

Biochemistry and Neuroscience with Biochemistry Concentration Ph.D.

Program Requirements

Catalog Department Overview # (<https://catalog.uaf.edu/academic-departments/chemistry-biochemistry/>)

Minimum Requirements for Biochemistry and Neuroscience Ph.D. (including core courses): 38 credits

Code	Title	Credits
General University Requirements		
Complete the graduate general university requirements. (https://catalog.uaf.edu/phd/#gurphdtext)		
Ph.D. Degree Requirements		
Complete the Ph.D. degree requirements. (https://catalog.uaf.edu/phd/#phdrequirementstext)		18
As part of the Ph.D. requirements, complete the following:		
CHEM F699	Thesis (18 credits)	
Biochemistry and Neuroscience Program Requirements		
Complete three of the following:		9
CHEM F654	Protein Structure and Function	
CHEM F657	Molecular Foundations of Gene Expression	
CHEM F670	Cellular and Molecular Neuroscience	
CHEM F674	Membrane Biochemistry and Biophysics	
CHEM F675	Cellular Signaling	
Complete 9 credits of electives excluding thesis or project (CHEM F699 and CHEM F698).		9
Complete Ph.D. dissertation		
Complete seminar series CHEM F688 at least twice.		2
CHEM F688	Biochemical and Molecular Biology Seminar	
Total Credits		38

See Chemistry B.S. (<https://catalog.uaf.edu/bachelors/chemistry-bs/>) and M.S. (<https://catalog.uaf.edu/masters/chemistry/>) programs.

See Environmental Chemistry Ph.D. (<https://catalog.uaf.edu/phd/environmental-chemistry/>) program.

Admission Requirements

Complete the following admission requirements:

- Submit GRE General Test scores
- If English is not your native language, submit scores from both the Test of Spoken English and the Test of Written English, as well as

TOEFL scores. Requests, including justification, for exceptions to this requirement should be made to the chair of the department.

Roadmaps

Catalog Department Overview # (<https://catalog.uaf.edu/academic-departments/chemistry-biochemistry/>)

Roadmaps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

- This roadmap should be used in conjunction with regular academic advising appointments. All students are encouraged to meet with their advisor or mentor each semester.
- Some courses and milestones must be completed in the semester listed to ensure timely graduation.
- Transfer credit may change the roadmap.
- Requirements, course availability and sequencing are subject to change.
- Courses with (*) are recommended.

First Year		
Fall	Credits Spring	Credits
CHEM F654, F657, F670, F674, or F675 ²⁶	3 CHEM F654, F657, F670, F674, or F675 ²⁶	3
CHEM F654, F657, F670, F674, or F675 ²⁶	3 CHEM F699 ¹⁸	3
CHEM F699 ¹⁸	3 Program Elective	3
9		9
Second Year		
Fall	Credits Spring	Credits
CHEM F688 ²⁰	1 CHEM F688 ²⁰	1
CHEM F699 ¹⁸	3 CHEM F699 ¹⁸	3
Program Elective	3 Program Elective	3
7		7
Third Year		
Fall	Credits Spring	Credits
CHEM F699 ¹⁸	3 CHEM F699 ¹⁸	3
3		3
Total Credits 38		

Footnote Definitions

General Education Requirements	Degree Requirements	Program & Other Requirements
1—Communication	8—Alaska Native-themed	20—Program Requirement
2—Arts	9—Communication	21—Capstone Requirement
3—Humanities	10—Computation	22—Concentration Course
4—Social Sciences	11—Ethics	23—General Elective
5—Additional Arts, Humanities or Social Sciences	12—Humanities	24—Minor Course
6—Mathematics	13—Human Relations	25—Upper Division
7—Natural Sciences	14—Humanities or Social Sciences	26—Program Elective

15—Library & Information
Research

16—Mathematics

17—Natural Sciences

18—Other

19—Social Sciences

Learning Outcomes

Catalog Department Overview # (<https://catalog.uaf.edu/academic-departments/chemistry-biochemistry/>)

Learning Outcomes are measurable statements that describe knowledge or skills achieved by students upon completion of the program.

Students graduating from this program will be able to:

- Demonstrate strong written communication skills to communicate significance and innovation as well as technical details of biochemistry and neuroscience research
- Formulate hypotheses and articulate methods for testing hypotheses, and perform technical tasks and quantitative analyses needed to test hypotheses and interpret results
- Demonstrate general and specific knowledge of field and peer-reviewed literature and be able to critically analyze literature
- Demonstrate strong presentation skills
- Demonstrate strong professional skills