

SOUTH DAKOTA BOARD OF REGENTS ACADEMIC AFFAIRS FORMS

Substantive Program Modification Form

UNIVERSITY:	SDSU
CURRENT PROGRAM DEGREE:	Bachelor of Science (B.S.)
CURRENT PROGRAM MAJOR/MINOR:	Microbiology
CURRENT SPECIALIZATION:	NA
CIP CODE:	26.0502
UNIVERSITY DEPARTMENT:	Biology & Microbiology
BANNER DEPARTMENT CODE:	SBIM
UNIVERSITY COLLEGE:	Natural Sciences
BANNER COLLEGE CODE:	3T
University Approval To the Board of Regents and the Executive Direc I believe it to be accurate, and that it has been ev policy.	**
Dennis D. Hedge	4/3/2023
Vice President of Academic Affairs	
President of the University	
 This modification addresses a change in: □ Total credits required within the discipline □ Total credits of elective course work □ Program name □ CIP Code □ Modification requiring Board of Regents a Must have prior approval from Executive II Effective date of change: 2023-2024 Academ Program Degree Level: 	☐ Total credits required for program ☐ Existing specialization ☐ Other (explain below) pproval Director or designee nic Year
Associate ☐ Bachelor's ⊠	Master's □ Doctoral □
 4. Category: Certificate □ Specialization □ 5. If a name change is proposed, the change with the change of the change with the chang	Minor □ Major ⊠
☐ On the effective date for all students	
☐ On the effective date for students new	to the program (enrolled students will graduate
from existing program)	_
Proposed new name:	
Reminder: Name changes site approvals, etc.	s may require updating related articulation agreements,
6. Is the program being modified associated was Yes □ No ⊠	iui a current articulation agreement?
100	

a. If yes, will the articulation agreement need to be updated with the partner institution following the approve of the program change? Please explain:

