

SOUTH DAKOTA BOARD OF REGENTS ACADEMIC AFFAIRS FORMS

Substantive Program Modification Program

UNIVERSITY:	SDSU
CURRENT PROGRAM TITLE:	Chemistry Education (B.S.) [S.BS.CHE]
CIP CODE:	13.1323
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	5/8/18						
Vice President of Academic	Vice President of Academic Affairs						
President of the Unive	ersity						
1. This modification addresses a change	e in:						
\boxtimes Total credits required within the dis	scipline	\boxtimes	Total cr	edits of supportive course work			
\square Total credits of elective course wor	·k		Total credits of supportive course work				
	ĸ		Evicting aposicilization				
			Existing specialization				
		\boxtimes	Departn	nent Requirements			
2. Effective date of change: 2018-2019 A	Academ	ic Yeaı	•	-			
3. Program Degree Level:							
Associate 🗌 Bachelor's	\times	Master	's □	Doctoral			
4. Category:	4. Category:						
Certificate \Box Specialization \Box Minor \Box Major \boxtimes							
5. If a name change is proposed, the cha	ange wi	ll occur		-			
\square On the effective date for all students							
\Box On the effective date for stude	enrolled students will graduate						
from existing program)		··· ··· I		B			
Proposed new name							
6 Primary Aspects of the Modification	•						
Existing Curriculum	•		Propos	ed Curriculum (<mark>highlight changes</mark>)			
Pref. Num. Title	Cr. Hrs.	Pref.	Num.	Title	Cr. Hr		
Systems General Education Requirements	32	System	<mark>s General</mark>	Education Requirements	<mark>33</mark>		
SGR 1 – Written Communication	6	SGR 1	– Written C	Communication	6		
ENGL 101 Composition I (3)		ENGL 101 Composition I (3)					
ENGL 201 Composition II (3)	2	ENGL 201 Composition II (3)			2		
SGR 2 – Oral Communication SPCM 101 Fundamentals of Speech	3	SGR 2	– Orai Con 101 Fundai	nmunication mentals of Speech	3		
SGR 3 – Social Sciences/Diversity	6	SGR 3 – Social Sciences/Diversity					
SGR 4 – Humanities and Arts/Diversity	6	SGR 4	GR 4 – Humanities and Arts/Diversity				
SGR 5 – Mathematics		SGR 5	– Mathema	itics_	<mark>4</mark>		
		MATH	123 Calcu	lus I			
SGR 6 – Natural Sciences	8	SGR 6	– Natural S	Sciences	8		
CHEM 115-115L Atomic & Molecular Structure & Lab (3,1))	CHEM	115-115L	Atomic & Molecular Structure & Lab (3,			

Program Forms: Substantive Program Modification Form (Last Revised 08/2016)

Existing Curriculum

Proposed Curriculum (*highlight changes*)

