

Chemistry Undergraduate Curriculum Changes

Students affected:

- any student entering the university beginning in the Fall 2009 semester
- any student wanting to graduate under the 2009-2010 catalog (or later)
- any student who will not have completed CHEM 3311, 3312/3302, 3412 and/or 4604 prior to their last offering (see scheduling information below)

RATIONALE: The American Chemical Society (ACS) Committee on Professional Training (CPT) is the accrediting body for our department. It has undertaken a major revision of accrediting guidelines that provides us with substantially more flexibility. Several of our lowest enrollment courses are no longer required, and we have taken this opportunity to combine content from some of these courses into courses that better integrate the subdisciplines of chemistry to provide better and more modern training for our students. The basic guidelines require a foundation course in all five areas of chemistry (inorganic, organic, physical, analytical, biochemistry) as well as advanced courses and laboratory courses. The flexibility offered by these revised guidelines removes the need to define separate concentrations in general chemistry and biochemistry in the B.S.Ch. degree program. Although these guidelines apply only to our ACS-certified B.S.Ch. degree, we have taken this opportunity to review and redefine our B.S. Major in chemistry based on the expectation that any graduating chemistry major should have had the basic series of foundation courses in the five chemical subdisciplines.

The following information is aimed at helping our current students (with help from their academic advisor) to determine:

- whether to switch to the new requirements
- if remaining with the current requirements, how to best plan their remaining coursework without disruption in progress toward their degree

Comparisons for B.S. Students

Overview of changes for *B.S. students majoring in chemistry, General concentration*:

Current Requirements	New Requirements (2009-2010)
CHEMISTRY	
General (8): CHEM 1110/1111, 1120/1121	(8): unchanged
Organic (8): CHEM 3311/3301, 3312/3302	(4): CHEM 3310/3301
Analytical (7): CHEM 3211/3201, 4604	(5): CHEM 3211/3201
Physical (3): CHEM 3411	(3): CHEM 3411
Inorganic (0):	(3): CHEM 3111
Biochemistry (0):	(4): CHEM 3511/3501
Upper division chemistry electives (6):	(5):
NON-CHEMISTRY	
Physics (8): PHYS 2110/2111, 2120/2121	(8): unchanged
Math (11-12): MATH 1910 and two of MATH 1920, 2110, 4611, COMP 4001	(11-12): unchanged

Overview of changes for *B.S. students majoring in chemistry, Biochemistry concentration*:

Current Requirements	New Requirements (2009-2010)
CHEMISTRY	
General (8): CHEM 1110/1111, 1120/1121	(8): unchanged
Organic (8): CHEM 3311/3301, 3312/3302	(4): CHEM 3310/3301
Analytical (7): CHEM 3211/3201, 4604	(5): CHEM 3211/3201
Physical (0):	(3): CHEM 3411
Inorganic (0):	(3): CHEM 3111
Biochemistry (8): CHEM 4511/4501, 4512	(9): CHEM 3511/3501, 4511/4501
NON-CHEMISTRY	
Physics (8): PHYS 2110/2111, 2120/2121	(8): unchanged
Math (6): MATH 1830 or 1910 and MATH 4611	(6): unchanged
General Biology (8): BIOL 1110/1111, 1120/1121	(8): unchanged
Upper Division Biology (3): BIOL 3500 or 3130	(3): BIOL 3500 or 3130 or CHEM 4512

Comparisons for B.S.Ch. Students

Overview of changes for *B.S.Ch. students majoring in chemistry, General concentration*:

Current Requirements	New Requirements (2009-2010)
CHEMISTRY	
General (8): CHEM 1110/1111, 1120/1121	(8): unchanged
Organic (8): CHEM 3311/3301, 3312/3302	(4): CHEM 3310/3301
Analytical (7): CHEM 3211/3201, 4604	(5): CHEM 3211/3201
Physical (8): CHEM 3411, 3412/3402	(3): CHEM 3411
Inorganic (3): CHEM 4111/4101	(3): CHEM 3111
Biochemistry (3): CHEM 4511	(4): CHEM 3511/3501
Research (3): CHEM 4901/4902/4903	(3): unchanged
Upper division chemistry electives (3):	(9): upper division chemistry lecture (2-3): two upper division chemistry labs
NON-CHEMISTRY	
Physics (8): PHYS 2110/2111, 2120/2121	(8): unchanged
Math (12): MATH 1910/1920/2110	(11-12): MATH 1910/1920 and one of MATH 2110, 2701, 4721, 4611 or 4635

Overview of changes for *B.S.Ch. students majoring in chemistry, Biochemistry concentration*:

