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.

UNIVERSITY:	DSU
TITLE OF PROPOSED CERTIFICATE:	**Healthcare Data Analytics Certificate**
INTENDED DATE OF IMPLEMENTATION:	**Fall 2019**
PROPOSED CIP CODE:	**51.2706**
UNIVERSITY DEPARTMENT:	**Health Information Management**
UNIVERSITY DIVISION:	**College of BIS**

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.

	10/11/2018
Institutional Approval Signature	Date
President or Chief Academic Officer of the University	

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 certificate program will introduce learners to health data analysis tools and methods used to perform healthcare data analytics functions. The certificate is geared toward workers that already have a bachelor's degree and are working professionals that intend to move into the healthcare data analytics field to research specific questions using electronic health record data to produce reports with visualization display techniques. Six of the twelve credits in the certificate stack to the MS in Health Informatics and Information Management and the other six credits stack to the MS in Analytics program.

USD's undergraduate health analytics certificate is aimed at Health Sciences majors who want to enhance their credentials with specialty knowledge in analytical methods. DSU's graduate certificate in health data analytics are aimed at working professionals with backgrounds in any major interested in learning to utilize research, statistics and data visualization skills to inform decision-making without the desire to complete an undergraduate certificate.

The certificate program is an option for students not desiring an undergraduate certificate in health data analytics who may already have a bachelor's degree. It may serve as an entry into Master's programs in either of the two degrees to which it stacks upon, the Master of Science in Health Informatics and Information Management and the Master of Science in Analytics.

DSU is working toward CAHIIM accreditation of the MSHIIM program, which includes requirements for health data analytics that are being met with graduate courses already available at DSU. According to Gabriel and Cortelyou-Ward *(2018), "The American Health Information Management Association (AHIMA) master's degree competencies include nine domains covering a variety of core competencies, including Health Data Analytics. This domain specifies that graduates should be able to utilize tools to transform health data to improve decision-making and optimize health. This focus on the ability to work with complex data indicates the importance of students' graduating with the skills necessary to work with complex data sets", Educational Perspectives in Health Informatics Information Management*, Spring 2018 (p. 2).

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.**[1]

Healthcare workers have a huge challenge to decrease costs in healthcare and to provide quality care and services to patients. Individuals who have a bachelors degree and three years of health data analytics experience will be eligible to sit for the Certified Health Data Analytics certification exam to achieve recognition of their expertise in health data analysis and validation of their mastery of this domain. The graduate level certificate in health data analytics will help in preparing students who are interested in achieving the CHDA credential.

According to AHIMA, this prestigious certification provides practitioners with the knowledge to acquire, manage, analyze, interpret, and transform data into accurate, consistent, and timely information, while balancing the "big picture" strategic vision with day-to-day details. CHDA-credentialed professionals exhibit broad organizational knowledge and the ability to communicate with individuals and groups at multiple levels, both internal and external.

In addition, projections for management analysts are expected to grow by 14% during the same time period.

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[1] 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.

Technicians, on the Internet at https://www.bls.gov/ooh/math/operations-research-analysts.htm#tab-6

Employment projections data for management analysts, 2016-26

Occupational Title	SOC Code	Employment, 2016	Projected Employment, 2026	Change, 2016-26	
				Percent	Numeric
Management analysts	13-1111	806,400	921,600	14	115,200

SOURCE: U.S. Bureau of Labor Statistics, Employment Projections program

The United States Department of Labor: Bureau of Labor Statistics identifies that the operations research analysts job outlook for 2016-2026 is much faster than average (27%), with a 2016 median pay of $79,200. Employment is expected to increase by 31,300 from the period of 2016-2026.[4] Specific data for South Dakota is not available on the United States Department of Labor: Bureau of Labor Statistics projections website in the operations research analysts job outlook for 2016-2026.

South Dakota projections for hospitals in South Dakota are shown in the table below. The health data analyst profession is in the formation stage and job titles may also be called business intelligence analysts, clinical intelligence analysts or health data specialists.

