



**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:	Chemistry Education
CURRENT SPECIALIZATION	N/A
CIP CODE:	13.1323
UNIVERSITY DEPARTMENT:	Chemistry & Biochemistry
BANNER DEPARTMENT CODE:	SCHB
UNIVERSITY COLLEGE:	Natural Science
BANNER COLLEGE CODE:	3T

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

4/28/2023

Date

1. This modification addresses a change in:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Total credits required within the discipline | <input checked="" type="checkbox"/> Total credits of supportive course work |
| <input checked="" type="checkbox"/> Total credits of elective course work | <input type="checkbox"/> Total credits required for program |
| <input type="checkbox"/> Program name | <input type="checkbox"/> Existing specialization |
| <input type="checkbox"/> CIP Code | <input type="checkbox"/> Other (explain below) |

2. Effective date of change: 2023-2024 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. Is the program being modified associated with a current articulation agreement? Yes ☐ No ☒

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

7. 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	22
Systems		General Education Requirements – Electives	12	Systems		General Education Requirements – Electives	18

Existing Curriculum				Proposed Curriculum (<i>highlight changes</i>)			
Pref.	Num.	Title	Cr. Hrs.	Pref.	Num.	Title	Cr. Hrs.
						SGR #1	3
						SGR #1	3
						SGR #2	3
		SGR #3	3			SGR #3	3
		SGR #3	3			SGR #3	3
		SGR #4	3			SGR #4	3
		SGR #4	3			SGR #4	3
Systems General Education Requirements – Required			21	Systems General Education Requirements – Required			4
ENGL	101	Composition I (SGR #1)	3	ENGL	101	Composition I (SGR #1)	3
ENGL	201	Composition II (3) (SGR #1)	3	ENGL	201	Composition II (3) (SGR #1)	3
CMST	101	Fundamentals of Speech (SGR #2)	3	CMST	101	Fundamentals of Speech (SGR #2)	3
				AIS	211	South Dakota American Indian Culture and Education (SGR #3) (Major Requirement)	--
MATH	123	Calculus (SGR #5)	4	MATH	123	Calculus (SGR #5)	4
CHEM	112	General Chemistry I (SGR #6)	3	CHEM	112	General Chemistry I (SGR #6) (Major Requirement) (3)	--
CHEM	112L	General Chemistry I Lab (SGR #6)	1	CHEM	112L	General Chemistry I Lab (SGR #6) (Major Requirement) (3)	--
CHEM	114	General Chemistry II (SGR #6)	3	CHEM	114	General Chemistry II (SGR #6) (Major Requirement) (1)	--
CHEM	114L	General Chemistry II Lab (SGR #6)	1	CHEM	114L	General Chemistry II Lab (SGR #6) (Major Requirement) (1)	--
Department Requirements			3	Department Requirements			1
<i>Additional required credits of coursework beyond SGRs, Major, and Support Courses</i>				<i>Additional required credits of coursework beyond SGRs, Major, and Support Courses</i>			
		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 and 4 credits of major coursework)	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 and 4 credits of major coursework)	0
AIS	211	South Dakota American Indian Culture and Education	3	AIS	211	South Dakota American Indian Culture and Education (realigned to Major Requirement and SGR #3)	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 SEED 456 Capstone/Action Research	--			Capstone course within major SEED 456 Capstone/Action Research	--
		33 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)	--
Major Requirements			83	Major Requirements			96
				AIS	211	South Dakota American Indian Culture and Education (SGR #3)	3
BIOL	151	General Biology I	4	BIOL	151	General Biology I	4

Existing Curriculum

Proposed Curriculum (highlight changes)

