

**SOUTH DAKOTA BOARD OF REGENTS**

**Academic and Student Affairs**  
**Consent**

**AGENDA ITEM: 5 – E (1)**  
**DATE: May 11, 2021**

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**SUBJECT**

**New Specialization: DSU Specialization in Integrative Biology**

**CONTROLLING STATUTE, RULE, OR POLICY**

[BOR Policy 2:23](#) – Program and Curriculum Approval

**BACKGROUND / DISCUSSION**

Dakota State University (DSU) requests authorization to offer a specialization in Integrative Biology within the BS in Biology. DSU is proposing to combine the Bachelor of Science in Biology and the Bachelor of Science in Biology Education majors, and then package the existing courses into a 21-hour Biology core and two specializations (Integrative Biology or Biology Education). The goal of the specialization in Integrative Biology is to prepare graduates to become employees for the science-based industries, medical fields, and agencies that use modern technology. This program provides an excellent background in computer science/information systems technology, as well as a solid foundation in biology, supporting sciences, and mathematics. This program also provides an excellent foundation for persons wishing to pursue a specialized professional career such as medicine, dentistry, etc. or to obtain advanced education in the health fields or biological sciences.

**IMPACT AND RECOMMENDATION**

DSU requests authorization to offer the specialization on campus. The specialization will not require the creation of any new courses. DSU is not requesting additional state resources to offer the program.

Board office staff recommends approval of the program.

**ATTACHMENTS**

Attachment I – New Specialization Request Form: DSU – Integrative Biology

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**DRAFT MOTION 20210511\_5-E(1):**

I move to authorize DSU to offer a specialization in Integrative Biology within the BS in Biology, as presented.



## SOUTH DAKOTA BOARD OF REGENTS ACADEMIC AFFAIRS FORMS

### New Specialization

<b>UNIVERSITY:</b>	DSU
<b>TITLE OF PROPOSED SPECIALIZATION:</b>	<b>Integrative Biology</b>
<b>NAME OF DEGREE PROGRAM IN WHICH SPECIALIZATION IS OFFERED:</b>	<b>B.S. in Biology</b>
<b>INTENDED DATE OF IMPLEMENTATION:</b>	<b>5/10/2021</b>
<b>PROPOSED CIP CODE:</b>	<b>26.9999</b>
<b>UNIVERSITY DEPARTMENT:</b>	<b>College of Arts and Science</b>
<b>BANNER DEPARTMENT CODE:</b>	<b>DSCI</b>
<b>UNIVERSITY DIVISION:</b>	<b>DAS</b>
<b>BANNER DIVISION CODE:</b>	<b>DSCI</b>

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

- The individual preparing this request has read [AAC Guideline 2.6](#), which pertains to new specialization 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.*

\_\_\_\_\_  
Institutional Approval Signature

*President or Chief Academic Officer of the University*

\_\_\_\_\_  
1/27/2021

Date

#### 1. Level of the Specialization (*place an "X" in the appropriate box*):

Baccalaureate       Master's       Doctoral

#### 2. What is the nature/purpose of the proposed specialization?

The university is proposing to combine the Bachelor of Science in Biology and the Bachelor of Science in Biology Education majors, take the existing courses and package them into a 21-hour core and two specializations (Integrative Biology or English Education). The goal of the specialization in Integrative Biology is to prepare graduates to become employees for the science-based industries, medial fields, and agencies that use modern technology. This program provides an excellent background in computer science/information systems technology as well as a solid

foundation in biology, supporting sciences and mathematics. This program also provides an excellent foundation for persons wishing to pursue a specialized professional career such as medicine, dentistry, etc. or to obtain advanced education in the health fields or biological sciences.

