

# BIOCHEMISTRY AND MOLECULAR BIOLOGY

College of Natural Science and Mathematics  
Department of Chemistry and Biochemistry  
907-474-5510  
[www.uaf.edu/chem/](http://www.uaf.edu/chem/)

## MS, PhD Degrees

Minimum Requirements for Degrees: MS: 30 credits;  
PhD: 18 thesis credits

Biochemistry and molecular biology is an interdepartmental program administered by the Department of Chemistry and Biochemistry with research support through the Institute of Arctic Biology. A broad range of biomedical research experiences are available including molecular and cellular neuroscience, proteomics, protein structure-function and molecular toxicology. The arctic environment provides additional research opportunities in environmental biochemistry, adaptations and molecular genetics.

UAF faculty and affiliate faculty at collaborating institutions provide a rich academic environment encompassing both research and comprehensive course offerings. Students with career interests in biotechnology, pharmaceutical sciences, environmental health, genetics and biomedicine are encouraged to apply. Students are normally accepted with financial support (fellowships, research assistantships and/or teaching assistantships) along with tuition waivers.

### MS Degree

1. Complete the general university requirements (page 202).
2. Complete the master's degree requirements (page 206).
3. Complete the following:  
CHEM F654—Protein Structure and Function.....3  
CHEM F657—Molecular Foundations of Gene Expression .....3  
CHEM F674—Membrane Biochemistry and Biophysics .....3
4. Complete a research thesis.
5. Minimum credits required .....30

### MS Degree with Neuroscience Option

1. Complete the general university requirements (page 202).
2. Complete the master's degree requirements (page 206).
3. Complete the following:  
CHEM F654—Protein Structure and Function.....3  
CHEM F657—Molecular Foundations of Gene Expression .....3  
CHEM F674—Membrane Biochemistry and Biophysics .....3
4. Complete the following:  
BIOL F617—Neurobiology .....3
5. Complete a neuroscience research thesis
6. Minimum credits required .....30

### PhD Degree

1. Complete the general university requirements (page 202).
2. Complete the PhD degree requirements (page 207).
3. Complete the following:  
CHEM F654—Protein Structure and Function.....3  
CHEM F657—Molecular Foundations of Gene Expression .....3  
CHEM F674—Membrane Biochemistry and Biophysics .....3
4. Complete three electives.
5. Complete PhD dissertation.
6. Complete two seminar series (CHEM F692).
7. Minimum credits required (including core courses) .....38

### PhD Degree with Neuroscience Option

1. Complete the general university requirements (page 202).
2. Complete the PhD degree requirements (page 207).
3. Complete the following:  
CHEM F654—Protein Structure and Function.....3  
CHEM F657—Molecular Foundations of Gene Expression .....3  
CHEM F674—Membrane Biochemistry and Biophysics .....3
4. Complete three electives with two of the electives in neurosciences.
5. Complete PhD dissertation in a field of neuroscience.
6. Complete two seminar series (CHEM F692).
7. Minimum credits required (including core courses) .....38