CHEM	127-127L	Structure and Function of Organic		CHEM 127-127L Structure and Function of Organic						
Molecules & Lab (3,1)			13	Molecules & Lab (3,1)			12			
Additional required credits of coursework beyond SGRs			3	Addition	3					
Maior and Support Courses			5	Major a	.					
Natural Sciences (10+)			10	Natural Sciences (10+)						
Satisfying coursework must include			0	Satisfying coursework must include						
- at least two classes with laboratory components			Ŭ	 at least two classes with laboratory components 						
- at least two classes with laboratory components				at lo						
- at least two different prefixes				- at le						
(MAIII (unu SIAIS (10nt)	ourses do noi couni ioward ine science		requiren						
6 gradits	of SCP #6	are counted toward this goal		This room	not by the required courses					
6 credits of SGR #6 are counted toward this goal PHYS 211-211L University Physics I & Lab (4)				This req	net by the required courses.					
AIS	211	South Dakota American Indian	3	AIS	211	South Dakota American Indian	3			
		Culture and Education				Culture and Education				
One decl	lared minor o	outside of the major prefix OR a second	-	One decl	ared minor o	outside of the major prefix OR a second	-			
major O	R a teachin	g specialization. The minor may be a		major OR a teaching specialization. The minor may b						
tradition	al minor w	ithin one department or it may be		tradition	traditional minor within one department or it may be					
interdisc	iplinary invo	olving more than one department. The		interdisc	iplinary invo	olving more than one department. The				
minor ca	an be in a	different college. The minor must be		minor ca	minor can be in a different college. The minor must be					
declared	no later t	han the student's third semester of		declared	declared no later than the student's third semester c					
enrollme	ent.			enrollment.						
Capstone	e course with	nin major		Capstone	Capstone course within major					
CHEM -	498 Undergr	aduate Research/Scholarship		CHEM-	CHEM 498 Undergraduate Research/Scholarship					
				SEED 4:	SEED 456 Capstone/Action Research					
Upper D	Division Cree	dits (300-400 level coursework inside	33	Upper D	Upper Division Credits (300-400 level coursework inside					
and outs	ide of the ma	ajor)		and outs	and outside of the major)					
				This req	This requirement is met by the required courses.					
Major R	Requirement	s	85	Major R	equirement Requirement	<mark>s</mark>	<mark>81</mark>			
DIOI	161 1611	$C_{1} = 1 D'_{1} + 1 C_{1} + 1$	4	DIOI	1 <i>5</i> 1 1 <i>5</i> 1T	Compared Diplogra L & Lob	4			
BIOL	151-151L	General Biology I & Lab	4	BIOL	151-151L	General Blology I & Lab	4			
BIOL	151-151L 153-153L	General Biology I & Lab	4	BIOL	151-151L 153-153L	General Biology II & Lab	4			
BIOL BIOL CHEM	151-151L 153-153L 119	General Biology I & Lab General Biology II & Lab First Year Seminar	4 4 1	BIOL BIOL CHEM	151-151L 153-153L 119	General Biology I & Lab General Biology II & Lab First Year Seminar	4 4 1			
BIOL BIOL CHEM CHEM	151-151L 153-153L 119 229-229L	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab	4 4 1 3, 1	BIOL BIOL CHEM CHEM	151-151L 153-153L 119 229-229L	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab	$ \frac{4}{4} \frac{1}{3,1} $			
BIOL BIOL CHEM CHEM	151-151L 153-153L 119 229-229L 236	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular	4 4 1 3, 1 2	BIOL BIOL CHEM CHEM	151-151L 153-153L 119 229-229L 236	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of	$ \begin{array}{r} 4 \\ 4 \\ \hline 1 \\ \hline 3, 1 \\ \hline 2 \end{array} $			
BIOL BIOL CHEM CHEM	151-151L 153-153L 119 229-229L 236	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems	$\begin{array}{c} 4\\ 4\\ 1\\ 3, 1\\ \end{array}$	BIOL BIOL CHEM CHEM	151-151L 153-153L 119 229-229L 236	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \end{array} $			
BIOL BIOL CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab	4 1 3, 1 2 3, 1	BIOL BIOL CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab	$ \frac{4}{4} $ $ \frac{1}{3, 1} $ $ \frac{2}{3, 1} $			
BIOL BIOL CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical	4 1 3, 1 2 3, 1 2, 1	BIOL BIOL CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343 <mark>-343L</mark>	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical	4 1 3, 1 2 3, 1 2,-1			
BIOL CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab	$ \frac{4}{4} \frac{1}{3, 1} \frac{2}{3, 1} \frac{3, 1}{2, 1} $	BIOL BIOL CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343 <mark>-343L</mark>	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab	4 1 3, 1 2 3, 1 2,-1			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab	$ \frac{4}{4} \frac{1}{3, 1} 2 3, 1 2, 1 3 3 3 $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab	4 4 1 3, 1 2 3, 1 2, 1 3, 1 2, 1 3			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab	$ \frac{4}{4} \frac{1}{3, 1} 2 3, 1 2, 1 3 3, 1 3 3, 1 $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab	$ \frac{4}{4} \frac{1}{3, 1} 2 3, 1 2, -4 3 3, 1 3, 1 3 3, 1 3 3, 1 $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3 \\ 3, 1 \\ 3 \\ 3 \end{array} $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I	$ \frac{4}{4} \frac{1}{3, 1} 2 \frac{3, 1}{2, 4} \frac{3}{3, 1} 3 3 $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3 \\ 3, 1 \\ 3 \\ 1 \\ 1 \end{array} $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ \overline{, 1} \\ 2, -1 \\ \overline{, 1} \\ 3, 1 \\ 3, 1 \\ 3 \\ 1 \end{array} $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482	General Biology I & Lab General Biology I & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3 \\ 3, 1 \\ 3 \\ 1 \\ 3 \end{array} $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3)	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, -1 \\ 3, 1 \\ 3, 1 \\ 3, 1 \\ 3 \\ 1 \\ 3 \end{array} $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482	General Biology I & Lab General Biology I & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ \end{array} $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 466 482	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3)	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, -4 \\ \overline{3} \\ 3, 1 \\ 3, 1 \\ 3 \\ 1 \\ 3 \end{array} $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482	General Biology I & Lab General Biology I & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry	$ \begin{array}{c} 4 \\ -4 \\ -1 \\ 3, 1 \\ 2 \\ -3, 1 \\ 2, 1 \\ -3 \\ -1 \\ 3 \\ -1 \\ -3 \\ -3 \\ -1 \\ -1 \\ -1 \\ -1 \\ -1 \\ -1 \\ -1 \\ -1$	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 484	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3) Chemical Toxicology (3)	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ \overline{3, 1} \\ 2, -4 \\ \overline{3} \\ \overline{3, 1} \\ 3, 1 \\ \overline{3} \\ 1 \\ 3 \end{array} $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 498	General Biology I & Lab General Biology I & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry Undergraduate Research/Scholarship	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 484 498	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3) Chemical Toxicology (3) Undergraduate Research/Scholarship	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, -1 \\ 3 \\ 3, 1 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 498	General Biology I & Lab General Biology I & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry Undergraduate Research/Scholarship	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 484 498 237	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3) Chemical Toxicology (3) Undergraduate Research/Scholarship Intermediate Laboratory Investigations	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, -1 \\ 3, 1 \\ 3, 1 \\ 3, 1 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 498 101	General Biology I & Lab General Biology I & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry Undergraduate Research/Scholarship	$ \begin{array}{c} 4 \\ -4 \\ -1 \\ 3, 1 \\ 2 \\ -3, 1 \\ 2, 1 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3$	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 484 498 237 101	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3) Chemical Toxicology (3) Undergraduate Research/Scholarship Intermediate Laboratory Investigations Exploration of Teaching and	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, -4 \\ 3 \\ 3, 1 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 498 101	General Biology I & Lab General Biology I & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry Undergraduate Research/Scholarship Exploration of Teaching and Learning	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 484 498 237 101	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3) Chemical Toxicology (3) Undergraduate Research/Scholarship Intermediate Laboratory Investigations Exploration of Teaching and Learning	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3, 1 \\ 2, 1 \\ 3, 1 \\ 3, 1 \\ 3, 1 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 3 \\ 1 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 1 \\ 3 \\ 3 \\ 1 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 3 \\ 1 \\ 3 \\ 3 \\ 3 $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 498 101 351	General Biology I & Lab General Biology I & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry Undergraduate Research/Scholarship Exploration of Teaching and Learning Teaching and Learning I	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 1 \\ 1 1 1 1 1 $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 484 498 237 101 351	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3) Chemical Toxicology (3) Undergraduate Research/Scholarship Intermediate Laboratory Investigations Exploration of Teaching and Learning Teaching and Learning I	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, -1 \\ 3 \\ 3, 1 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 1 \\ 1 \\ 1 1 1 1 1 $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 498 101 351 352-352L	General Biology I & Lab General Biology I & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry Undergraduate