Current Requirements	New Requirements (2009-2010)
CHEMISTRY	
General (8): CHEM 1110/1111, 1120/1121	(8): unchanged
Organic (8): CHEM 3311/3301, 3312/3302	(4): CHEM 3310/3301
Analytical (7): CHEM 3211/3201, 4604	(5): CHEM 3211/3201
Physical (3): CHEM 3411	(3): CHEM 3411
Inorganic (3): CHEM 4111	(3): CHEM 3111
Biochemistry (3): CHEM 4511	(4): CHEM 3511/3501
Research (3): CHEM 4901/4902/4903	(3): unchanged
Upper division chemistry electives (1-2): CHEM 3402, 4101 or BIOL 3505	(9): upper division chemistry lecture (2-3): two upper division chemistry labs
NON-CHEMISTRY	
Physics (8): PHYS 2110/2111, 2120/2121	(8): unchanged
Math (12): MATH 1910/1920/2110	(11-12): MATH 1910/1920 and one of MATH 2110, 2701, 4721, 4611 or 4635
General Biology (8): BIOL 1110/1111, 1120/1121	(0):
Upper division biology (3): BIOL 3500 or 3130	(0):

Courses to be Phased Out – Tentative Scheduling and Allowed Substitutions

If you intend to graduate under a bulletin prior to the 2009/2010 bulletin, you may need a course that will have limited or no future availability. Please use the following table to determine what substitutions will be allowed for courses that are no longer offered when you need them.

Chemical area	Course phase out schedule	Allowed substitutions
Organic	3311: Last planned offering Summer 2009 3312/3302: Last planned offering Fall 2009	3310 or transfer credit 3511/3501 or Transfer credit NOTE: Must use EITHER 3310/3301+3511/3501 OR 3311/3301+3312/3302 (may not combine 3310 with 3312)
Physical	3412/3402: Last planned offering Spring 2009	Substitute 4416/4406
Analytical	4604: Last planned offering Spring 2009	Substitute 4211/4201
Inorganic	4101	Discuss appropriate substitute with your advisor

Undergraduate Courses and Scheduling

Offered Every Fall, Spring and Summer				Offered Every Fall and Spring			
Course #	Title	Credits	Type	Course #	Title	Credits	Type
CHEM1110	General Chemistry 1	3.0	C	CHEM1010	Chem of Materials	3.0	C
CHEM1111	General Chem 1 Lab	1.0	L	CHEM1011	Chem of Materials Lab	1.0	L
CHEM3301	Foundn Orgn Chem Lab	1.0	L	CHEM1100	Prep General Chem	3.0	C
CHEM3310	Foundn Organic Chem	3.0	C	CHEM4501	Lab Tech in Biochem	2.0	L
CHEM1120	General Chemistry 2	3.0	C				
CHEM1121	General Chem 2 Lab	1.0	L				
CHEM3501	Foundn Bioorg Chem Lab	1.0	L				
CHEM3511	Foundn Bioorg Chem	3.0	C				
CHEM4901	Chemical Research 1	1.0	I				
CHEM4902	Chemical Research 2	1.0	I				
CHEM4903	Chemical Research 3	1.0	I				
Offered Every Fall				Offered Every Spring			
CHEM3111	Foundn Inorganic Chem	3.0	C	CHEM1020	Chemistry of Life	3.0	C
CHEM3201	Foundn Anal Chem Lab	2.0	L	CHEM1021	Chemistry of Life Lab	1.0	L
CHEM3211	Foundn Anal Chem	3.0	C	CHEM3411	Foundn Physical Chem	3.0	C
CHEM4201	Instrumental Anal Lab	1.0	L	CHEM4001	Environmental Chem	3.0	C
CHEM4211	Instrumental Analysis	3.0	C	CHEM4111	Intermed Inorg Chem	3.0	C
CHEM4311	Intermed Orgn Chem	3.0	C	CHEM4411	Intermed Phys Chem	3.0	C
CHEM4511	Biochemistry 1	3.0	C	CHEM4512	Biochemistry 2	3.0	C
Offered Every Other Fall (Even-Numbered Years)				Offered Every Other Spring (Even-Numbered Years)			
CHEM4315	Orgn Medicinal Chem	3.0	C	CHEM4603	Materials Synth Lab	1.0	L
CHEM4614	Polymer Chemistry	3.0	C	CHEM4613	Materials Synthesis	3.0	C
Offered Every Other Fall (Odd-Numbered Years)				Offered Every Other Spring (Odd-Numbered Years)			
CHEM4615	Biophysical Chemistry	3.0	C	CHEM4406	Mol Spectroscopy Lab	1.0	L
				CHEM4416	Molecular Spectroscopy	3.0	C
Special Topics Courses, Taught < Once Every Two Years							
CHEM4415	Computational Chem	3.0	C				