

# SOUTH DAKOTA STATE UNIVERSITY



**2009**



### **Excellence in education**

Nearly 12,000 students, including 1,334 graduate students, are enrolled in 200 majors and minors, 12 Ph.D., 23 master's and two professional doctoral programs.



### **Outreach and service**

South Dakota State touches the entire state through Cooperative Extension Service programs, fine arts performances, research, service learning and athletics.



### **Research and innovation**

Discoveries at SDSU — through engineering, science and technology research and 2010 Centers — will drive economic development in South Dakota.

The Prairie Repertory Theatre celebrated its 400,000th patron on July 11, 2008, during a performance of "Seven Brides for Seven Brothers" in Brookings. PRT, in its 38th season, staged four different productions in 2008, 15 in Brandon and 20 in Brookings.

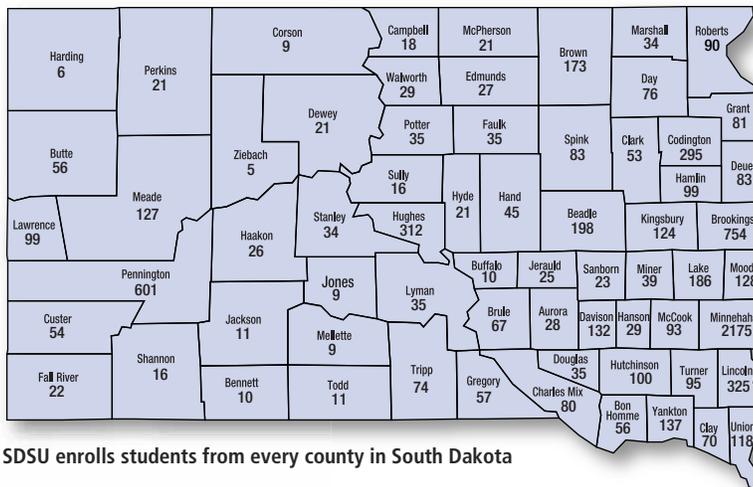


## SOUTH DAKOTA STATE UNIVERSITY

South Dakota State University is the state's largest and most comprehensive university. It is recognized by the Carnegie Foundation for the Advancement of Teaching as the state's only RU/H (research university/high research activity). Today's SDSU includes:

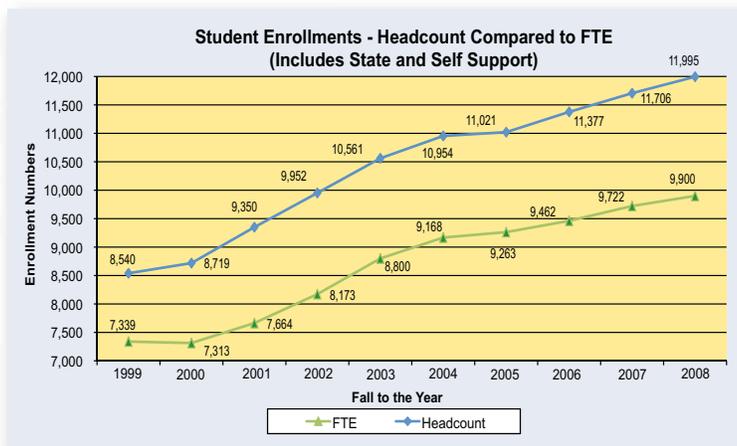
- 11,995 students, including 10,397 undergraduates, on a trend toward the strategic enrollment target of 13,600 students in 2012-2013;
- Students enrolled from all 66 counties in South Dakota, all 50 states and 52 other countries;
- 8,132 students from South Dakota, comprising 67.7 percent of the student body;
- 3,200 students living on campus in residential facilities;
- 12 Ph.D. programs, two professional doctoral programs, and 23 master's degree programs;
- 200 undergraduate majors, minors and options;
- "Achieving National Distinction, Strengthening Local Relevance" — the 2008-2012 strategic plan;
- Division I athletics, including NCAA tournament participants in women's soccer, volleyball and wrestling and conference championships in football, women's basketball, volleyball and women's soccer in the past two years;
- 639 faculty, 45 administrators, 354 professional staff, 106 Extension educators, 768 career service persons and 211 part-time and temporary personnel;
- A contiguous campus of 272 acres in Brookings;
- Nearly 15,000 acres in seven locations from Buffalo to Beresford for agricultural research and demonstrations;
- 158 buildings with a replacement value of \$551.8 million, of which academic building comprise \$354.2 million of the total; and
- South Dakota's first and only university-affiliated research park the 125-acre Innovation Campus, and its incubator Innovation Center are under development by Growth Partnership, Inc.