Pref.	Num.	Title	Cr. Hrs.	Pref.	Num.	Title	Cr. Hrs.
BIOL	151L	General Biology I Lab	0	BIOL	151L	General Biology I Lab	0
BIOL	153	General Biology II	4	BIOL	153	General Biology II	4
BIOL	153L	General Biology II Lab	0	BIOL	153L	General Biology II Lab	0
				CHEM	112	General Chemistry I (SGR #6)	3
				CHEM	112L	General Chemistry I Lab (SGR #6)	1
				CHEM	114	General Chemistry II (SGR #6)	3
				CHEM	114L	General Chemistry II Lab (SGR #6)	1
CHEM	119	First Year Seminar	1	CHEM	119	First Year Seminar	1
				CHEM	180	Introduction to Laboratory Safety	1
CHEM	237	Introduction to Research	1	CHEM	237	Introduction to Research	1
CHEM	326	Organic Chemistry I	3	CHEM	326	Organic Chemistry I	3
CHEM	326L	Organic Chemistry I Lab	1	CHEM	326L	Organic Chemistry I Lab	1
CHEM	328	Organic Chemistry II	3	CHEM	328	Organic Chemistry II	3
CHEM	328L	Organic Chemistry II Lab	1	CHEM	328L	Organic Chemistry II Lab	1
CHEM	332	Analytical Chemistry I	3	CHEM	332	Analytical Chemistry I	3
CHEM	332L	Analytical Chemistry I Lab	1	CHEM	332L	Analytical Chemistry I Lab	1
CHEM	343	Fundamentals of Thermodynamics	2	CHEM	343	Fundamentals of Thermodynamics	2
CHEM	452	Inorganic Chemistry	3	CHEM	452	Inorganic Chemistry	3
CHEM	452L	Inorganic Chemistry Lab	1	CHEM	452L	Inorganic Chemistry Lab	1
CHEM	464	Biochemistry I	3	CHEM	464	Biochemistry I	3
CHEM	466	Laboratory Methods in Biochemistry	1	CHEM	466	Laboratory Methods in Biochemistry	1
CHEM OR CHEM	482	Environmental Chemistry (3)	3	CHEM OR CHEM	482	Environmental Chemistry (3)	3
	484	Chemical Toxicology (3)		CHEM	484	Chemical Toxicology (3)	
				CHEM	490	Seminar	1
CHEM	498	Undergraduate Research	2	CHEM	498	Undergraduate Research	2
EDFN	101	Exploration of Teaching and Learning	1	EDFN	101	Exploration of Teaching and Learning	1
EDFN	340	Adolescent Development in Educational Contexts	3	EDFN	340	Adolescent Development in Educational Contexts	3
EDFN	351	Teaching and Learning I	1	EDFN	351	Teaching and Learning I	1
EDFN	352	Teaching and Learning II	3	EDFN	352	Teaching and Learning II	3
EDFN	352L	Teaching and Learning II Lab	2	EDFN	352L	Teaching and Learning II Lab	2
EDFN	453	Teaching and Learning III	3	EDFN	453	Teaching and Learning III	3
EDFN	453L	Teaching and Learning III Lab	4	EDFN	453L	Teaching and Learning III Lab	4
EDFN	454	Teaching and Learning IV: Student Teaching	11	EDFN	454	Teaching and Learning IV: Student Teaching	11
MATH	125	Calculus II	4	MATH	125	Calculus II	4
PHYS	111	Introduction to Physics I	4	PHYS	111	Introduction to Physics I	3
PHYS	111L	Introduction to Physics I Lab	0	PHYS	111L	Introduction to Physics I Lab	1
PHYS	113	Introduction to Physics II	4	PHYS	113	Introduction to Physics II	3
PHYS	113L	Introduction to Physics II Lab	0	PHYS	113L	Introduction to Physics II Lab	1
SEED	413	7-12 Science Methods	3	SEED	413	7-12 Science Methods	3
SEED	450	Reading and Content Literacy	2	SEED	450	Reading and Content Literacy	2
SEED	456	Capstone/Action Research	1	SEED	456	Capstone/Action Research	1
Electives (Taken as needed to complete any additional degree requirements)			1	Electives (Taken as needed to complete any additional degree requirements)			2
Summary of Credits Chemistry Education (B.S.)							
System General Education Requirements			33	System General Education Requirements			22
Department Requirements Additional required credits of coursework beyond SGRs, Major, and Support Courses			3	Department Requirements Additional required credits of coursework beyond SGRs, Major, and Support Courses			0
Majors Requirements			83	Majors Requirements			96
Electives (Taken as needed to complete any additional degree requirements)			1	Electives (Taken as needed to complete any additional degree requirements)			2
Total number of hours required for major			107	Total number of hours required for major			100
Total number of hours required for degree			120	Total number of hours required for degree			120

8. Explanation of the Change:

The Department of Chemistry and Biochemistry has identified the following changes to the Chemistry Education major:

- Removed a specific course selection from SGR #1 and SGR #2 to allow students more flexibility in meeting their System General Education requirements.
- Dropped the department's minor requirement to more directly focus the major.
- Added CHEM 180 Introduction to Laboratory Safety (1 cr.) to better prepare students for laboratory experiences. Safety is of prime consideration in the chemistry laboratory. Recent serious accidents in academic research laboratories nationwide have renewed the emphasis on creating a culture of safety. This course will be required of departmental majors in their first semester in order to instill safety principles at the onset of their education, shifting part of the burden of safety education from individual research laboratories students typically engage during their junior and senior years.
- Revised zero credit labs. Departments updated the zero credit lab courses to accurately reflect contact time.
- Added CHEM 490 Seminar (1 cr.). CHEM 490 is the course students use to present research results from CHEM 498.
- Removed the department requirement to complete 10+ credits of Natural Science coursework. This language is redundant to current program requirements. The requirement was carried over when the department transitioned from the College of Arts and Sciences to the College of Natural Sciences.