

CHEMISTRY

College of Natural Science and Mathematics
Department of Chemistry and Biochemistry
907-474-5510
www.uaf.edu/chem/

MA, MS Degrees

Minimum Requirements for Degrees: 30 credits

Graduates in chemistry qualify for employment in many fields as teachers of chemistry; supervisors in industry; technical sales personnel; research chemists in federal, state, municipal, academic or industrial laboratories; in pre-medicine; and as laboratory technicians. The rapid introduction of chemical techniques in all branches of commerce and the creation of many synthetic products have caused substantial growth in the profession. In addition to the traditional employment opportunities in chemistry, well-qualified graduates find positions in the fields of environmental sciences, oceanography, biochemistry, neuroscience, and related interdisciplinary fields. Many recipients of chemistry master's degrees continue their education to obtain PhD degrees at UAF or other universities. The MS program also has concentrations in the departmental focal areas of biochemistry and neuroscience and environmental chemistry. The department also offers PhD degrees in each of these areas. See the biochemistry and neuroscience and environmental chemistry PhD programs.

The department offers well-equipped laboratories housing instrumentation for nuclear magnetic resonance spectrometry, infrared, ultraviolet/visible and atomic absorption spectrophotometry, mass spectrometry, gas chromatography, amino acid analysis and HPLC. Additional equipment for gas chromatography/mass spectrometry, X-ray diffractometry, electron microscopy and liquid scintillating counters is available in cooperation with other UAF departments and institutes.

MA Degree*

1. Complete the general university requirements (page 200).
 2. Complete the master's degree requirements (page 204).
 3. Note that only up to 6 credits of non-thesis research project may be applied towards degree credit requirements.
 4. Minimum credits required30
- * This is a non-thesis degree program. Substitute a research project (CHEM F698) for thesis.

MS Degree

1. Complete the following admission requirements:
 - a. Submit GRE General Test scores.
 - b. 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.
2. Complete the general university requirements (page 200).
3. Complete the master's degree requirements (page 204).
4. Complete a research-based thesis.
5. Complete seminar (CHEM F692).....2
6. Complete at least one semester of assisting in an undergraduate chemistry laboratory.
7. Minimum credits required30

Optional Concentrations: Biochemistry and Neuroscience, Environmental Chemistry

MS Degree—Biochemistry and Neuroscience concentration

1. Complete the following admission requirements:
 - a. Submit GRE General Test scores.
 - b. 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.
2. Complete the general university requirements (page 200).
3. Complete the master's degree requirements (page 204).
4. Complete three of the following:

CHEM F654—Protein Structure and Function.....	3
CHEM F657—Molecular Foundations of Gene Expression	3
CHEM F674—Membrane Biochemistry and Biophysics	3
CHEM F670—Cellular and Molecular Neuroscience	3
CHEM F675—Cellular Signaling	3
5. Complete a research thesis.
6. Minimum credits required30

MS Degree—Environmental Chemistry concentration

1. Complete the following admission requirements:
 - a. Submit GRE General Test scores.
 - b. 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.
 2. Complete the general university requirements (page 200).
 3. Complete the master's degree requirements (page 204).
 4. Complete two of the following:

CHEM F605—Aquatic Chemistry.....	3
CHEM F606—Atmospheric Chemistry.....	3
CHEM F631—Environmental Fate and Transport	3
CHEM F655—Environmental Toxicology	3
 5. Complete two seminar courses:

CHEM F691—Research Presentation Techniques.....	1
CHEM F692—Seminar.....	1
 6. Complete approved electives*.....3-6
 7. Complete a research thesis.....12
 8. Minimum credits required30
- * Approved electives are specified by the student's committee. The following tracks are defined as a guide. Within these tracks students will be expected to complete as part of the core and electives:
- i. *Atmospheric Chemistry:* CHEM F601, CHEM F605, CHEM F606 and CHEM F631
 - ii. *Aqueous/Environmental Geochemistry:* CHEM F605, CHEM F606 or CHEM F631, GEOS F618 and CHEM F609/GEOS F633.
 - iii. *Environmental Toxicology and Contaminant Fate:* CHEM F605 or CHEM F606, CHEM F631 and CHEM F655
- A customized focus area may be developed based on an appropriate sequence of core and elective courses, subject to approval by the student's advisory committee.
- See Biochemistry and Neuroscience.
See Environmental Chemistry.