SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS

Substantive Program Modification Form

UNIVERSITY:	**SDSU**
CURRENT PROGRAM TITLE:	**Biochemistry (BS)**
CIP CODE:	**26.0202**
UNIVERSITY DEPARTMENT:	**Chemistry & Biochemistry**
UNIVERSITY DIVISION:	**Natural Sciences**

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.

Dennis D. Hedge — Vice President of Academic Affairs or President of the University

4/27/2019 — Date

1. This modification addresses a change in:

☒ Total credits required within the discipline ☐ Total credits of supportive course work
☒ Total credits of elective course work ☐ Total credits required for program
☐ Program name ☐ Existing specialization
☐ CIP Code ☐ Other (explain below)

2. **Effective date of change:** 2019-2020 Academic Year
3. **Program Degree Level:** Associate ☐ Bachelor's ☒ Master's ☐ Doctoral ☐
4. **Category:** Certificate ☐ Specialization ☐ Minor ☐ Major ☒
5. **If a name change is proposed, the change will occur:**
   ☐ 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:
6. **Primary Aspects of the Modification:**

Existing Curriculum				*Proposed Curriculum (highlight changes)*			
Pref.	**Num.**	**Title**	**Cr. Hrs.**	**Pref.**	**Num.**	**Title**	**Cr. Hrs.**
Systems General Education Requirements			**33**	**Systems General Education Requirements**			**33**
SGR 1 – Written Communication ENGL 101 Composition I (3) ENGL 201 Composition II (3)			6	SGR 1 – Written Communication ENGL 101 Composition I (3) ENGL 201 Composition II (3)			6
SGR 2 – Oral Communication SPCM 101 Fundamentals of Speech			3	SGR 2 – Oral Communication SPCM 101 Fundamentals of Speech			3
SGR 3 – Social Sciences/Diversity			6	SGR 3 – Social Sciences/Diversity			6
SGR 4 – Humanities and Arts/Diversity			6	SGR 4 – Humanities and Arts/Diversity			6
SGR 5 – Mathematics MATH 123 Calculus I			4	SGR 5 – Mathematics MATH 123 Calculus I			4
SGR 6 – Natural Sciences CHEM 115-115L Atomic & Molecular Structure & Lab (3,1) CHEM 127-127L Structure and Function of Organic Molecules & Lab (3,1)			8	SGR 6 – Natural Sciences CHEM 112-112L General Chemistry I & Lab (3,1) CHEM 114-114L General Chemistry II & Lab (3,1) ~~CHEM 115-115L Atomic & Molecular Structure & Lab (3,1)~~ ~~CHEM 127-127L Structure and Function of Organic Molecules & Lab (3,1)~~			8

Existing Curriculum				*Proposed Curriculum (highlight changes)*			
Pref.	**Num.**	**Title**	**Cr. Hrs.**	**Pref.**	**Num.**	**Title**	**Cr. Hrs.**
Department Requirements *Additional required credits of coursework beyond SGRs, IGRs, Major, and Support Courses*			**13+** **3**	**Department Requirements** *Additional required credits of coursework beyond SGRs, Major, and Support Courses*			**13+** **3**
Natural Sciences (10+) Satisfying coursework must include – at least two classes with laboratory components – at least two different prefixes *(MATH and STATS courses do not count toward the Science requirement.)* 6 credits of SGR #6 are counted toward this goal PHYS 211-211L University Physics I & Lab (4)			10 0	Natural Sciences (10+) Satisfying coursework must include – at least two classes with laboratory components – at least two different prefixes *(MATH and STATS courses do not count toward the Science requirement.)* 6 credits of SGR #6 are counted toward this goal PHYS 211-211L University Physics I & Lab (4)			10 0
AHSS	111	Introduction to Global Citizenship and Diversity	3	AHSS	111	Introduction to Global Citizenship and Diversity	3
One declared minor outside of the major prefix OR a second major OR a teaching specialization. The minor may be a traditional minor within one department or it may be interdisciplinary involving more than one department. The minor can be in a different college. The minor must be declared no later than the student's third semester of enrollment.			-	One declared minor outside of the major prefix OR a second major OR a teaching specialization. The minor may be a traditional minor within one department or it may be interdisciplinary involving more than one department. The minor can be in a different college. The minor must be declared no later than the student's third semester of enrollment.			-
Capstone course within major CHEM 498 Undergraduate Research/Scholarship			--	Capstone course within major CHEM 498 Undergraduate Research/Scholarship			--
Upper Division Credits (300-400 level coursework inside and outside of the major)			33	Upper Division Credits (300-400 level coursework inside and outside of the major)			33
Major Requirements			**42**	**Major Requirements**			**44**
Major Core			24	Major Core			26
CHEM	119	First Year Seminar	1	CHEM	119	First Year Seminar	1
CHEM	229-229L	Transformations of Organic Molecules and Lab	4	~~CHEM~~	~~229-229L~~	~~Transformations of Organic Molecules and Lab~~	~~4~~
CHEM	236	Equilibrium and Energetics of Molecular Systems	2	~~CHEM~~	~~236~~	~~Equilibrium and Energetics of Molecular Systems~~	~~2~~
CHEM	237	Intermediate Laboratory Investigations	3	CHEM	237	Intermediate Laboratory Investigations	3
				CHEM	326-326L	Organic Chemistry I & Lab	4
				CHEM	328-328L	Organic Chemistry II & Lab	4
CHEM	360	Chemistry of Biological Macromolecules	3	CHEM	360	Chemistry of Biological Macromolecules	3
CHEM	361	Chemistry of Biological Macromolecules Laboratory	1	CHEM	361	Chemistry of Biological Macromolecules Laboratory	1
CHEM	448-448L	Biophysical Chemistry & Lab	4	CHEM	448-448L	Biophysical Chemistry & Lab	4
CHEM	465	Biochemistry II	3	CHEM	465	Biochemistry II	3
CHEM	498	Undergraduate Research/Scholarship (Research Experience in Biochemistry)	3	CHEM	498	Undergraduate Research/Scholarship (Research Experience in Biochemistry)	3
Advanced Chemistry Electives			9	Advanced Chemistry Electives			9
		Select 9 credits from the list below. Students should consult their academic advisor to select courses from the following list based on individual interest.				Select 9 credits from the list below. Students should consult their academic advisor to select courses from the following list based on individual interest.	
CHEM	329	Intermediate Organic Chemistry	2	CHEM	329	Intermediate Organic Chemistry	2
CHEM	329L	Intermediate Organic Chemistry Lab	2	CHEM	329L	Intermediate Organic Chemistry Lab	2
CHEM	332-332L	Analytical Chemistry I & Lab	4	CHEM	332-332L	Analytical Chemistry I & Lab	4
CHEM	432	Analytical Chemistry II	2	CHEM	432	Analytical Chemistry II	2
CHEM	433	Bioanalytical Chemistry	3	CHEM	433	Bioanalytical Chemistry	3
CHEM	452-452L	Inorganic Chemistry	4	CHEM	452-452L	Inorganic Chemistry	4
CHEM	482	Environmental Chemistry	3	CHEM	482	Environmental Chemistry	3
CHEM	484	Chemical Toxicology	3	CHEM	484	Chemical Toxicology	3