### Enrollment by county



SDSU enrolls students from every county in South Dakota

### Enrollment trends



Enrollment at SDSU has grown 40.5 percent since 1999, or 3,455 students. Similarly, the full-time equivalency has increased 34.9 percent over that same time. This growth fosters the university's financial stability and attracts students, researchers and private partners.

The women's soccer team won its first Summit League championship by defeating top-seeded Oakland University (Mich.) 1-0 at the conference tournament in Macomb, Ill. The second-seeded Jackrabbits advanced to the NCAA Division I College Cup where they beat Colorado in the first round before losing to regional host Minnesota.



The Student Wellness Center, a \$12.1-million facility funded primarily through student fees, opened its doors when students returned to campus in August. The 74,000-square-foot structure houses student intramurals, exercise regimes and student health clinic and counseling services.



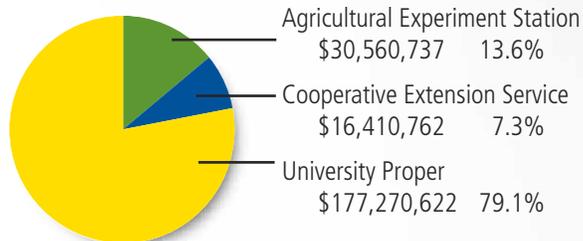
Denny Otsuga, Ph.D., hired in July, directs the Technology Transfer Office. Technology transfer is the process of moving discoveries from a university setting into further development and commercialization. The office assists other South Dakota universities with technology transfer through cooperative agreements.



Feng Li, associate professor of veterinary science, biology and microbiology, hopes to develop new antiviral tools to use against influenza. Li's team of researchers is working on a new test to discover molecule inhibitors that will work against the influenza virus. The research is funded primarily by the National Institutes of Health.



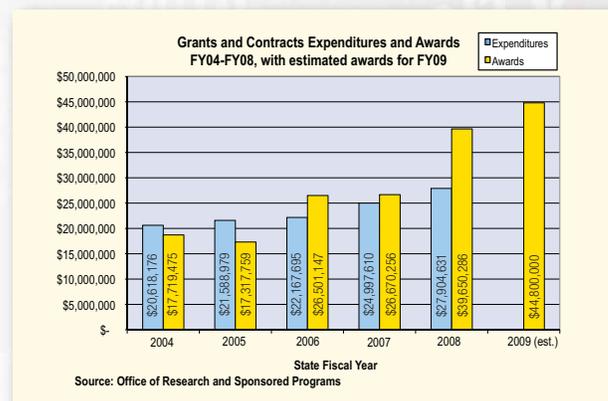
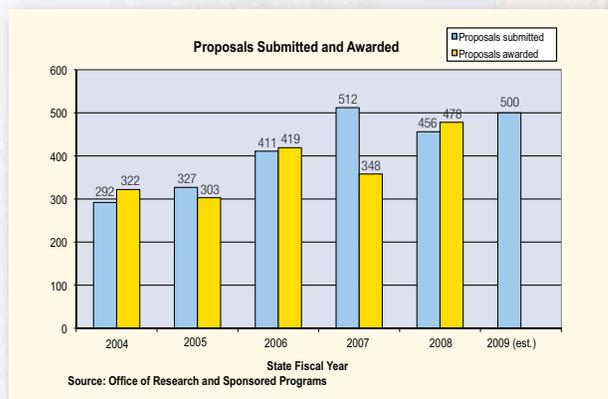
**Operating Budget (Fiscal Year 2009): By Agency \$224,242,121**



Comparing budget sources for FY09, tuition and student fees account for 52.4 percent of the cost of instruction, and state general funds cover the remaining 47.6 percent.