Research/Scholarship Exploration of Teaching and Learning Teaching and Learning I Teaching and Learning I & Lab	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3, 1 \\ 2, 1 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3, 2 \\ \end{array} $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 484 498 237 101 351 352-352L	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3) Chemical Toxicology (3) Undergraduate Research/Scholarship Intermediate Laboratory Investigations Exploration of Teaching and Learning Teaching and Learning II & Lab	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3, 1 \\ 3, 1 \\ 3, 1 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3, 2 \\ \end{array} $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 498 101 351 352-352L 453-453L	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry Environmental Chemistry Undergraduate Research/Scholarship Exploration of Teaching and Learning Teaching and Learning II Teaching and Learning III & Lab Teaching and Learning III & Lab	$ \begin{array}{r} 4 \\ -4 \\ -1 \\ 3, 1 \\ 2 \\ -3, 1 \\ 2, 1 \\ -3 \\ -3 \\ -1 \\ -3 \\ -1 \\ -1 \\ -3, 2 \\ -5, 2 \\ -5, 2 \\ \end{array} $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 484 498 237 101 351 352-352L 453-453L	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3) Chemical Toxicology (3) Undergraduate Research/Scholarship Intermediate Laboratory Investigations Exploration of Teaching and Learning Teaching and Learning II & Lab Teaching and Learning III & Lab	$ \begin{array}{r} 4 \\ -4 \\ 1 \\ 3, 1 \\ 2 \\ -3, 1 \\ 2, -1 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3$			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 498 101 351 352-352L 453-453L 454	General Biology I & Lab General Biology I & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry Environmental Chemistry Undergraduate Research/Scholarship Undergraduate Research/Scholarship Exploration of Teaching and Learning Teaching and Learning II & Lab Teaching and Learning III & Lab Teaching and Learning IV	$ \begin{array}{r} 4 \\ -4 \\ -1 \\ 3, 1 \\ 2 \\ -3, 1 \\ 2, 1 \\ -3 \\ -3 \\ -1 \\ -3 \\ -3 \\ -1 \\ -3 \\ -2 \\ -5, 2 \\ -11 \\ \end{array} $	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 484 498 237 101 351 352-352L 453-453L 454	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3) Chemical Toxicology (3) Undergraduate Research/Scholarship Intermediate Laboratory Investigations Exploration of Teaching and Learning Teaching and Learning II & Lab Teaching and Learning III & Lab Teaching and Learning IV	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 4 \\ 3, 1 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3, 2 \\ 5, 2 \\ 11 \\ \end{array} $			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 498 101 351 352-352L 453-453L 454 475	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry Environmental Chemistry Undergraduate Research/Scholarship Exploration of Teaching and Learning Teaching and Learning II & Lab Teaching and Learning IV Human Relations	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3 \\ 3, 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1$	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 484 498 237 101 351 352-352L 453-453L 454 475	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3) Chemical Toxicology (3) Undergraduate Research/Scholarship Intermediate Laboratory Investigations Exploration of Teaching and Learning Teaching and Learning II & Lab Teaching and Learning III & Lab Teaching and Learning IV Human Relations	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3, 1 \\ 3, 1 \\ 3 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1$			
BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 498 101 351 352-352L 453-453L 454 475 125	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry Environmental Chemistry Undergraduate Research/Scholarship Exploration of Teaching and Learning Teaching and Learning II & Lab Teaching and Learning IV Human Relations Calculus II	$ \begin{array}{r} 4\\ -4\\ -1\\ -3, 1\\ 2\\ -3, 1\\ -2\\ -3, 1\\ -3\\ -3\\ -1\\ -3\\ -1\\ -3\\ -1\\ -3\\ -2\\ -2\\ -2\\ -2\\ -2\\ -2\\ -2\\ -2\\ -2\\ -2$	BIOL BIOL CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	151-151L 153-153L 119 229-229L 236 332-332L 343-343L 3xx/4xx 452-452L 464 466 482 484 498 237 101 351 352-352L 453-453L 454 475 125	General Biology I & Lab General Biology II & Lab First Year Seminar Transformations of Organic Molecules & Lab Equilibrium and Energy of Molecular Systems Analytical Chemistry I & Lab Fundamentals of Chemical Thermodynamics & Lab Inorganic Chemistry & Lab Biochemistry I Laboratory Methods - Biochemistry Environmental Chemistry (3) Chemical Toxicology (3) Undergraduate Research/Scholarship Intermediate Laboratory Investigations Exploration of Teaching and Learning Teaching and Learning II & Lab Teaching and Learning IV Human Relations Calculus II	$ \begin{array}{r} 4 \\ 4 \\ 1 \\ 3, 1 \\ 2 \\ 3, 1 \\ 2, 1 \\ 3, 1 \\ 3, 1 \\ 3, 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 1 \\ 3 \\ 4 \\ \end{array} $			

