



SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS
Substantive Program Modification Program

UNIVERSITY:	University of South Dakota
CURRENT PROGRAM TITLE:	Chemistry –American Chemical Society (ACS) Approved Chemistry (B.S.)
CIP CODE:	40.0501 [Current code U.BS.CHEM]
UNIVERSITY DEPARTMENT:	Chemistry Department
UNIVERSITY DIVISION:	College of Arts & 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.

Elizabeth M. Freeburg

Vice President of Academic Affairs or
President of the University

10/14/2016

Date

1. This modification addresses a change in (place an “X” in the appropriate box):

<input type="checkbox"/> Total credits required within the discipline <input type="checkbox"/> Total credits of elective course work <input type="checkbox"/> Program name <input type="checkbox"/> CIP Code	<input type="checkbox"/> Total credits of supportive course work <input checked="" type="checkbox"/> Total credits required for program <input type="checkbox"/> Existing specialization <input checked="" type="checkbox"/> Other (explain below) 1. General Education revisions 2. Request new code for Chemistry- American Chemical Society (ACS) U.BS.CHEM-ACS
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3. Effective date of change: Summer 2017

4. Program Degree Level (place an “X” in the appropriate box):

Associate Bachelor’s Master’s Doctoral

4. Category (place an “X” in the appropriate box):

Certificate Specialization Minor Major

5. If a name change is proposed, the change will occur (place an “X” in the appropriate box):

- 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 impact require updating any related articulation agreements, site approvals, etc.

6. Primary Aspects of the Modification (add lines as needed):

Existing Curriculum

Chemistry –American Chemical Society (ACS)

Approved Chemistry (B.S.)

Proposed Curriculum (highlight changes)

N/A

Pref.	Num.	Title	Cr. Hrs.	Pref.	Num.	Title	Cr. Hrs.
System General Education Requirements				System General Education Requirements			
		SGR 1: Written Communication	6			SGR 1: Written Communication	
						ENGL 101 Composition I OR	3
						UHON 110 Honors English	
		SGR 2: Oral Communication	3			SGR 2: Oral Communication	3
		SGR 3: Social Science (6 credit hours in 2 disciplines)	6			SGR 3: Social & Behavioral Sciences	
						BOR approved Course	3
		SGR 4: Humanities and Fine Arts (6 credit hours in 2 disciplines or a sequence of foreign languages courses) ENGL 210	6			SGR 4: Arts and Humanities	
						Humanities Course/Fine Arts Course	3
		SGR 5: Mathematics MATH 123	3 (-3)			SGR 5: Quantitative Literacy MATH 123	3 (-3)
		SGR 6: Natural Sciences CHEM 112 and CHEM 114	6 (-6)			SGR 6: Sciences	
		SGR 7: Information Literacy	0			BOR approved lab science course CHEM 112	3 (-3)
						Remove	
		Subtotal:	30 (-9)			Subtotal:	18 (-6)
Additional Graduation Requirements				Remove			
		Additional First-Year Composition (ENGL 210)	3 (-3)			Remove	
		Aesthetic Experience This course cannot fulfill both SGR 4 (Humanities and Fine Arts) and IGR 2 (Aesthetic Experience)	3			Remove	
Regental:				Remove			
		Critical Writing (Writing Intensive requirement)	3			Remove	
		Globalization/Global Issues CHEM 472	3 (-3)			Remove	
		Subtotal	12 (-6)				
				Institution designated general education requirements			
						Advanced composition course (in addition to SGR #1)	3*
						Additional 100/200 course in another discipline from SGR #3	3*
						Course from category in Fine Arts or Humanities not selected for SGR #4 above	3*
						Additional 100/200 lab science course for SGR #6 CHEM 114	3* (-3)
						Subtotal:	12 (-3)
		General Education credits minus double count reduction:	42 (-15)			General Education credits minus double count reduction:	30 (-9)
				*University specific requirements			
Arts & Sciences-College Degree Requirements:				Arts & Sciences-College Degree Requirements:			
Bachelor of Science				Bachelor of Science			
						ENGL 210: Introduction to Literature	3
						This course may not be used to fulfill SGR 4 Arts and Humanities or the Humanities and Social Sciences Distribution Requirement for the College of Arts & Sciences.	
		Minor or second major	18+			Minor or second major	18+
		Humanities and Social Sciences Distribution Requirement (In addition to the BOR general education requirements in these areas as noted above, B.S. students must take two humanities or social science courses (minimum six credit hours) from among the following prefixes: ANTH, CJUS, CLHU, DCOM, ENGL, FREN, GEOG, GER, GREE, HIST, INTS, LAKL, LATI, LDR, LING, MCOM, MFL, MSL, NATV, PHIL, POLS, selected PSYC (per Psychology section of the catalog), REL, RUSS, SOC, SPAN, SPCM, SUST, and WMST.)	6			Humanities and Social Sciences Distribution Requirement (In addition to the BOR general education requirements in these areas as noted above, B.S. students must take two humanities or social science courses (minimum six credit hours) from among the following prefixes: ANTH, CJUS, CLHU, DCOM, ENGL, FREN, GEOG, GER, GREE, HIST, INTS, LAKL, LATI, LDR, LING, MCOM, MFL, MSL, NATV, PHIL, POLS, selected PSYC (per Psychology section of the catalog), REL, RUSS, SOC, SPAN, SPCM, SUST, and WMST.)	6
		Mathematics	5-10 (-5)			Mathematics	5 (-5)