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

This specialization is the current the Bachelor of Science in Biology major offered by Dakota State University. Instead of having two different undergraduate Biology programs, DSU is proposing to combine the two programs under one umbrella. Enrollment numbers for Biology range from 25-30 students over the last 5 years. South Dakota Occupational Employment Projections for 2019-2021 project a 3.6% job growth in the Biological Technician; 3.6% job growth in Environmental Sciences and 6.8% growth in the Medical Sciences.<sup>1</sup>

<sup>1</sup> [https://dlr.sd.gov/lmic/menu\\_projections.aspx](https://dlr.sd.gov/lmic/menu_projections.aspx)

**4. List the proposed curriculum for the specialization (including the requirements for completing the major – *highlight courses in the specialization*):**

Prefix	Number	Course Title (add or delete rows as needed)	Credit Hours	New (yes, no)
<b>Biology Component</b>			<b>19</b>	
BIOL	343	Cell and Molecular Biology	4	no
BIOL	343L	Cell and Molecular Biology Lab	0	no
Choose 15 credits from the following:			15	
BIOL	325	Physiology	4	no
BIOL	325L	Physiology Lab	0	no
BIOL	365	Vertebrate Zoology	4	no
BIOL	365L	Vertebrate Zoology	0	no
BIOL	410	Conservation Biology	3	no
BIOL	422	Immunology	3-4	no
BIOL	442L	Immunology Lab	0-1	no
BIOL	450	Aquatic Biology	4	no
BIOL	450L	Aquatic Biology Lab	0	no
BIOL	492	Topics* May be repeated	1-4	no
<b>Math and Science Support Component</b>			<b>22</b>	
Note: Students planning to pursue a career in medicine or health professions are encouraged to take CHEM 326, CHEM 460, CHEM 492, MATH 123 or MATH 201, PHYS 111 or 211 and PHYS 113 or 213				
CHEM	112	General Chemistry	4	no
CHEM	112L	General Chemistry Lab	0	no
CHEM	114	General Chemistry II	4	no
CHEM	114L	General Chemistry II Lab	0	no
MATH	281	Introduction to Statistics	3	no
Choose 11 credits from the following:			11	
CHEM	326	Organic Chemistry I	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.

CHEM	326L	Organic Chemistry I Lab	1	no
CHEM	328	Organic Chemistry II	3	no
CHEM	328L	Organic Chemistry II Lab	1	no
CHEM	332	Analytical Chemistry	3	no
CHEM	332L	Analytical Chemistry Lab	1	no
CHEM	460	Biochemistry	3	no
CHEM	492	Topics* (repeatable)	1-4	no
EXS	350	Exercise Physiology	3	no
EXS	350L	Exercise Physiology Lab	1	no
EXS	353	Kinesiology	2-3	no
HIM	130	Basic Medical Terminology	2	no
HLTH	422	Nutrition	3	no
MATH	123	Calculus I	4	no
MATH	125	Calculus II	4	no
MATH	418	Mathematical Modeling	3	no
PHYS	111	Intro to Physics I	4	no
PHYS	111L	Intro to Physics I Lab	0	no
PHYS	113	Intro to Physics II	4	no
PHYS	113L	Intro to Physics II Lab	0	no
PHYS	211	University Physics I	4	no
PHYS	211L	University Physics I Lab	0	no
PHYS	213	University Physics II	4	no
PHYS	213L	University Physics II Lab	0	no
<b>Science Technology Courses</b>			<b>15</b>	
CSC	105	Introduction to Computers	3	no
CIS	123	Problem Solving & Programming OR	3	no
CIS	130	Visual Basic Programming OR		
CSC	150	Computer Science OR		
ENGL	379	Technical Communication	3	no
BIOL	303	Introduction to Biological Instrumentation	3	no
BIOL	335	Introduction to Bioinformatics	3	no
<b>Social Science Course</b> – Select a course from Social Science listing with prefix ANTH, HIST or SOC that is not already used to satisfy general education requirements.			<b>3</b>	no
Total number of hours required for completion of specialization			59	
Total number of hours required for completion of major			80	
Total number of hours required for completion of degree			120	

## 5. Delivery Location<sup>2</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**

<sup>2</sup> The Higher Learning Commission (HLC) and Board of Regents policy requires approval for a university to offer programs off-campus and through distance delivery.

*AAC Form 2.6 – New Specialization – Integrative Biology  
(Last Revised 01/2021)*

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 2021

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

	Yes/No	If Yes, identify delivery methods <sup>3</sup>	Intended Start Date
<b>Distance Delivery (online/other distance delivery methods)</b>	No		

**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>4</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.

<sup>3</sup> Delivery methods are defined in [AAC Guideline 5.5](#).

<sup>4</sup> This question responds to HLC definitions for distance delivery.  
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(Last Revised 01/2021)