7. Primary Aspects of the Modification:

		Existing Curriculum		P	roposed	' Curriculum <mark>(Highlight Changes</mark>	
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
		Education Requirement	32-34			Education Requirement	24-26
System	General 1	Education Requirement – Electives	12	System	General	Education Requirement – Electives	21
						SGR #1 Elective	<mark>3</mark>
						SGR #1 Elective	<u>3</u>
						SGR #2 Elective	3
		SGR #3 Elective	3			SGR #3 Elective	3
		SGR #3 Elective	3			SGR #3 Elective	3
		SGR #4 Elective	3			SGR #4 Elective	3
		SGR #4 Elective	3			SGR #4 Elective	3
C4	<u>C 1 1</u>	Edward Dawelana and Daweland	20.22	C4	C	Edwarf - Dawin - Dawin -	2.5
		Education Requirement – Required	20-22	ENGL ENGL	General 101	Education Requirement – Required Composition L(SGR #1)	3-5
ENGL	101	Composition I (SGR #1)	3			Composition I (SGR #1)	<u>3</u>
ENGL	201	Composition II (SGR #1)	3	ENGL	201	Fundamentals of Speech (SGR #2)	<mark>3</mark>
CMST	101	Fundamentals of Speech (SGR #2)	3	CMST	101	,	<mark>3</mark>
MATH	115	Pre-Calculus or higher	3-5	MATH	115	Pre-Calculus or higher	3-5
		Consult advisor as some				Consult advisor as some	
		professional schools require calculus.				professional schools require calculus.	
BIOL	151	General Biology I (SGR #6)	4	BIOL	151	General Biology I (SGR #6) (Major	
DIOL	131	General Biology 1 (SGK #0)	7	DIOL	131	Requirement)	
BIOL	151L	General Biology I Lab (SGR #6)	0	BIOL	151L	General Biology I Lab (SGR #6)	
DIOL	1312	General Biology 1 Lab (BGR #0)	U	DIOL	1312	(Major Requirement)	
BIOL	153	General Biology II (SGR #6)	4	BIOL	153	General Biology II (SGR #6)	
DIOL	133	General Biology II (BGR #0)		DIOL	155	(Major Requirement)	
BIOL	153L	General Biology II Lab (SGR #6)	0	BIOL	153L	General Biology II Lab (SGR #6)	
DICE	1332	General Biology II Lae (Bell 110)	Ü	DIGE	1002	(Major Requirement)	
Depar	Department Requirement			Depar	tment Re	equirement	
		-25 semester credits must be upper				-25 semester credits must be upper	
		division (300 and above), with the				division (300 and above), with the	
		exception that MATH 125 and				exception that MATH 125 and	
		225, Calculus II and III, may be				225, Calculus II and III, may be	
		counted as five credits toward the				counted as five credits toward the	
		total.				total.	
		-Students must complete a				– Students must complete a	
		minimum of 33 credits from the				minimum of 33 credits from the	
		natural sciences. Refer to				natural sciences. Refer to	
		departments offering the degree for	•			departments offering the degree	
		specific course listings.		_		for specific course listings.	
Major Requirements				Major F			80-83
BIOL	119	First Year Seminar	2	BIOL	119	First Year Seminar	2
BIOL	151	General Biology I (SGR #6)		BIOL	151	General Biology I (SGR #6)	4
BIOL	151L	General Biology I Lab (SGR #6)		BIOL	151L	General Biology I Lab (SGR #6)	0
BIOL	153	General Biology II (SGR #6)		BIOL	153 153L	General Biology II (SGR #6)	4
BIOL	153L	General Biology II Lab (SGR #6)		BIOL	153L	General Biology II Lab (SGR #6)	0
BIOL	202	Genetics and Organismal Biology	3	BIOL	202	Genetics and Organismal Biology	3
BIOL	202L	Genetics and Organismal Biology Lab	1	BIOL	202L	Genetics and Organismal Biology Lab	1
BIOL	204	Genetics and Cellular Biology	3	BIOL	204	Genetics and Cellular Biology	3
BIOL	204L	Genetics and Cellular Biology Lab	1	BIOL	204L	Genetics and Cellular Biology Lab	1
BIOL	290	Seminar (1)	1	BIOL	290	Seminar (1)	1
OR				OR			
	1		1		1	1	1
MICR	290	Seminar (1)		MICR	290	Seminar (1)	

Existing Curriculum (Highlight Changes)