**Research Investments: Driving Technology-Based Economic Development**

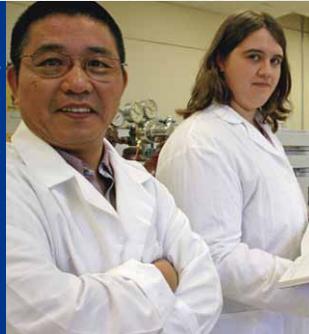
- New state-funded Ph.D. programs in computational sciences and statistics, electrical engineering and pharmaceutical sciences and the recently approved degree in nutritional sciences are having an impact.
- New Ph.D. programs have enabled collaborations with Mayo Clinic, Avera Health, Sanford Health, Argonne National Laboratory, the National Institutes of Health, the Department of Defense, Radiant Technologies and the financial services sector.
- In FY09 253 Ph.D. students were enrolled, an increase of 83.3 percent above the 138 enrolled in FY04; 37 students were enrolled in the new Ph.D. programs in FY09.
- Grant and contract research awards were \$39.65 million in FY08 and are forecast to be \$44.8 million in FY09, up 117 percent from FY04.
- Faculty submitted 456 proposals in FY08, up an average of 12 percent per year from FY04; the strategic goal is 1,000 submissions by FY12.
- The university leads or collaborates on four 2010 Centers — Infectious Disease Research and Vaccinology, Bioprocessing Research and Development, Drought Tolerance Biotechnology, and Research and Development of Light-Activated Materials.
- The new Technology Transfer Office leads the process to commercialize university research-derived intellectual property from all public universities under a cooperative memorandum of understanding.



The Innovation Center, a technology business incubator, opened in November 2008 as the first building on the 125-acre Innovation Campus, the state's only university-affiliated research park, developed and operated by Growth Partnership Inc.



Professor Xiangming Guan, left, and assistant professor Teresa Seefeldt are developing ways to improve cancer therapy through "stressing" cancer. The researchers say when cancer cells are tired out, they are easier to kill using free radicals, the basic mechanism behind radiation and some chemotherapy drugs. The research is funded primarily by the National Institutes of Health.



The SDSU Foundation Council of Trustees in April 2008 endorsed a comprehensive campaign — now titled “It Starts with STATE” — with a working goal of \$190 million. The campaign emphasizes endowed faculty chairs and professorships, student support, capital projects, athletics and funds for excellence. To date, 14,540 unique donors have committed \$75 million to the campaign — more than 39 percent of the working goal. Hundreds of faculty, staff, students, alumni and friends have volunteered to work on the campaign.



**SOUTH DAKOTA STATE UNIVERSITY**

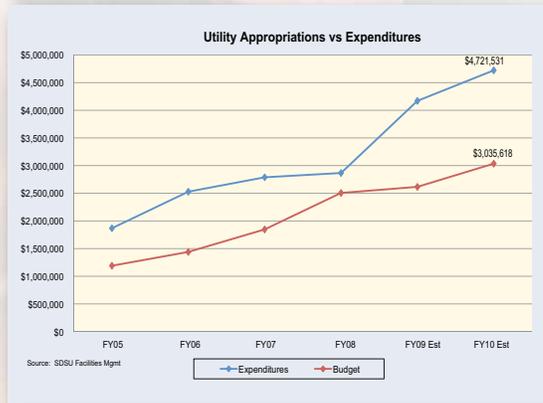
# South Dakota State University priorities for 2009

## Salary Policy

Competitive salaries are necessary to recruit and to retain outstanding faculty and staff.

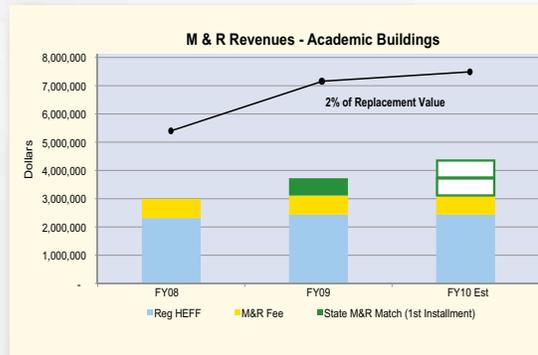
## Utilities

Utility expenses in academic buildings will be \$4,170,029 in FY09, according to forecasts, with \$2,616,029 in utility appropriations and \$1,554,000 in reallocations from the academic budget. The estimated difference in FY10 between utility costs and the appropriations will require \$1,685,913 in reallocations from the academic budget.



## Maintenance and Repair — Academic Buildings

A safe learning and working environment requires systematic maintenance of academic buildings. The industry standard for annual maintenance and repair is 2 percent of replacement costs. Student M&R fees and the first installment of the state match provided \$1,291,291 for academic buildings in FY09, about 1.25 percent of replacement costs. The second \$611,430 installment was requested for FY10 which would raise the total to about 1.5 percent of replacement costs.