# Industry Profile for Hospitals in South Dakota

Long Term Industry Projections Table

The table below shows the long term industry projections for Hospitals in South Dakota with an estimated growth in hospital workers by 2,798 between 2014 and 2024.

Industry	2014 Estimated Employment	2024 Projected Employment	Total 2014-2024 Employment Change	Total Annual Average Employment Change	Total 2014 - 2024 Percent Change	Total Annual Percent Change
Hospitals	25,013	27,811	2,798	280	11.19%	1.07%

Source: Labor Market Information Center, SD Dept. of Labor & Regulation
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The Health Information Management Systems Society (HIMSS) convention planned for February 2019 includes 110 of 922 vendors offering healthcare data analytics products to attendees. In addition to offering workforce opportunities, this demonstrates there is a need in healthcare to have users trained to properly utilize the data analytics products including clinical, financial, administrative staff and others. This certificate program targets two types of professionals: 1. Vendor support workforce and 2. Healthcare professionals using data analytics applications in performing their duties.
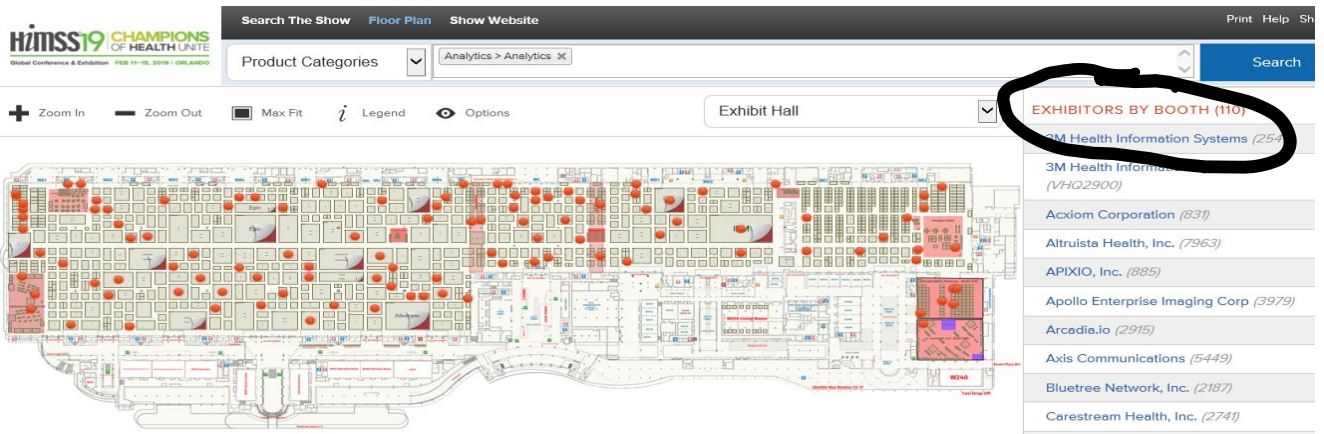
The list of vendors offering products to the healthcare market are included below:

3M Health Information Systems	Informatica	Roche Diagnostics Corporation
Acxiom Corporation	Information Builders	Salesforce
Altruista Health, Inc.	IQVIA	SAP America
APIXIO, Inc.	iWT health	SAS Institute Inc.
Apollo Enterprise Imaging Corp	Jellyfish Health	ScImage
Arcadia.io	Kronos	Skytron
Axis Communications	Leidos	SNOMED International
Bluetree Network, Inc.	LexisNexis	SONIFI Health
Carestream Health, Inc.	Lightbeam Health Solutions	Spacelabs Healthcare
Cognosante	Linguamatics	Spectramedix
Compulink Healthcare Solutions	Looker	SPH Analytics
Conduent	M*Modal	Strata Decision Technology
ConnectiveRx	ManTech	Tableau Software
CPSI	MDClone	Talix
dashboardMD, Inc.	MedeAnalytics	TeleTracking Technologies
Definitive Healthcare, LLC	MEDITECH	Verato
Dell EMC	Modernizing Medicine	Vital, A Canon Group
Draeger, Inc.	National Government Services	VitalConnect
Elsevier	NCI, Inc.	Vizient
emids	NetScout Systems, Inc.	Voalte
ePlus Technology	Nordic	Vocera Communications, Inc.
First Databank (FDB)	Nuance Communications	XIFIN, Inc.
Geneia	Nutanix	ZIPARI
Health Catalyst	Oneview Healthcare	
Health Management Technology	Optum	
Healthjump	physIQ	
Healthwise	Provation	
Hmatix Inc.	Quartz Clinical	
IBM	Reaction Data	
ICU Medical	Red Hat	
IMO-Intelligent Medical Objects Inc.	Relias	
Impinj	Revspring, Inc.	

