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**PROGRAM/DEGREE REQUIREMENT CHANGE (MAJOR)**

**SUBMITTED BY:**

Department	Chemistry & Biochemistry	College/School	CNSM
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See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for a complete description of the rules governing curriculum & course changes.

**PROGRAM IDENTIFICATION:**

DEGREE PROGRAM	Major – BS Degree, Optional Concentration Biochemistry
Degree Level: (i.e., Certificate, A.A., A.A.S., B.A., B.S., M.A., M.S., Ph.D.)	B.S.

**A. CHANGE IN DEGREE REQUIREMENTS: (Brief statement of program/degree changes and objectives)**

We have eliminated Chem 324W Advanced Organic Chemistry Laboratory and also incorporated Chem F323 Organic Chemistry Laboratory, 1 credit, into Chem F322 Organic Chemistry II, which becomes 4 credits. We also changed Chem F451 to Chem F351. Finally, there are two biology courses that no longer exist which are currently listed under Category 5. These courses will be deleted from the list (BIOL F418W, BIOL F452O/2)

**B. CURRENT REQUIREMENTS AS IT APPEARS IN THE CATALOG:**

- Biochemistry
- Complete the [general university requirements](#). (As part of the core curriculum requirements, complete: MATH F200X; PHYS F103X and PHYS F104X, or PHYS F211X and PHYS F212X.)
  - Complete the [BS degree requirements](#). (As part of the BS degree requirements, complete: MATH F201X. Chemistry foundation courses may be used toward partial fulfillment of the natural science requirement.)
  - Complete the following program (major) requirements:\*  
 CHEM F105X--General Chemistry I--4 credits  
 CHEM F106X--General Chemistry II--4 credits  
 BIOL F115X--Fundamentals of Biology I--4 credits  
 BIOL F116X--Fundamentals of Biology II--4 credits  
 CHEM F202--Basic Inorganic Chemistry--3 credits  
 CHEM F212--Chemical Equilibrium and Analysis--4 credits  
 CHEM F321--Organic Chemistry I--4 credits  
 CHEM F322--Organic Chemistry II--3 credits  
 CHEM F331--Physical Chemistry I--3 credits  
 CHEM F450--General Biochemistry -- Macromolecules --3 credits  
 CHEM F451--General Biochemistry -- Metabolism--3 credits  
 CHEM F481--Seminar--1 credit  
 CHEM F482O--Seminar--2 credits  
 CHEM F488--Undergraduate Chemistry and Biochemistry Research--6 credits
  - Complete four of the following advanced chemistry/math courses:\* \*\*  
 CHEM F323--Organic Chemistry Laboratory (1)  
 or CHEM F324W--Advanced Organic Chemistry Laboratory (3)--3-4 credits  
 CHEM F332--Physical Chemistry II--4 credits  
 CHEM F434W--Chemistry Capstone Laboratory--3 credits  
 CHEM F314W--Analytical Instrumental Laboratory--3 credits  
 CHEM F402--Advanced Inorganic Chemistry --3 credits

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- CHEM F420--NMR Spectroscopy of Natural Products--3 credits  
 MATH F202X--Calculus III--4 credits
- Complete 10 credits of the following biology/biochemistry courses:\* \*\*  
 CHEM F360--Cell and Molecular Biology--4 credits  
 CHEM F418W--Developmental Biology--3 credits  
 CHEM F455W,O--Environmental Toxicology--3 credits  
 CHEM F470--Cellular and Molecular Neuroscience--3 credits  
 CHEM F474--Neurochemistry--3 credits  
 BIOL F240--Beginnings in Microbiology--4 credits  
 BIOL F260--Principles of Genetics--4 credits  
 BIOL F310--Animal Physiology--4 credits  
 BIOL F342--Microbiology--4 credits  
 BIOL F402W--Biomedical and Research Ethics--3 credits  
 BIOL F417O--Neurobiology--3 credits  
 BIOL F453O/2--Molecular Biology--4 credits  
 BIOL F462O--Concepts in Infectious Disease--3 credits  
 BIOL F465--Immunology--3 credits
  - Minimum credits required--120 credits

**C. PROPOSED REQUIREMENTS AS IT WILL APPEAR IN THE CATALOG WITH THESE CHANGES:**  
 (Underline new wording strike through old wording and use complete catalog format)