Existing Curriculum				*Proposed Curriculum (highlight changes)*			
Pref.	**Num.**	**Title**	**Cr. Hrs.**	**Pref.**	**Num.**	**Title**	**Cr. Hrs.**
Upper Division Biology Electives			9	Upper Division Biology Electives			9
BIOL	325-325L	Physiology & Lab	4	BIOL	325-325L	Physiology & Lab	4
BIOL	371	Genetics	3	BIOL	371	Genetics	3
BIOL	373	Evolution	3	BIOL	373	Evolution	3
				BIOL	383	Bioethics	4
BIOL	466	Environmental Toxicology and Contaminants	3	BIOL	466	Environmental Toxicology and Contaminants	3
				BIOL	470	Cancer Biology	3
BIOL	483-483L	Developmental Biology & Lab	4	BIOL	483~~-483L~~	Developmental Biology ~~& Lab~~	3
BOT	327-327L	Plant Physiology & Lab	4	BOT	327-327L	Plant Physiology & Lab	4
MICR	231-231L	General Microbiology & Lab	4	MICR OR MICR	231-231L 233-233L	General Microbiology & Lab (4) Introductory Microbiology & Lab (4)	4
MICR	332	Microbial Physiology	2	MICR	332	Microbial Physiology	2
MICR	332L	Microbial Physiology Lab	2	MICR	332L	Microbial Physiology Lab	2
				MICR	424	Medical Veterinary Virology	3
MICR	433	Medical Microbiology	3	~~MICR~~	~~433~~	~~Medical Microbiology~~	~~3~~
MICR	438L	Techniques in Molecular Biology Lab	2	MICR	438L	Techniques in Molecular Biology Lab	2
				MICR	439	Medical and Veterinary Immunology	3
MICR	448	Molecular and Microbial Genetics	4	MICR	448	Molecular and Microbial Genetics	4
				MICR	450	Applied Microbiology and Biotechnology	3
				STAT	435	Applied Bioinformatics	3
Support Courses			**15**	**Support Courses**			**15**
MATH	125	Calculus II	4	MATH	125	Calculus II	4
PHYS	211-211L	University Physics I	4	PHYS	211-211L	University Physics I	4
PHYS	213-213L	University Physics II	4	PHYS	213-213L	University Physics II	4
STAT	381	Statistics	3	STAT	381	Statistics	3
Electives *(Taken as needed to complete any additional degree requirements)*			**27**	**Electives** *(Taken as needed to complete any additional degree requirements)*			**25**

Summary of Credits Biochemistry (B.S.)			
System General Education Requirements	**33**	**System General Education Requirements**	**33**
Department Requirements *Additional required credits of coursework beyond SGRs, Major, and Support Courses*	**13+** **3+**	**Department Requirements** *Additional required credits of coursework beyond SGRs, Major, and Support Courses*	**13+** **3+**
Majors Requirements	**42**	**Majors Requirements**	**44**
Support Courses	**15**	**Support Courses**	**15**
Electives *(Taken as needed to complete any additional degree requirements)*	**27**	**Electives** *(Taken as needed to complete any additional degree requirements)*	**25**
Total number of hours required for major	57	Total number of hours required for major	59
Total number of hours required for degree	120	Total number of hours required for degree	120

7. Explanation of the Change:

The Department of Chemistry and Biochemistry has decided to go back to a more traditional way of offering the general chemistry and organic chemistry sequences. This more closely aligns with other programs nationwide, as well as simplifying the program for students and all support staff who are trying to help students. The proposed changes involve existing courses and will not require any additional instructional support. The current second semester of general chemistry CHEM 236 Equilibrium and Energetics of Molecular Systems (3 cr.) will be replaced by CHEM 114-114L General Chemistry II & Lab (3, 1).