



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

**New Certificate**

Use this form to propose a certificate program at either the undergraduate or graduate level. A certificate program is a sequence, pattern, or group of academic credit courses that focus upon an area of specialized knowledge or information and develop a specific skill set. Certificate programs typically are a subset of the curriculum offered in degree programs, include previously approved courses, and involve 9-12 credit hours including prerequisites. In some cases, standards for licensure will state explicit requirements leading to certificate programs requiring more than 12 credit hours (in such cases, exceptions to course or credit requirements must be justified and approved). The Board of Regents, Executive Director, and/or their designees may request additional information about the proposal. After the university President approves the proposal, submit a signed copy to the Executive Director through the system Chief Academic Officer. Only post the New Certificate Form to the university website for review by other universities after approval by the Executive Director and Chief Academic Officer.

<b>UNIVERSITY:</b>	<b>DSU</b>
<b>TITLE OF PROPOSED CERTIFICATE:</b>	<b>Data Analytics</b>
<b>INTENDED DATE OF IMPLEMENTATION:</b>	<b>Fall 2019</b>
<b>PROPOSED CIP CODE:</b>	<b>11.0401</b>
<b>UNIVERSITY DEPARTMENT:</b>	<b>DBIS</b>
<b>UNIVERSITY DIVISION:</b>	<b>College of BIS</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.*

\_\_\_\_\_  
Institutional Approval Signature  
*President or Chief Academic Officer of the University*

\_\_\_\_\_  
1/22/2019  
Date

**1. Is this a graduate-level certificate or undergraduate-level certificate (place an "X" in the appropriate box)?**

Undergraduate Certificate  Graduate Certificate

**2. What is the nature/purpose of the proposed certificate?**

The format of this certificate allows for the accumulation of a specific set of courses to constitute a degree of content mastery and provide an area of academic specialization in data analytics. This certificate provides an adjunct area of study to the student's internship or applied experience. This certificate is intended to be taken by students in DSU's undergraduate Computer Information Systems (CIS) program and provides elective and support courses for the students. All the credits stack into the business analytics

specialization within the CIS degree program as either requirements or electives. It is also intended to enhance the applicant pool for the Master in Analytics program at DSU.

**3. Provide a justification for the certificate program, including the potential benefits to students and potential workforce demand for those who graduate with the credential.<sup>1</sup>**

Use of data analytics continues to grow in business and industry and, along with that growth, comes a need for individuals with training in the field. The certificate program proposed here equips students with the skill set needed to solve crucial data-driven business problems and assist with analytics-driven decision making. It provides a foundation for students in careers as business analyst, management analytics, marketing analyst, business intelligence/analytics developers, etc. The table below shows the South Dakota Department of Labor’s projections for some types of jobs our students would seek:

SOC Code	Occupational Title	Average Annual Demand for Workers	2014 Workers	2024 Workers	Percent Change 2014-2024	Average Annual Wage
13-1111	Management Analysts	60	2,662	2,893	8.7%	\$76,190
13-1161	Market Research Analysts and Marketing Specialists	19	576	692	20.1%	\$57,179

\*Available from [https://dlr.sd.gov/lmic/menu\\_projections.aspx](https://dlr.sd.gov/lmic/menu_projections.aspx).

**4. Who is the intended audience for the certificate program (including but not limited to the majors/degree programs from which students are expected)?**

It is expected that a number of DSU’s undergraduate students in information systems, business administration, and computer science may be interested in the certificate program, and those students (or undergraduate students from other SD institutions and across the nation) will provide the bulk of the enrollments.

**5. List the courses required for completion of the certificate in the table below (if any new courses are proposed for the certificate, please attach the new course requests to this form):<sup>2</sup>**

Prefix	Number	Course Title <i>(add or delete rows as needed)</i>	Credit Hours	New (yes, no)
CIS	123	Problem Solving and Programming OR	3	No
CIS	130	Visual Basic Programming OR		
CSC	150	Computer Science I		
CIS	372	Programming for Analytics	3	No

<sup>1</sup> For workforce related information, please provide data and examples; data sources may include but are not limited to the South Dakota Department of Labor, the US Bureau of Labor Statistics, Regental system dashboards, etc.

