



**SOUTH DAKOTA BOARD OF REGENTS  
ACADEMIC AFFAIRS FORMS**

**New Site Request**

<b>UNIVERSITY:</b>	<b>SDSU</b>
<b>DEGREE(S) AND PROGRAM:</b>	<b>Geographic Information Sciences Minor</b>
<b>NEW SITE(S):<sup>1</sup></b>	<b>Online</b>
<b>INTENDED DATE OF IMPLEMENTATION:</b>	<b>2019-2020 Academic Year</b>
<b>CIP CODE:</b>	<b>45.0702</b>
<b>UNIVERSITY DEPARTMENT:</b>	<b>Geography</b>
<b>UNIVERSITY DIVISION:</b>	<b>College of Natural Sciences</b>

**University Approval**

*To the Board of Regents and the Executive Director: I certify that I have read this proposal, that I believe it to be accurate, and that it has been evaluated and approved as provided by university policy.*

\_\_\_\_\_  
President of the University

10/17/2018

\_\_\_\_\_  
Date

**1. What is the need for offering the program at the new physical site or through distance delivery?**

South Dakota State University (SDSU) requests authorization to offer the existing minor in Geographic Information Sciences (GISc) online. This request is in response to students' needs, market demands, and an ever-changing society. The minor in Geographic Information Sciences prepares students to utilize their knowledge of geographic applications, and various geospatial technologies to meet the challenges of today's society. The minor includes the necessary courses to prepare graduates to function in fields which utilize geographic information science content and skills.

Projections from government agencies and market research firms indicate considerable growth of the geospatial technology industry as well as growth in GIS-related employment sectors and fields. The U.S. Department of Labor Employment and Training Administration (DOLETA), for example, cites an annual growth rate of approximately 35 percent for the geospatial technology industry, with reliable public sector revenue accounting for approximately one third

<sup>1</sup> If the request is for a new physical location, include an address for the location. Delivery methods are defined in [AAC Guideline 5.5](#).

of the industry's total annual receipts.<sup>2</sup> Likewise, P&S Market Research estimates a compound annual growth rate of 10.1 percent from 2017 to 2023 for the global GIS market.<sup>3</sup>

A particular highlight is the field of cartography and photogrammetry. According to the U.S. Department of Labor's Bureau of Labor Statistics (BLS), the field of cartography and photogrammetry is expected to grow much faster than average at 19% or by 2,400 jobs between 2016 and 2026. With a median salary over \$62,750, employment in jobs related to cartography and photogrammetry are excellent opportunities for recent university graduates who have GIS experience and specialization.<sup>4</sup>

In the last five years, many state agencies have incorporated geospatial technologies and have created new positions for GISc analysts, technicians, programmers and managers. Some South Dakota agencies that employ persons with GISc training include the Department of Game, Fish and Parks, Department of Transportation, Department of Environment and Natural Resources, and Department of Public Safety to name a few. In addition, Native American tribal governments, city planning departments, and regional planning agencies have created new positions for GISc specialists. Increasingly, there is a demand for GISc professionals in private industry within South Dakota. Surveying and engineering firms throughout the state routinely hire GISc professionals. EROS Data Center employs persons with remote sensing skills. A minor in Geographic Information Sciences will provide advanced training for individuals working in public and private industries throughout the state of South Dakota, the region and the United States. The South Dakota Department of Labor & Regulation<sup>5</sup> and Bureau of Labor Statistics (BLS)<sup>6</sup> predict employment growth in many of the anticipated occupations.

Delivery of the online minor in Geographic Information Sciences will support SDSU's *Imagine 2023* strategic plan.<sup>7</sup> The request supports the goal to "attain academic excellence" (Goal: Achieve Excellence Through Transformative Education). Specifically, it will:

- 1b. Develop and grow high-quality and distinct academic programs designed to meet the needs of diverse students and market demands;
- 1c. Increase programs offered which use a diversity of delivery methods, times, (or scheduling) and locations.

The College of Arts, Humanities and Social Sciences requires a majority of their students to complete a minor as a part of their program. The addition of online minors will support the growing number of programs available to students through online delivery.

SDSU will not require additional resources.

**2. Are any other Regental universities authorized to offer a similar program at the proposed site(s) or through distance delivery? If "yes," identify the institutions and programs and explain why authorization is requested.**

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<sup>2</sup>Employment and Training Administration, U.S. Department of Labor, *High Growth Industry Profile: Geospatial Technology*, on the internet [https://www.doleta.gov/brg/indprof/geospatial\\_profile.cfm](https://www.doleta.gov/brg/indprof/geospatial_profile.cfm) (visited February 2, 2018).

<sup>3</sup> P&S Marketing Research, on the internet at <https://www.psmarketresearch.com/press-release/global-geographic-information-system-market> (visited February 2, 2018).

<sup>4</sup> Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2017-18 Edition*, on the Internet at <https://www.bls.gov/ooh/architecture-and-engineering/cartographers-and-photogrammetrists.htm> (visited February 2, 2018).

<sup>5</sup> South Dakota Department of Labor and Regulations, *Employment Projections by Occupation*, on the internet at <https://www.southdakotaworks.org> (visited February 2, 2018).

<sup>6</sup> Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2017-18 Edition*, on the Internet at <https://www.bls.gov/ooh> (visited February 2, 2018).

<sup>7</sup> <https://www.sdstate.edu/imagine-2023-aspire-discover-achieve>

No. Along with SDSU, Northern State University is currently authorized to offer a Geographic Information Sciences minor and certificate. South Dakota School of Mines and Technology is authorized to offer a minor and certificate in Geospatial Technology. They are not authorized to offer their programs online.