## 21st-Century Technology

Research relies on a high-speed network, high-performance computing clusters and ample data storage capacity. It is critical for the REED network to be successful. Students today also expect modern connectivity. A plan to meet those expectations is being developed.

## Research Investment in Human Capital

The Regents' FY10 request for 16.5 research FTEs is the first step to increase research faculty across universities, as recommended by the 2008 AAAS report on the state's research infrastructure. Included in the request were 6.0 FTEs across biosciences, engineering, computational sciences, pharmacy and geospatial science for SDSU. The annual total economic impact of this \$872,000 investment is estimated at \$4,320,000.

## Spotlight actions planned for 2009

- Recruit new Provost, new Agriculture and Biological Sciences Dean and new Director of Athletics.
- Complete \$4.9 million in maintenance and repair projects; finalize funding for Avera Health and Science Center; complete Dykhouse Student–Athlete Center phase I and recruit one privately developed building into Innovation Campus.
- Achieve 10-year reaccreditation by the Higher Learning Commission and accreditation for undergraduate degrees in health promotion, hospitality management, landscape design build specialization and software engineering; implement doctor of nursing practice professional degree; launch architecture program and create a new college from two existing colleges and related programs.

Barbara Condon in December 2008 became the first Ph.D. nursing graduate. Condon is on the nursing faculty at Briar Cliff University in Sioux City, Iowa.



The Summit League will hold the first NCAA Division I basketball tournaments in South Dakota when its top eight men's and women's teams play in March 2009 in Sioux Falls. The two winners receive automatic bids to the NCAA Division I tournaments. The Summit League games, also scheduled for Sioux Falls in 2010, will be broadcast by ESPN.





## Cooperative Extension Service

### 2009 Priorities

The weakening economy is the top concern of all South Dakotans, and the top priority of the Cooperative Extension Service. In light of the tremendous economic challenges facing our state, Cooperative Extension will:

- Organize Extension educators and specialists into issue-based programming teams, lead by program liaisons, to address emerging issues and provide high-impact programs.
- Increase the use of cost-saving technology in staff development and community education.

### Program Areas and Impact

Cooperative Extension offers educational programs in agriculture and natural resources, 4-H/youth development, family and consumer sciences, and community innovation and leadership.

Rising food and fuel costs are having a major impact on South Dakotans. Fuel costs increased 131 percent from 2001 to 2008. During the summer of 2008, the College of Agriculture and Biological Sciences and Cooperative Extension implemented three task forces to respond immediately to the tremendous economic changes facing our state. This effort was focused in family resource management, animal agriculture and plant agriculture.

#### Agriculture and Natural Resources

- From 2005 to 2008, wheat producers increased their uses of recommended spring wheat varieties by more than 35 percent, increasing production by 5.8 bushels per acre. With a price of \$7.25 per bushel of spring wheat, South Dakota wheat producers gained \$73.5 million through better variety selection.
- Beef producers learned skills to use drylotting as a viable option to maintaining long-term cow herd sustainability. One year after participating in the Extension program, 41 percent of the producers reported increases in profits of more than \$2,500 per producer.
- South Dakota family farm operations will save an average of \$10 million in estate taxes based on the changes they have made to their estate plan following their participation in estate planning workshops coordinated by Cooperative Extension.

#### Family and Consumer Sciences

- South Dakota has the highest percent of working mothers in the nation, with 77.5 percent of mothers with children ages birth to six years in the workforce. In South Dakota, 47 percent of all children under the ages of six

are in childcare, which is nearly twice the national average and more per capita than any other state in the nation. Cooperative Extension offered childcare provider workshops to address licensing requirements established by the Department of Social Services. More than 96 percent of childcare providers indicated they would adopt conflict management practices, have a greater understanding of early development of children, and were able to lower the stress level in their day care.

#### Community Innovation and Leadership

- Extension is transforming community development skills of rural leaders through the Creating a Value-Added Community program. In 17 communities across South Dakota, new leaders have stepped forward to create regional revolving loan funds, development of community marketing materials, expanding recreation and youth opportunities, community beautification, recycling, and diversity. Extension helped more than 1,200 South Dakotans design action plans for their communities.
- New Farmers Markets have opened in at least four South Dakota communities. Cooperative Extension provided workshops, advised vendors, and helped promote the concept of local markets through the "South Dakota Buy Fresh By Local" campaign.