Choose either Option A or B as listed below			
Option A:			
MATH	123	Calculus I [SGR #5]	4
MATH	123L	Calculus I Laboratory	1
Option B:			
Select one statistics or programming course (minimum three credit hours) from the list below And one MATH Option below:			
BADM	220	Business Statistics	3
BADM	321	Business Statistics II	3
BIOL	420	Introduction to Biostatistics & Computational Biology	3
CSC	120	Fundamentals of Programming	3
CSC	155	Introduction to Computer Science & Programming	4
CSC	155L	Introduction to Computer Science & Programming Laboratory	0
CSC	180	Introductory Programming for IT Consulting	3
PSYC	371	Statistics in Psychological Research	3
SOC	309	Statistical Research Methods	3
STAT	281	Introduction to Statistics [SGR #5]	3
Complete one of the following options listed below:			
OPTION 1:			
MATH	121	Survey of Calculus [SGR #5]	4
OPTION 2:			
MATH	102	College Algebra [SGR #5]	3
MATH	104	Finite Mathematics [SGR #5]	4
OPTION 3:			
MATH	103	Quantitative Literacy [SGR #5]	3
MATH	103	Quantitative Literacy Lab	0-1
MATH	104	Finite Mathematics [SGR #5]	4
OPTION 4:			
MATH	104	Finite Mathematics [SGR #5]	4
MATH	115	Precalculus [SGR #5]	5
OPTION 5:			
MATH	104	Finite Mathematics [SGR #5]	4
MATH	120	Trigonometry [SGR #5]	3
Natural Sciences (Distribution requirement in natural science. Two courses must be taken in addition to laboratory courses meeting the BOR SGR #6 requirement; total of BS and BOR SGR natural science courses must be at least 12 cr. and at least two prefixes must be included. Additional courses must be chosen from the following prefixes: ANAT, BIOC, BIOL, CHEM, selected CSC (per Computer Science section of the catalog), ESCI, MICR, MTRO, OCEN, PHGY, PHYS, and selected PSYC (per Psychology section of the catalog).) CHEM 326/CHEM 328			6 (-6)
Bachelor of Science Requirements Subtotal:			35-40 (-11)
Chemistry –American Chemical Society (ACS) Approved Chemistry (B.S.) Program Requirements			
Departmental Requirements			
Choose one of the following Chemistry sequences:			
CHEM	112/L	General Chemistry I /Lab [SGR #6]	3/1
CHEM	114/L	General Chemistry II/Lab [SGR #6]	3/1
OR			
CHEM	112/L	General Chemistry I /Lab [SGR #6]	3/1

Choose either Option A or B as listed below			
Option A:			
MATH	123	Calculus I [SGR #5]	4
MATH	123L	Calculus I Laboratory	1
OPTION B: *This option is not applicable to the ACS majors. Calculus I is required for the program.			
Select one statistics or programming course (minimum three credit hours) from the list below And one MATH Option below:			
BADM	220	Business Statistics	3
BADM	321	Business Statistics II	3
BIOL	420	Introduction to Biostatistics & Computational Biology	3
CSC	120	Fundamentals of Programming	3
CSC	155	Introduction to Computer Science & Programming	4
CSC	155L	Introduction to Computer Science & Programming Laboratory	0
CSC	180	Introductory Programming for IT Consulting	3
PSYC	371	Statistics in Psychological Research	3
SOC	309	Statistical Research Methods	3
STAT	281	Introduction to Statistics [SGR #5]	3
And complete one of the following options listed below:			
OPTION 1:			
MATH	121	Survey of Calculus [SGR #5]	4
OPTION 2:			
MATH	102	College Algebra [SGR #5]	3
MATH	104	Finite Mathematics [SGR #5]	4
OPTION 3:			
MATH	103	Quantitative Literacy [SGR #5]	3
MATH	103	Quantitative Literacy Lab	0-1
MATH	104	Finite Mathematics [SGR #5]	4
OPTION 4:			
MATH	104	Finite Mathematics [SGR #5]	4
MATH	115	Precalculus [SGR #5]	5
OPTION 5:			
MATH	104	Finite Mathematics [SGR #5]	4
MATH	120	Trigonometry [SGR #5]	3
Natural Sciences (Distribution requirement in natural science. Two courses must be taken in addition to laboratory courses meeting the BOR SGR #6 requirement; total of BS and BOR SGR natural science courses must be at least 12 cr. and at least two prefixes must be included. Additional courses must be chosen from the following prefixes: ANAT, BIOC, BIOL, CHEM, selected CSC (per Computer Science section of the catalog), ESCI, MICR, MTRO, OCEN, PHGY, PHYS, and selected PSYC (per Psychology section of the catalog).) CHEM 326/CHEM 328			6 (-6)
Bachelor of Science Requirements Subtotal:			38 (-11)
Chemistry –American Chemical Society (ACS) Approved Chemistry (B.S.) Program Requirements			
Departmental Requirements			
Choose one of the following Chemistry sequences:			
CHEM	112/L	General Chemistry I /Lab [SGR #6]	3/1
CHEM	114/L	General Chemistry II/Lab [SGR #6]	3/1
OR			
CHEM	112/L	General Chemistry I /Lab [SGR #6]	3/1