Sonifi Health is a South Dakota vendor, also a member of the MSHIIM Program Advisory Board advocating for more professionals being trained in health data analytics relating experiences to the advisory board about not being able to fill a position for more than a year for a health data analyst.

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

   The primary audience for the certificate program includes healthcare, business and IT professionals wanting to learn additional information about healthcare data analytics to utilize information for decision making in new ways and the secondary audience may be professionals hoping to learn to provide support for various data analytics software products.

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):[2]**

Prefix	Number	Course Title *(add or delete rows as needed)*	Credit Hours	New (yes, no)
HIMS	701	Foundations in Healthcare Information	3	No
HIMS	744	Data Analytics in Healthcare[1]	3	No
INFS	768	Predictive modeling	3	No
INFS	776	Business Intelligence and Visualization	3	No
		Subtotal	12	

Prerequisite courses are listed below:
[1] INFS 608 Applied Statistics (3 credits) This course may be required of students who do not meet the knowledge requirements in information systems and healthcare delivery fundamentals. The majority of students are not expected to need to take any courses to meet the knowledge requirements.

6. **Student Outcome and Demonstration of Individual Achievement.[3]**

   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 completion of the program, students will be able to:
   - Construct information system capabilities
   - Design data sources for intelligence extraction
   - Create business intelligence through data analytics
   - Create data visualization techniques
   - Create statistical business models to leverage enterprise wide information assets

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

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.
Board Policy 2:23 requires certificate programs to "have specifically defined student learning outcomes."

[5]https://www.southdakotaworks.org/vosnet/lmi/profiles/profileDetails.aspx?session=inddetail&valueName=industry&section=empProjections

7. **Delivery Location.**[6]

   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*
On campus	No	Choose an item. Choose an item.

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

	Yes/No	*If Yes, identify delivery methods[4]*	*Intended Start Date*
Distance Delivery (online/other distance delivery methods)	Yes	Online	**Fall 2019**

   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)?** [5]

	Yes/No	*If Yes, identify delivery methods*	*Intended Start Date*
Distance Delivery (online/other distance delivery methods)	Yes	Online	Choose an item. **2018**

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.*

The two HIMS classes will stack in to the Master of Science in Health Informatics and Information Management. The remaining two INFS classes will stack into the Masters in Data Analytics program.

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[6] Delivery methods are defined in AAC Guideline 5.5.
[7] This question responds to HLC definitions for distance delivery.

APPENDIX A

<table>
<tr><td colspan="5" align="center">Individual Student Outcomes and Program Courses</td></tr>
<tr><td colspan="5">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.</td></tr>
<tr><td>Individual Student Outcome</td><td>HIMS 701</td><td>HIMS 744</td><td>INFS 768</td><td>INFS 776</td></tr>
<tr><td>Understand fundamental principles of healthcare information infrastructure</td><td>X</td><td></td><td></td><td></td></tr>
<tr><td>Design data sources for intelligence extraction</td><td></td><td>X</td><td></td><td></td></tr>
<tr><td>Create business intelligence through data analytics</td><td></td><td>X</td><td>X</td><td></td></tr>
<tr><td>Create data visualization techniques</td><td></td><td></td><td></td><td>X</td></tr>
<tr><td>Create statistical business models to leverage enterprise wide information assets</td><td></td><td></td><td>X</td><td></td></tr>
</table>

Program Forms: New Certificate Form (Last Revised 05/2017)