#### 4-H/Youth Development

- Twenty-four percent of South Dakota's population is under the age of 18 years. 4-H programs teach young people to stay in school, learn life skills, citizenship, leadership and curiosity for science, engineering and technology.
- Young people who participated in a variety of financial management programs have learned the importance of budgeting, planning for the future and managing credit. More than half of the participants reported a better understanding of how credit works, and 50 percent started an emergency savings fund.

600 copies, College of Ag, \$ each. AG000 1-09





## Agricultural Experiment Station priorities for 2009

The South Dakota Agricultural Experiment Station is investing in the research infrastructure needed to assure a stronger future for South Dakota.

### A Strong Future for Crop Production

● Groundbreaking for the new \$6.5-million Seed Technology Building is scheduled for spring 2009. Funded by South Dakota commodity and industry groups, the facility will provide additional laboratory and seed quality testing resources.

● SDSU's Drought Tolerance Center has been established to speed the delivery of genetics from the laboratory to the farm gate, and develop public and private partnerships with the goal of commercialization.

● Genomics scientists from around the world are joining the SDSU faculty, strengthening applied molecular linkages.

### Impact

SDSU has improved crop profitability through the development of high-yielding varieties and sustainable agricultural practices. In a study from 1990 to 2005, changes in agricultural practices meant an increase of \$770 million for crop producers in the Central and North Central region of the state, based on 2008 prices.

### A Strong Future for Livestock Production

● Planned renovation of the dairy teaching and research facility and construction of a world-class dairy laboratory.

● SDSU is developing a Beef Innovation Complex that will be unique in the Midwest. As a multidisciplinary unit, it will facilitate production-oriented research and teaching in the areas of cow-calf, seedstock, and feedlot operations. Among the many unique features of the planned facility will be the ability to test concepts on small groups of livestock, and then test the feasibility of the concept in a production-sized beef herd.

### Impact

Thanks in part to Agricultural Research and Extension efforts supported by the Beef Checkoff, beef demand has increased almost 15 percent from 1998, adding nearly \$200 per head to the price of cattle.

### A Strong Future for Biofuels

● SDSU is one of the leading land-grant institutions in the nation for biofuel research.

● Building on the success of the Sun Grant Initiative, SDSU and the South Dakota School of Mines and Technology are founding members of the Industry/University Cooperative Research Center in Bioenergy. This is the only biomass energy center funded by the National Science Foundation. Corporate partners in this effort include: Archer Daniels Midland, General Motors, Northrup Grumman Corporation, Poet Energy, Syngenta Biotechnology, the U.S. Department of Energy, and the U.S. Office of Naval Research.

● SDSU is also a partner in a \$117-million grant from the U.S. Department of Energy to establish a demonstration-scale biorefinery.

### Impact

South Dakota ethanol plants produce 726 million gallons of ethanol each year, or 8.5 percent of the nation's supply of ethanol. For each dollar of ethanol produced, the ethanol industry generates about 10 cents of new local income.

The Agricultural Experiment Station pursues identified five multidisciplinary areas of excellence:

1. **Biorenewable energy economic development**
2. **Applied genomic solutions**
3. **Natural resource stewardship**
4. **Community innovation and leadership**
5. **Enhancing grain/livestock/food system economic development**



# ACHIEVING NATIONAL DISTINCTION, STRENGTHENING LOCAL RELEVANCE

## THE SOUTH DAKOTA STATE UNIVERSITY PLAN, 2008-2012



### PERFORMANCE MEASUREMENTS

Progress will be reported using these indicators of performance:

- Student quality
- Graduation rate
- Retention rate
- Ph.D. degrees granted
- Student engagement
- Alumni satisfaction
- Event attendance
- Research expenditures
- Invention disclosures
- Degrees available via distance methods
- Students completing an internship or practicum
- Students, faculty and staff with international experience
- Percentage of alumni who are donors
- Number and value of gifts

“Achieving National Distinction, Strengthening Local Relevance” — the strategic plan for South Dakota State University — is a guide for decisions through 2012. Each college and unit has a plan, as well. Annual operating plans implement the strategic plans, fulfill the university’s mission and realize the vision.

#### MISSION

South Dakota State University will create a prosperous future for the people of South Dakota and their communities, and for the region and the nation, through excellence in education, in innovation and new knowledge creation and in putting knowledge to work.

#### VISION

South Dakota State University will be a nationally recognized, locally relevant, student-centered and accessible land-grant university.