**3. Are students enrolling in the program expected to be new to the university or redirected from other existing programs at the university? Complete the table below and explain the methodology used in developing the estimates.**

Students will either be new to the university or current SDSU students who want to complete the minor online. The online minor is expected to attract eight to twelve new students per year. Students and professionals like the flexibility of online programs that allow them to continue to live and work anywhere. It is not expected that the online minor will have much impact on the enrollments in face-to-face, on-campus courses. Students are already enrolling in the available courses. Over the past five years, five students received the GISc minor.

<i>Estimates</i>	<b>Fiscal Years*</b>			
	<b>1<sup>st</sup></b>	<b>2<sup>nd</sup></b>	<b>3<sup>rd</sup></b>	<b>4<sup>th</sup></b>
	<b>FY 20</b>	<b>FY 21</b>	<b>FY 22</b>	<b>FY 23</b>
Students new to the university	8	8	10	12
Students from other university programs	2	2	2	2
–Total students in the program at the site	10	16	23	28
Program credit hours (major courses)**	48	96	138	168
Graduates	0	3	7	12

\*Do not include current fiscal year.

\*\*This is the total number of credit hours generated by students in the program in the required or elective program courses. Use the same numbers in Appendix B – Budget.

**4. What is the perceived impact of this request on existing programs in the Regental system?**

Delivering the Geographic Information Sciences minor online is not expected to negatively impact enrollment in SDSU’s face-to-face, on-campus courses or enrollment in other regental institutions.

**5. Complete the table and explain any special circumstances. Attach a copy of the program as it appears in the current catalog. If there are corresponding program modifications requested, please attach the associated form. Explain the delivery of the new courses and attach any associated new course request forms.**

The curriculum for the Geographic Information Sciences Minor is provided in Appendix A. Students are currently registering for the courses that are delivered online. The Department offers online sections of GEOG 372-372L, GEOG 383-383L, GEOG 473-473L, GEOG 474-474L, GEOG 475-475L, and PLAN 471. As a part of ongoing development, GEOG 415 will have sections offered online during the next academic year.

<b>Minor in Geographical Information Sciences</b>	Credit hours	Credit hours currently available from this university online	Credit hours currently available from other universities available online	Credit hours new to this university
Minor Requirements	18	18	3	0
<i>Total, Degree with Proposed Major</i>	18			

\*If the major will be available in more than one degree (e.g., BA, BS, BS Ed) at the new site(s) and the number or distribution of credits will vary with the degree, provide a separate table for each degree.

**6. How will the university provide student services comparable to those available for students on the main campus?**

The student’s academic advisor will be available to assist them in pursuing the minor. Students are referred to the department head or a minor coordinator if one exists for questions regarding minors. A student services facilitator is housed in Continuing and Distance Education and is available to assist students in connecting to necessary resources on-campus and online or to assist with general questions regarding online courses.

Library support services will be available to students through a variety of means:

- Students can contact librarians for research assistance. The librarian provides on-line research guides and is available for consultations with faculty and students.
- Distance Library Services include book and article delivery for materials owned by the library. Students may request materials not held by the library through interlibrary loan.
- SDSU students have on-line access to research databases such as *Web of Science*, *EBSCOhost MegaFILE*, and *JSTOR*.

Other student services such as disability services accommodations will be available to students upon request.

**7. Is this program accredited by a specialized accrediting body? If so, address any program accreditation issues and costs related to offering the program at the new site(s).**

None

**8. Does the university request any exceptions to Board policy for delivery at the new site(s)? Explain requests for exceptions to Board policy.**

None

**9. Cost, Budget, and Resources related to new courses at the site: Explain the amount and source(s) of any one-time and continuing investments in personnel, professional development, release time, time redirected from other assignments, instructional technology & software, other operations and maintenance, facilities, etc., needed to implement the proposed minor. Complete Appendix B – Budget using the system form.**

The Department of Geography is not requesting additional faculty or equipment to offer the online minor in Geographic Information Sciences. The program will be funded by off-campus tuition revenue generated from online tuition. No additional resources are needed. Any addition of courses to meet growth will be met by off-campus tuition. It is anticipated that

additional revenue will result from more students completing the online courses and may average \$30,000 per year once the online minor is established.

## Appendix A

### Geographic Information Sciences Minor

Requirements for Geographic Information Sciences Minor: 18 Credits

#### Core Requirements

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Select four from the following courses. Credits: 12

- GEOG 372-372L - Introduction to GIS and Lab Credits: 3\*
- GEOG 473-473L - GIS: Data Creation and Integration and Lab Credits: 3 \*
- GEOG 474-474L - GIS: Vector and Raster Modeling and Lab Credits: 3 \*
- GEOG 475-475L - GIS Applications and Lab Credits: 3 \*
- GEOG 483-483L - Aerial Remote Sensing and Lab Credits: 3
- GEOG 484-484L - Remote Sensing and Lab Credits: 3

#### Electives

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Select two of the following courses. Credits: 6

- GEOG 365 - Land Use and Planning Credits: 3
- GEOG 383-383L - Cartography and Lab Credits: 3 \*
- GEOG 384-384L - Advanced Cartography and Lab Credits: 3
- GEOG 415 - Environmental Geography and Sustainability Credits: 3
- GEOG 485-485L - Quantitative Remote Sensing and Lab Credits: 3
- CSC 300 - Data Structures Credits: 3
- CEE 225 - Principles of Environmental Science and Engineering Credits: 3
- LA 342 - City Planning Credits: 3
- PLAN 471 - Principles of State, Regional and Community Planning Credits: 3 \*
- RANG 321 - Wildland Ecosystems Credits: 3

\*Courses offered online by SDSU.

#### Academic Requirements

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Students must earn at least a “C” in each course used to meet the minor requirements.