Pre Num Title Cr Hrs Pre Num Title MICR 233 Introductory Microbiology 4 MICR 233 Introductory Microbiology 4 MICR 233 Introductory Microbiology 1 MICR 2331 Introductory Microbiology 2 MICR 2331 Microbial Physiology 2 MICR 332 Microbial Physiology Lab MICR 439 Medical and Veterinary Immunology MICR 448 Molecular and Microbial Genetics 4 MICR 448 Molecular and Microbiology 4 MICR 450 Applied Microbiology MICR 450	2 2 3 netics 4 3 1 3 1 3 1 3 1 3 emistry 1 4 3
MICR 233L Introductory Microbiology Lab 0 MICR 233L Introductory Microbiology I MICR 332 Microbial Physiology 2 MICR 332 Microbial Physiology Lab 2 MICR 332L Microbial Physiology Lab 332L Microbial Physiology Lab 332L Microbial Physiology Lab 448 Microbial Physiology Lab 332L Microbial Physiology Lab MICR 439 Medical and Veterinary Immunology MICR 448 Molecular and Microbial Genetics 4 MICR 448 Molecular and Microbial Genetics 4 MICR 448 Molecular and Microbial Genetics 64 MICR 448 Molecular and Microbial Genetics 7 CHEM 112 General Chemistry I Schemistry I CHEM 112L General Chemistry I Lab 1 CHEM 112L General Chemistry I Lab 1 CHEM 114L General Chemistry II 3 CHEM 114L General Chemistry II 1 CHEM 326L Organic Chemistry I Lab 1 CHEM 326L Organic Chemistry I Lab 1 CHEM 326L Organic Chemistry I Lab 1 CHEM 326L Organic Chemistry II 3 CHEM 326L Organic Chemistry II 3 CHEM 328L Organic Chemistry II 3 CHEM 328L Organic Chemistry II Ab 1 CHEM 328L Organic Chemistry II Lab 1 CHEM 328L Organic Chemistry II Lab 1 CHEM 328L Organic Chemistry II Lab 1 CHEM 464 Biochemistry I CHEM 466 Laboratory Methods – Biochemistry I CHEM 466 Laboratory Methods – Biochemistry Phys Phys Electives Phys Select at least two courses from the following: BiOL 235 Introduction to Statistics Introductory Biotechnology Select at least two courses from the following: BiOL 235L Introductory Biotechnology A MiCR 310L Environmental Microbiology A MiCR 311L Food Microbiology Lab MiCR 311L Food Microbiology Lab MiCR 421 Soil Microbiology Lab MiCR 421 Soil Microbiology Biotechnology Biotechnology A Pplied Microbiology Biotechnology Biotechnology A Pplied Microbiology Biotechnology Biotechnology Biotechnology A Pplied Microbi	2 2 3 netics 4 3 1 3 1 3 1 3 1 3 emistry 1 4 3
MICR 332 Microbial Physiology Lab 2 MICR 332 Microbial Physiology Lab MICR 439 Medical and Veterinary Immunology 3 MICR 439 Medical and Veterinary Immunology MICR 448 Molecular and Microbial Genetics 4 MICR 328 General Chemistry I A CHEM 450 Molecular<	2 2 3 netics 4 3 1 3 1 3 1 3 1 3 emistry 1 4 3
MICR 332 Microbial Physiology Lab 2 MICR 332 Microbial Physiology Lab MICR 439 Medical and Veterinary Immunology 3 MICR 439 Medical and Veterinary Immunology MICR 448 Molecular and Microbial Genetics 4 MICR 328 General Chemistry I A CHEM 450 Molecular<	2 3 netics 4 3 1 3 1 3 1 3 1 3 1 3 4 3 emistry 1 4 3
MICR 439 Medical and Veterinary Immunology MICR 448 Molecular and Microbial Genetics 4 MICR 448 Molecular and Microbiology 4 MICR 421 Soil Microbiology & MICR 450 Applied Microbiology & MICR	3 netics 4 3 1 3 1 3 1 3 1 3 1 3 1 4 3 1 3 1 3 1
MICR 439 Medical and Veterinary Immunology MICR 448 Molecular and Microbial Genetics 4 MICR 448 Molecular and Microbiology 4 MICR 310 Environmental Microbiology 4 MICR 311 Food Microbiology Lab MICR 450 Applied Microbiology & MICR 4211 Soil Microbiology & Biotechnology & MICR 450 Applied Microbiology & MICR 4	netics 4 3 1 3 1 3 1 3 1 3 1 3 4 3 emistry 1 4 3
Immunology	3 1 3 1 3 1 3 1 3 1 3 emistry 1 4 3
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CHEM 466	emistry 1 4 3 3
PHYS	4 3
STAT 281 Introduction to Statistics 3 STAT 281 Introduction to Statistics	3 2
MICR 490 Seminar ENGL 379 Technical Communication (Section: Biology & Microbiology) Applied and Environmental Microbiology Select at least two courses from the following: BIOL 235 Introductory Biotechnology Lab MICR 310 Environmental Microbiology MICR 310L Environmental Microbiology MICR 310L Environmental Microbiology MICR 311L Food Microbiology MICR 311L Food Microbiology Lab MICR 311L Food Microbiology Lab MICR 421 Soil Microbiology Lab MICR 421L Soil Microbiology Applied Microbiology Cab MICR 450 Applied Microbiology & MICR 310 MICR Applied Microbiology Cab MICR 450 Applied Microbiology & MICR 450 Applied Microbiology & Biotechnology	2
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Applied and Environmental Microbiology Select at least two courses from the following: BIOL 235 Introductory Biotechnology 3 BIOL 235 Introductory Biotechnology BIOL 235L Introductory Biotechnology Lab 0 BIOL 235L Introductory Biotechnology MICR 310 Environmental Microbiology 4 MICR 310 Environmental Microbiology MICR 310L Environmental Microbiology 0 MICR 310L Environmental Microbiology MICR 311 Food Microbiology 4 MICR 311 Food Microbiology MICR 311L Food Microbiology 4 MICR 311L Food Microbiology MICR 311L Soil Microbiology 3 MICR 311L Food Microbiology Lab MICR 421 Soil Microbiology 3 MICR 421 Soil Microbiology MICR 421L Soil Microbiology Lab 0 MICR 421L Soil Microbiology Lab MICR 450 Applied Microbiology & 3 MICR 450 Applied Microbiology & Biotechnology	
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MICR 450 Applied Microbiology & 3 MICR 450 Applied Microbiology & Biotechnology	1
Biotechnology	3
	3
Infectious Disease (at least 2 courses) 6 Infectious Disease (at least 2 courses)	6
Select at least two courses from the following: Select at least two courses from the following:	U
MICR 424 Medical & Veterinary Virology 3 MICR 424 Medical & Veterinary Virology	ogy 3
MICR 433 Medical Microbiology 3 MICR 433 Medical Microbiology 3 MICR 433 Medical Microbiology	3 3
MICR 440L Infectious Disease Lab 3 MICR 440L Infectious Disease Lab	3
WICK 440L IIIIectious Disease Lab 3 WICK 440L IIIIectious Disease Lab	3
Select from the following	3-4
BIOL 235 Introductory Biotechnology	3
BIOL 235L Introductory Biotechnology BIOL 235L Introductory Biotechnology	
MICR 310 Environmental Microbiology	
MICR 310L Environmental Microbiolog	
MICR 311 Food Microbiology	1 ^
MICR 311L Food Microbiology Lab	2 2
MICR 421 Soil Microbiology	2
MICR 421L Soil Microbiology Lab	2 2
MICR 424 Medical & Veterinary Virol	2 2 1
MICR 433 Medical Microbiology	2 2 1 0gy 3
MICR 440L Infectious Disease Lab	2 2 1 1 2 3 3 3 3
MICR 450 Applied Microbiology &	2 2 1 1 2 3 3 3 3
	2 2 1 0gy 3
MICR Biotechnology MICR 494 Internship (max of 3 credits)	2 2 1 1 2 3 3 3 3

