC D6
100	Frost Arena	SPE D6
101	Jackrabbit Softball Field	B6
102	Larson Memorial Concert Hall	SPAC D6
103	McCrory Gardens Education & Visitor Center	G9
104	Peterson Recital Hall	SLM F3
105	Roberts Reception Hall	SPAC D6
106	Rodeo Grounds	B2
107	South Dakota Art Museum	SMU E3
108	Volstorff Ballroom	SSU D5