CHEM	116/L	Honors Principles of Chemistry/Lab [SGR #6] *	3/1	CHEM	116/L	Honors Principles of Chemistry/Lab [SGR #6] *	3/1
CHEM	326	Organic Chemistry I	3-4	CHEM	326	Organic Chemistry I	3-4
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	1-2	CHEM	328L	Organic Chemistry II Lab	1-2
CHEM	330	Structure and Function of Biomolecules	3	CHEM	330	Structure and Function of Biomolecules	3
CHEM	332	Analytical Chemistry	2-4	CHEM	332	Analytical Chemistry	2-4
CHEM	332L	Analytical Chemistry Lab	1-2	CHEM	332L	Analytical Chemistry Lab	1-2
CHEM	429	Adv Chemical Characterization	2	CHEM	429	Adv Chemical Characterization	2
CHEM	429L	Adv Chemical Characterization Lab	1	CHEM	429L	Adv Chemical Characterization Lab	1
CHEM	434	Instrumental Analysis	3	CHEM	434	Instrumental Analysis	3
CHEM	434L	Instrumental Analysis Lab	1	CHEM	434L	Instrumental Analysis Lab	1
CHEM	442	Physical Chemistry I	3	CHEM	442	Physical Chemistry I	3
CHEM	442L	Physical Chemistry I Lab	1	CHEM	442L	Physical Chemistry I Lab	1
CHEM	444	Physical Chemistry II	3	CHEM	444	Physical Chemistry II	3
CHEM	452	Inorganic Chemistry	3	CHEM	452	Inorganic Chemistry	3
CHEM	452L	Inorganic Chemistry Lab	1	CHEM	452L	Inorganic Chemistry Lab	1
CHEM	472	Chemical Literature Seminar I [W]	2	CHEM	472	Chemical Literature Seminar I	2
CHEM	474	Chemical Literature Seminar II [W]	1	CHEM	474	Chemical Literature Seminar II	1
CHEM	498	Undergraduate Research/Scholarship	0-12	CHEM	498	Undergraduate Research/Scholarship	0-12
Subtotal			46	Subtotal			46
Non-Departmental Requirements				Non-Departmental Requirements			
				Non-Departmental requirements may also be applied toward a minor or second major.			
MATH	123	Calculus I [SGR #5]	4	MATH	123	Calculus I [SGR #5]	4
MATH	123L	Calculus I Lab	1	MATH	123L	Calculus I Lab	1
MATH	125	Calculus II	4	MATH	125	Calculus II	4
MATH	125L	Calculus II Lab	1	MATH	125L	Calculus II Lab	1
PHYS	211/L	University Physics I/Lab [SGR #6]	5	PHYS	211/L	University Physics I/Lab [SGR #6]	5
PHYS	213/L	University Physics II/Lab [SGR #6]	5	PHYS	213/L	University Physics II/Lab [SGR #6]	5
Upper-division MATH Course (The course must have a calculus prerequisite)			3	Upper-division MATH Course (The course must have a calculus prerequisite)			3
Upper-division PHYS Course (The course must have a PHYS 113 or PHYS 213 prerequisite)							
Subtotal			23	Subtotal			23
Major Subtotal			69	Major Subtotal			69
Free Electives:			0	Free Electives			3
				The following cross-curricular skill areas, identified in SDBOR policy 2.11, will be addressed in the program of study:			
				<ul style="list-style-type: none"> • inquiry and analysis • critical and creative thinking • information literacy • teamwork • problem solving 			
General Education courses required [42 (-15)]			27	General Education courses required [30 (-9)]			21
Arts & Sciences-College Degree Requirements B.A. [35-40(-11)]			24-29	Arts & Sciences-College Degree Requirements B.A. [38-45 (-11)]			27
Total number of hours required for major			69	Total number of hours required for major			69
Free Electives beyond major hours to reach 120			0	Free Electives beyond major hours to reach 120			3
Total number of hours required for degree			120	Total number of hours required for degree			120

*Note: CHEM 116 is for students who enter college with a strong background in chemistry. Students who satisfactorily complete CHEM 116/116L also receive credit for CHEM 112/112L as Credit By Examination.

7. Explanation of the Change:

These changes to the program reflect the updated General Education curriculum, effective Fall 2017.