Existing Curriculum				Proposed Curriculum (Highlight Changes			<u>')</u>		
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs		
				<mark>or</mark>					
				BIOL					
				MICR	<mark>498</mark>	Research (max of 3 credits)	<mark>3</mark>		
				<mark>or</mark>					
				BIOL					
Electives			10-14	Electives			11-16		
	Summary of Credits Microbiology (B.S.)								
System General Education Requirement			32-34	System General Education Requirement			24-26		
Department Requirements				Department Requirements					
Major Requirements			74-76	Major Requirements			80-83		
Electives			10-14	Electives			11-16		
	Total number of hours required for major		74-76	Total number of hours required for major		umber of hours required for major	83-88		
Total number of hours required for degree			120		Total nu	mber of hours required for degree	120		

8. Explanation of the Change:

The Department of Biology and Microbiology has identified the following changes to the Microbiology major:

- Removed a specific course selection from SGR #1 and SGR #2 to allow students more flexibility in meeting their System General Education requirements.
- Removed BIOL 490 Seminar (2 cr.) & ENGL 379 Technical Communication (Capstone)
 (3 cr.) and replaced with 1 additional upper division elective from the listed courses.
 Through advising students will be strongly encouraged to engage in research and internship (BIOL 498 & BIOL 494) to gain research, hands on experiences, and science communication skills.
- Removed the department requirements to complete 25 upper division credits with the
 exception that five credits of MATH 125 and MATH 225 may be counted toward that total
 and that students were required to complete a minimum of 33 natural sciences courses. This
 language is redundant to current program requirements and SDSU and BOR graduation
 policy requirements. The requirements were carried over when the department transitioned
 from the College of Agriculture and Biological Sciences to the College of Natural
 Sciences.