

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

New Baccalaureate Degree Minor

UNIVERSITY:	SDSU
TITLE OF PROPOSED MINOR:	Bioprocessing Sciences
DEGREE(S) IN WHICH MINOR MAY BE EARNED:	Any
EXISTING RELATED MAJORS OR MINORS:	None
INTENDED DATE OF IMPLEMENTATION:	2019-2020 Academic Year
PROPOSED CIP CODE:	14.4501
UNIVERSITY DEPARTMENT:	College of Agriculture, Food and Environmental Sciences
UNIVERSITY DIVISION:	College of Agriculture, Food and Environmental Sciences

University Approval
To the Board of Regents

Grant University to meet the needs of the State and region by providing undergraduate and graduate programs of instruction in the liberal arts and sciences and professional education in agriculture, aviation, education, engineering, human sciences, nursing, pharmacy, and other courses or programs as the Board of Regents may determine. Bioprocessing industries are expanding in South Dakota, and a skilled labor force is required to support the development and manufacturing of bio-based products, such as biofuels, soy-based food products, and feed for farm-based aquaculture.

SDSU does not request new state resources.

3. What is the nature/purpose of the proposed minor?

The proposed minor is intended to provide students with a general understanding of principles and development of skills in bioprocessing technologies such as fermentation, bioseparation, and energy transfer. Principles of quality control, operational efficiency, safety, and projectnsfer

Select 3-4 credits from the following list:

Prefix	Number	Course Title	Credit Hours	New (yes, no)
GE	425	Occupational Safety/Health Management	3	No
MICR	311-311L	Food Microbiology and Lab	4	No
MICR	332	Microbial Physiology	2	No
MICR	332L	Microbial Physiology Lab	2	No
MNET	231-231L	Manufacturing Processes I and Lab	3	No
NUTR	426-426L	Production of Wine Beer Spirits and Lab	3	No

Engineering, Agricultural Systems Technology, Biotechnology, Dairy Manufacturing, Food Science, Mechanical Engineering, Microbiology, and Operations Management.

All students in the minor will have to complete ABE 444-444L and the experiential learning requirement (ABE 411 or XXX 494 or XXX 498) which do not require prerequisites. It is anticipated all students pursuing the minor are expected to be from majors for which the prerequisites for either MICR 231-231L or MICR 233-233L are already required. Either of these lower-level MICR courses fulfills the prerequisite requirement for all higher level MICR courses in the minor.

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 online program)?

	Yes/No	Intended Start Date
On campus	Yes	2019-2020 Academic Year

	Yes/No	If Yes, list location(s)	Intended Start Date
Off campus	No		

	Yes/No	If Yes, identify delivery methods ⁵	Intended Start Date
Distance Delivery (online/other distance delivery methods)	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 online program)?⁶

	Yes/No	If Yes, identify delivery methods	Intended Start Date
Distance Delivery (online/other distance delivery methods)	No		

The courses in the Bioprocessing Minor are not available online at SDSU.

12. Does the University request any exceptions to any Board policy for this minor? Explain any requests for exceptions to Board Policy. If not requesting any exceptions, enter

None.

13. Cost, Budget, and Resources: 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. Address off-campus or distance delivery separately.

All courses are currently being taught. SDSU does not require any additional resources to offer this minor.

14. New Course Approval: New courses required to implement the new minor may receive approval in conjunction with program approval or receive approval separately. Please check the appropriate statement (place an "X" in the appropriate box).

⁵ Delivery methods are defined in [AAC Guideline 5.5](#).

⁶ This question responds to HLC definitions for distance delivery.

YES,

Appendix A
Minor in Bioprocessing Sciences Student Learning Outcomes

	Required	Required	Must Complete One of These Courses			Must Complete One of These Courses			
	MICR 231/L or MICR 233/L	ABE 444/L	ABE 343/L	ME 311	ME 314	FS 351/L	AST 443/L	ME 416	MICR 450

Student Outcomes

1. Understand how cells or cellular components of biomaterials can be grown to produce commercial quantities of desired raw products (upstream bioprocessing).