#### Goal 1: Enhance academic excellence and strengthen scholarship and artistic activities.

This goal includes assuring access to higher education; improving excellence in student learning; recruiting and retaining high-performing students, faculty and staff; celebrating accomplishments; strengthening research, discovery and creative activities; supporting interdisciplinary scholarship; and achieving national recognition through spires of distinction.

#### Goal 2: Foster economic growth, vibrant communities, and a sustainable environment.

This goal includes contributing to local, state and regional economic growth by providing graduates with bachelor’s, master’s and Ph.D. degrees; encouraging innovation, creativity and inventiveness; driving science- and technology-based economic development through stronger research; encouraging the arts and humanities; and creating dynamic, sustainable communities.

#### Goal 3: Expand the reach of the university through engagement, technology and globalization.

This goal includes increasing collaborative activities; building a welcoming, inclusive and engaged campus; increasing student participation in service-learning, study abroad and civic engagement; assuring access through attendance centers and online delivery; and showcasing Division I intercollegiate athletic programs.

#### Goal 4: Establish a sustainable financial resource base.

This goal includes engaging stakeholders to recruit necessary sustainable resources (people, facilities, funds) to achieve national distinction; refreshing and expanding campus facilities; managing resources efficiently; increasing funds for research, scholarship and creative activities; and mobilizing the power of alumni, friends and sponsors.

South Dakota State University is a university of choice. As the university’s stewards, it is our responsibility to assure that State is a nationally distinct, locally relevant, student-centered and accessible land-grant university.

A handwritten signature in black ink that reads "David L. Chicoine".

David L. Chicoine, Ph.D.  
President





# South Dakota State University

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## DEGREES OFFERED

### Ph.D. Degrees:

- **Agronomy**
- **Animal Science**
- **Biological Sciences** with a specialization in one of the following:
  - Agricultural and Biosystems Engineering
  - Animal and Range Sciences
  - Biology
  - Dairy Science
  - Human Nutrition and Food Science
  - Microbiology
  - Molecular Biology
  - Plant Molecular Biology
  - Plant Science
  - Veterinary Microbiology
  - Veterinary Pathobiology
  
- **Chemistry**
- **Computational Science and Statistics\***
- **Electrical Engineering\***
- **Geospatial Science and Engineering**
- **Nursing**
- **Nutritional Sciences**
- **Pharmaceutical Sciences\***
- **Sociology**
- **Wildlife & Fisheries**

\*funded initially by special state appropriations

### Doctoral Degrees:

- **Doctor of Pharmacy (Pharm.D)**
- **Doctor of Nursing Practice (DNP)**

## Master's Degrees

### Master of Arts:

- English

### Master of Education:

- Curriculum and Instruction
- Educational Administration

### Master of Science:

- **Animal Science**
- **Biological Sciences** with a specialization in one of the following:
  - o Biology
  - o Dairy Science
  - o Food and Biomaterial Processing
  - o Horticultural Science
  - o Human Nutrition and Food Science
  - o Microbiology
  - o Pharmaceutical Sciences
  - o Veterinary Microbiology
  - o Veterinary Pathology
- **Chemistry**
- **Communication Studies and Journalism**
- **Counseling and Human Resources Development**
- **Economics**
- **Engineering, with emphasis in one of the following:**
  - o Agricultural and Biosystems Engineering
  - o Civil and Environmental Engineering
  - o Computer Science
  - o Electrical Engineering
  - o Mechanical Engineering
  - o Physics
- **Family and Consumer Sciences** with a specialization in one of the following:
  - o Child and Family Studies
  - o Family & Consumer Sciences Education through Great Plains IDEA
  - o Family Financial Planning through Great Plains IDEA
  - o Merchandising through Great Plains IDEA
  - o Nutrition and Food Science
- **Geography**
- **Health, Physical Education and Recreation**
- **Industrial Management (MSIM)**
- **Mathematics**
- **Nursing**
- **Plant Science**
- **Rural Sociology**
  - o Community Development through Great Plains IDEA
- **Statistics**
- **Wildlife & Fisheries**

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For more information on any of South Dakota State University's graduate programs, contact:

#### Graduate School

Mailing address: SDSU SAD 130, Box 2201 Phone: 605/688-4181  
Brookings, SD 57007-1998 Fax: 605/688-6167

E-mail: [sdsu\\_gradschool@sdstate.edu](mailto:sdsu_gradschool@sdstate.edu)  
<http://www3.sdstate.edu/Academics/GraduateSchool/Index.cfm>