Program Forms: Substantive Program Modification Form (Last Revised 08/2016)

Existing Curriculum			Proposed Curriculum (<mark>highlight changes</mark>)						
PHYS	213-213L	University Physics II & Lab	4	PHYS	<mark>213-213L</mark>	University Physics II & Lab	<mark>4</mark>		
				PHYS	111-111L	Introduction to Physics I & Lab	<mark>4</mark>		
				PHYS	113-113L	Introduction to Physics II & Lab	<mark>4</mark>		
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			0	Electives (Taken as needed to complete any additional					
degree r	equirements)		degree r	degree requirements)				
Summary of Credits Chemistry Education (B.S.)									
System	ystem General Education Requirements 32 System General Education Requirements				ucation Requirements	<mark>33</mark>			
A&S College Requirements			13+	A&S College Requirements			<mark>13+</mark>		
Addition	al required	credits of coursework beyond SGRs,	3+	Additional required credits of coursework beyond SGRs,					
Major, and Support Courses				Major, and Support Courses					
				Department Requirements			<mark>13+</mark>		
				Additional required credits of coursework beyond SGRs,			<mark>3+</mark>		
				Major, and Support Courses					
Majors Requirements			85	Majors	Majors Requirements				
Electives (Taken as needed to complete any additional			0	Electives (Taken as needed to complete any additional			<mark>3</mark>		
degree requirements)				degree requirements)					
Total number of hours required for major		85	Total number of hours required for major			<mark>81</mark>			
Total number of hours required for degree			120		Total num	ber of hours required for degree	120		

7. Explanation of the Change:

The Department of Chemistry & Biochemistry will move from the College of Arts & Sciences to the College of Natural Sciences effective July 1, 2018. The College of Arts & Sciences requirements have been realigned as department requirements within the program.

The additional changes being proposed are designed to better prepare students to teach, add flexibility, and avoid potential scheduling difficulties. Both CHEM 498 Undergraduate Research/Scholarship and CHEM 237 Intermediate Laboratory Investigations are designed to give students an intense research experience. While CHEM 237 is typically taken in the sophomore year, CHEM 498 is typically taken much later, potentially conflicting with student teaching. PHYS 211 and 213 is a calculus-based sequence. PHYS 111 and 113 would be more appropriate for potential teachers, because there is more of an emphasis on what they would potentially teach. Because CHEM 482 is taught every-other year, some students have difficult registering for it. Making CHEM 484-584 an option would address this difficulty. CHEM 343L was dropped and its one credit was combined with the two credits from CHEM 3xx/4xx to give students 3 general elective credit hours. CHEM 343L was dropped because it is not essential for the students and during the semester that they are tentatively scheduled to take CHEM 343, they are scheduled to take two other lab courses and already have 18 credit hours. Three credit hours are shifted from Major Requirements to Electives.