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:	SDSM&T
TITLE OF PROPOSED CERTIFICATE:	**Gateway to STEM**
INTENDED DATE OF IMPLEMENTATION:	**Fall 2025**
PROPOSED CIP CODE:	**30.1801**
UNIVERSITY DEPARTMENT:	**BHSU – TBD** **DSU – TBD** **NSU – Science & Mathematics** **SDSMT – TBD** **SDSU – Department of Chemistry, Biochemistry, and Physics** **USD - TBD**
BANNER DEPARTMENT CODE:	**BHSU – TBD** **DSU – TBD** **NSU - NSCM** **SDSMT – TBD** **SDSU – SCBP** **USD – TBD**
UNIVERSITY DIVISION:	**BHSU – TBD** **DSU – TBD** **NSU – College of Arts and Sciences** **SDSMT – TBD** **SDSU – College of Natural Sciences** **USD - TBD**
BANNER DIVISION CODE:	**BHSU – TBD** **DSU – TBD** **NSU – 5A** **SDSMT – TBD** **SDSU – 3T** **USD - TBD**

☒ **Please check this box to confirm that:**

- The individual preparing this request has read AAC Guideline 2.3.2.2.C, which pertains to new certificate requests, and that this request meets the requirements outlined in the guidelines.
- This request will not be posted to the university website for review of the Academic Affairs Committee until it is approved by the Executive Director and Chief Academic Officer.

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.

Michael Wanous
_____   2/18/2025
Institutional Approval Signature   Date
President or Chief Academic Officer of the University

Note: In the responses below, references to external sources, including data sources, should be documented with a footnote (including web addresses where applicable).

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? Please include a brief (1-2 sentence) description of the academic field in this certificate.**

    This certificate provides an opportunity to engage South Dakota high school students about potential future careers in science, technology, engineering, and mathematics (STEM) fields. The Gateway to STEM certificate will serve to provide knowledge about the variety of STEM degree programs within South Dakota Regental Institutions and allow them to explore courses in science, technology, and mathematics.

3. **If you do not have a major in this field, explain how the proposed certificate relates to your university mission and strategic plan, and to the current Board of Regents Strategic Plan 2014-2020.**

    All regental institutions offer coursework in science, technology, and mathematics. The courses in the certificate could be applied to many majors.

4. **Provide a justification for the certificate program, including the potential benefits to students and potential workforce demand for those who graduate with the credential.**

    The Gateway to STEM certificate will serve to generate interest in STEM careers by providing opportunities to South Dakota high school students to explore the various disciplines within STEM.

U.S. Bureau of Labor Statistics data indicate that employment in STEM occupations is projected to grow 10.8% nationwide between 2022 and 2032. This expected employment growth far outpaces total employment growth in all occupations of 2.8%. The South Dakota Department of Labor and Regulation indicates that there are 573 current job openings in Architecture and Engineering occupations statewide with an average annual salary of $83,883; there are 313 current job openings for Computer and Mathematics occupations statewide with an average salary of $74,889. Additionally, the SD Governor's Office of Economic Development focuses on six key industries, most of which have a direct connection to STEM.

These national employment projections and statewide job openings document a need to development opportunities to develop the STEM talent pipeline, which this STEM Foundations certificate will serve to do.

USBLS: https://www.bls.gov/emp/tables/stem-employment.htm
SD DLR:
https://www.southdakotaworks.org/vosnet/analyzer/JobTrends.aspx?enc=JrcV0frE3SRughxbYzs6GENcZKGOsCBTC0umWNIOwPo=

5. **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 intended audience for this certificate program, is high school students in South Dakota.

6. **Certificate Design**
   A. **Is the certificate designed as a stand-alone education credential option for students not seeking additional credentials (i.e., a bachelor's or master's degree)? If so, what areas of high workforce demand or specialized body of knowledge will be addressed through this certificate?**

      No.

   B. **Is the certificate a value added credential that supplements a student's major field of study? If so, list the majors/programs from which students would most benefit from adding the certificate.**

      No.