Biochemistry

- Complete the general university requirements. (As part of the core curriculum requirements, complete: MATH F200X; PHYS F103X and PHYS F104X, or PHYS F211X and PHYS F212X.)
- Complete the BS degree requirements. (As part of the BS degree requirements, complete: MATH F201X. Chemistry foundation courses may be used toward partial fulfillment of the natural science requirement.)
- Complete the following program (major) requirements:\*  
 CHEM F105X--General Chemistry I--4 credits  
 CHEM F106X--General Chemistry II--4 credits  
 BIOL F115X--Fundamentals of Biology I--4 credits  
 BIOL F116X--Fundamentals of Biology II--4 credits  
 CHEM F202--Basic Inorganic Chemistry--3 credits  
 CHEM F212--Chemical Equilibrium and Analysis--4 credits  
 CHEM F321--Organic Chemistry I--4 credits  
 CHEM F322--Organic Chemistry II--~~3~~4 credits  
 CHEM F331--Physical Chemistry I--3 credits  
 CHEM F450--General Biochemistry -- Macromolecules --3 credits  
 CHEM F4351--General Biochemistry -- Metabolism--3 credits  
 CHEM F481--Seminar--1 credit  
 CHEM F482O--Seminar--2 credits  
 CHEM F488--Undergraduate Chemistry and Biochemistry Research--6 credits
- Complete four of the following advanced chemistry/math courses:\* \*\*  
~~CHEM F323--Organic Chemistry Laboratory (1)~~  
 —or—CHEM F324W--Advanced Organic Chemistry Laboratory (3)--3-4 credits  
 CHEM F332--Physical Chemistry II--4 credits  
 CHEM F434W--Chemistry Capstone Laboratory--3 credits  
 CHEM F314W--Analytical Instrumental Laboratory--3 credits  
 CHEM F402--Advanced Inorganic Chemistry --3 credits  
 CHEM F420—Applications of NMR Spectroscopy of Natural Products--3 credits  
 MATH F202X--Calculus III--4 credits
- Complete 10 credits of the following biology/biochemistry courses:\* \*\*  
 CHEM F360--Cell and Molecular Biology--4 credits

this should be F325



- CHEM F418W--Developmental Biology--3 credits  
 CHEM F455W,O--Environmental Toxicology--3 credits  
 CHEM F470--Cellular and Molecular Neuroscience--3 credits  
 CHEM F474--Neurochemistry--3 credits  
 BIOL F240--Beginnings in Microbiology--4 credits  
 BIOL F260--Principles of Genetics--4 credits  
 BIOL F310--Animal Physiology--4 credits  
 BIOL F342--Microbiology--4 credits  
 BIOL F402W--Biomedical and Research Ethics--3 credits  
 BIOL F4170--Neurobiology--3 credits  
 BIOL F4530/2--Molecular Biology--4 credits  
 BIOL F4620--Concepts in Infectious Disease--3 credits  
 BIOL F465--Immunology--3 credits
6. Minimum credits required--120 credits

**D. ESTIMATED IMPACT**

*WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.*

No major impact. Chem 324W is being eliminated so it should free organic chemistry faculty to teach other courses at either the undergraduate or graduate level. Chem F323 is simply rolled into Chem F322. Under Category 4 above, the Chem F323 and Chem F324 are no longer options, but there are now 2 credits of organic lab included in the required courses in Category 3 in the form of Chem F321 and Chem F322.

**E. IMPACTS ON PROGRAMS/DEPTS:**

*What programs/departments will be affected by this proposed action?  
 Include information on the Programs/Departments contacted (e.g., email, memo)*

The change increases the organic lab credit of our BS, Option in Biochemistry by 1 credit, since Chem F322 is now includes a lab.

**F. IF MAJOR CHANGE - ASSESSMENT OF THE PROGRAM:**

*Description of the student learning outcomes assessment process.)*

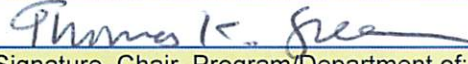
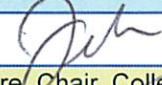

Students will still be able to gain the necessary synthetic organic lab skills through the Chem F321 and Chem F322, which are both 4 credits and include a lab.

**JUSTIFICATION FOR ACTION REQUESTED**

The purpose of the department and campus-wide curriculum committees is to scrutinize program/degree change applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. If you drop a course, is it because the material is covered elsewhere? Use as much space as needed to fully justify the proposed change and explain what has been done to ensure that the quality of the program is not compromised as a result.

The Advanced Organic Chemistry Laboratory (Chem 324W, 3 credits) is no longer needed to meet the needs of our students. We are adopting a more standard organic chemistry curriculum, where both Chem 321 (Organic Chem I) and Chem 322 (Organic Chem II) are both 4 credits and include 3-hr labs. The proposed change will be able to meet the needs of organic chemistry lab requirements of all of our chemistry majors, as well as pre-professional students and/or biology majors.

**APPROVALS: SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE**

	Date	9-18-14
Signature, Chair, Program/Department of:	Chem + Biochem	
	Date	9-25-14
Signature, Chair, College/School Curriculum Council for:	CNSM	
	Date	9/26/14
Signature, Dean, College/School of:	CNSM	

**CHAIR SIGNATURE OBTAINED FOLLOWING APPROVAL BY FACULTY SENATE COMMITTEE**

	Date	
Signature, Chair, UAF Faculty Senate ___ Curriculum Review Committee ___ Graduate Academic and Advisory Committee		