<sup>2</sup> Regental system certificate programs typically are a subset of the curriculum offered in degree programs, include existing courses, and involve 9-12 credits for completion. Deviations from these guidelines require justification and approval.

CIS	474	Business Intelligence and Big Data	3	No
CIS	484	Database Management Systems	3	No
Subtotal			12	

**6. Student Outcome and Demonstration of Individual Achievement.<sup>3</sup>**

**A. What specific knowledge and competencies, including technology competencies, will all students demonstrate before graduation?** *The knowledge and competencies should be specific to the program and not routinely expected of all university graduates.*

Upon graduation, graduates of the program will be able to:

- use information technology and computing languages to implement analytics solutions.
- select the appropriate analytics techniques and apply advanced analytical tools to solve data analytics problems.
- understand basic database concepts and apply database design principles such as ER diagrams and normalization to design and implement a database management system.
- retrieve data stored in a database using the Structured Query Language (SQL).
- prepare and transform Big Data sets into actionable information in an easy-to-understand format to support business decision making through the use of advanced data processing tools.
- communicate the results of the analysis to stakeholders in the optimal combination of graphical/visual and written/verbal means.

**B. Complete Appendix A – Outcomes using the system form.** *Outcomes discussed below should be the same as those in Appendix A.*

**7. Delivery Location.<sup>4</sup>**

**A. Complete the following charts to indicate if the university seeks authorization to deliver the entire program on campus, at any off-campus location (e.g., UC Sioux Falls, Capital University Center, Black Hills State University-Rapid City, etc.) or deliver the entire program through distance technology (e.g., as an on-line program)?**

	Yes/No	Intended Start Date
<b>On campus</b>	Yes	Fall 2018

	Yes/No	If Yes, list location(s)	Intended Start Date
<b>Off campus</b>	No		Choose an item. Choose an item.

<sup>3</sup> Board Policy 2:23 requires certificate programs to “have specifically defined student learning outcomes.”

<sup>4</sup> The accreditation requirements of the Higher Learning Commission (HLC) require Board approval for a university to offer programs off-campus and through distance delivery.

	Yes/No	If Yes, identify delivery methods <sup>5</sup>	Intended Start Date
<b>Distance Delivery (online/other distance delivery methods)</b>	Yes	018 – Internet Synchronous	<b>Fall 2019</b>

**B. Complete the following chart to indicate if the university seeks authorization to deliver more than 50% but less than 100% of the certificate through distance learning (e.g., as an on-line program)?<sup>6</sup>**

	Yes/No	If Yes, identify delivery methods	Intended Start Date
<b>Distance Delivery (online/other distance delivery methods)</b>	No		Choose an item. Choose an item.

**8. Additional Information:** *Additional information is optional. Use this space to provide pertinent information not requested above. Limit the number and length of additional attachments. Identify all attachments with capital letters. Letters of support are not necessary and are rarely included with Board materials. The University may include responses to questions from the Board or the Executive Director as appendices to the original proposal where applicable. Delete this item if not used.*

<sup>5</sup> Delivery methods are defined in [AAC Guideline 5.5](#).

<sup>6</sup> This question responds to HLC definitions for distance delivery.

## APPENDIX A

<b>Individual Student Outcomes and Program Courses</b>					
	List specific individual student outcomes—knowledge and competencies—in each row. Label each column with a course prefix and number. Indicate required courses with an asterisk (*). Indicate with an X the courses that will provide the student with an opportunity to acquire the knowledge or competency listed in the row. All students should acquire the program knowledge and competencies regardless of the electives selected. Modify the table as necessary to provide the requested information for the proposed program.				
<b><i>Individual Student Outcome</i></b>	CIS 123 CIS 130 CSC 150 1 required *	CIS 372*	CIS 474*	CIS 484*	
use information technology and computing languages to implement analytics solutions.	X	X			
select the appropriate analytics techniques and apply advanced analytical tools to solve data analytics problems.		X			
understand basic database concepts and apply database design principles such as ER diagrams and normalization to design and implement a database management system.				X	
retrieve data stored in a database using the Structured Query Language (SQL).				X	
prepare and transform Big Data sets into actionable information in an easy-to-understand format to support business decision making through the use of advanced data processing tools.			X		
communicate the results of the analysis to stakeholders in the optimal combination of graphical/visual and written/verbal means.			X		