   C. **Is the certificate a stackable credential with credits that apply to a higher level credential (i.e., associate, bachelor's, or master's degree)? If so, indicate the program(s) to which the certificate stacks and the number of credits from the certificate that can be applied to the program.**

      The certificate is stackable for any student who pursues a STEM-related major at the associate or baccalaureate level.

7. **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).** *Certificate programs by design are limited in the number of credit hours required for completion. Certificate programs consist of nine (9) to twelve (12) credit hours, including prerequisite courses. In addition, certificates typically involve existing courses. If the curriculum consists of more than twelve (12) credit hours (including prerequisites) or includes new courses, please provide explanation and justification below.*

Prefix	Number	Course Title *(add or delete rows as needed)*	Prerequisites for Course *Include credits for prerequisites in subtotal below.*	Credit Hours	New (yes, no)
Select one science course from the following list:					
BIOL	151/151L	General Biology I w/Lab	None	4	No
CHEM	112/112L	General Chemistry I w/Lab	MATH 114	4	No
PHYS	207/207L	Fundamentals of Physics I w/Lab	MATH 123	4	No
PHYS	211/211L	University Physics I w/Lab	MATH 123 or 125	5	No
Select one math course from the following list:					
MATH	114 or higher			3	No
Select one course from the following list:					
CSC	150/150L	Computer Science I	None	3	No
CSC	170/170L	Programming for Engineers and Scientists	MATH 123	3	No
CSC	115	Test-Driven Software Development	MATH 123	3	No
		OR select a second science or math course from the lists above		3-5	No
			Subtotal	10-13	

8. **Student Outcome and Demonstration of Individual Achievement.** *Board Policy 2:23 requires certificate programs to "have specifically defined student learning outcomes.*

   A. **What specific knowledge and competencies, including technology competencies, will all students demonstrate before graduation**?
   - Problem Solving: Students will define a problem and apply appropriate techniques to obtain valid solutions.
   - Critical Thinking: Systematically explore and investigate complex issues to develop well-supported conclusions.
   - Inquiry and Analysis: Analyze available facts, evidence, and observations and apply rational, unbiased analysis to form judgements.

B. Complete the table below to list specific learning outcomes – knowledge and competencies – for courses in the proposed program in each row.

Student Learning Outcomes (Same as in the text of the proposal)	Program Courses that Address the Outcomes		
	Math courses	Science courses	Computer science courses
Students will define a problem and apply appropriate techniques to obtain valid solutions.	X	X	X
Analyze available facts, evidence, and observations and apply rational, unbiased analysis to form judgements.	X	X	
Systematically explore and investigate complex issues to develop well-supported conclusions.		X	

9. **Delivery Location.** *Note: The accreditation requirements of the Higher Learning Commission (HLC) require Board approval for a university to offer programs off-campus and through distance delivery.*

   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., USD Community College for Sioux Falls, Black Hills State University-Rapid City, Capital City Campus, etc.) or deliver the entire program through distance technology (e.g., as an on-line program)?**

	Yes/No	*Intended Start Date*	
On campus	Yes	**Fall 2025**	

	Yes/No	*If Yes, list location(s)*	*Intended Start Date*
Off campus	Yes	In-district, where approved	**Fall 2025**

	Yes/No	*If Yes, identify delivery methods* Delivery methods are defined in AAC Guideline 2.4.3.B.	*Intended Start Date*
Distance Delivery (online/other distance delivery methods)	Yes		**Fall 2025**
Does another BOR institution already have authorization to offer the program online?	No	**If yes, identify institutions:**	

   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)?** *This question responds to HLC definitions for distance delivery.*

	Yes/No	*If Yes, identify delivery methods*	*Intended Start Date*
Distance Delivery (online/other distance delivery methods)	Yes	Online Synchronous Online Asynchronous Receive Site Send Site Hybrid Online Hybrid Face-to-Face	**Fall 2025**

10. Additional Information: