

#8-GPCh. and Memo

Revised 3/3/2014

FORMAT 5

Submit originals and one copy and electronic copy to Governance/Faculty Senate Office (email electronic copy to jbharvie@alaska.edu)

PROGRAM/DEGREE REQUIREMENT CHANGE (MAJOR)

SUBMITTED BY:

Department	Chemistry and Biochemistry	College/School	CNSM
Prepared by	William Simpson	Phone	474-7235
Email Contact	wrsimpson@alaska.edu	Faculty Contact	William Simpson / Kelly Drew

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

Biochemistry and Molecular Biology

Degree Level: (i.e., Certificate, A.A., A.A.S., B.A., B.S., M.A., M.S., Ph.D.)

M.S. and Ph.D. degrees

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

1. Change name of program from Biochemistry and Molecular Biology to Biochemistry and Neuroscience
2. Increase the number of core courses from 3 to 5 (adding CHEM 675 Cellular Signaling and CHEM 670 Cellular and Molecular Neuroscience as core courses)
3. Change requirement to take all 3 core courses to requirement to take 3 out of 5 core courses
4. Add clarity that the GRE is required
5. Move the M.S. degree to be a concentration under the Chemistry M.S. degree. Note that this paperwork shows the M.S. being eliminated here, but we intend to maintain focus and success in this area under the Chemistry M.S.. By this change, we simplify and improve our assessment of student learning outcomes.

B. CURRENT REQUIREMENTS AS IT APPEARS IN THE CATALOG:

BIOCHEMISTRY AND MOLECULAR BIOLOGY

College of Natural Science and Mathematics Department of Chemistry and Biochemistry 907-474-5510
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 Expression3
CHEM F674—Membrane Biochemistry and Biophysics3
4. Complete a research thesis.
5. Minimum credits required30

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 Expression3

- CHEM F674— Membrane Biochemistry and Biophysics3
4. Complete the following:
- BIOL F617— Neurobiology3
5. Complete a neuroscience research thesis
6. Minimum credits required30

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 Expression3
- CHEM F674— Membrane Biochemistry and Biophysics3
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 Expression3
- CHEM F674— Membrane Biochemistry and Biophysics3
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

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 AND NEUROSCIENCE MOLECULAR BIOLOGY

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

MS, PhD Degrees

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

Biochemistry and ~~molecular biology~~ neuroscience 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. Students seeking a M.S. degree in these research areas should see the M.S. Chemistry with concentration in Biochemistry and Neuroscience degree.

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 3 courses from the following list:~~
- ~~CHEM F654— Protein Structure and Function.....3~~
- ~~CHEM F657— Molecular Foundations of Gene Expression3~~
- ~~CHEM F674— Membrane Biochemistry and Biophysics3~~
4. ~~Complete a research thesis.~~
5. ~~Minimum credits required30~~

MS Degree with Neuroscience Option

1. ~~Complete the general university requirements (page 202).~~
2. ~~Complete the master's degree requirements (page 206).~~
3. ~~Complete 3 courses from the following list:~~
- ~~CHEM F654— Protein Structure and Function.....3~~
- ~~CHEM F657— Molecular Foundations of Gene Expression3~~

1.	CHEM F674—Membrane Biochemistry and Biophysics	3
4.	Complete the following:	
5.	BIOL F617—Neurobiology	3
5.	Complete a neuroscience research thesis	
6.	Minimum credits required	30

PhD Degree with biochemistry 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.
- ~~1-2.~~ Complete the general university requirements (page 202).
- ~~2-3.~~ Complete the PhD degree requirements (page 207).
- ~~3-4.~~ Complete 3 courses from the following list:

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
- ~~4-5.~~ Complete three electives.
- ~~5-6.~~ Complete PhD dissertation.
- ~~6-7.~~ Complete two seminar series (CHEM F692).
- ~~7-8.~~ Minimum credits required (including core courses)38

PhD Degree with Neuroscience ~~option~~ 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.
- ~~1-2.~~ Complete the general university requirements (page 202).
- ~~2-3.~~ Complete the PhD degree requirements (page 207).
- ~~3-4.~~ Complete 3 courses from the following list:

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
- ~~4-5.~~ Complete three electives with two of the electives in neurosciences.
- ~~5-6.~~ Complete PhD dissertation in a field of neuroscience.
- ~~6-7.~~ Complete two seminar series (CHEM F692).
- ~~7-8.~~ Minimum credits required (including core courses)38

See: Chemistry B.A., B.S., and M.S. programs

See: Environmental Chemistry

D. ESTIMATED IMPACT

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

Expanding the scope of required core courses will provide greater breadth for students in the program and utilize expertise in the added core course curriculum. These courses are offered currently so no additional impact on facilities/space or faculty is expected.

The move of the M.S. degree to under the Chemistry M.S. (as a concentration) will simplify paperwork and improve assessment of student learning outcomes through larger numbers of students passing through the Chemistry M.S. program.

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)

None outside our department

F. IF MAJOR CHANGE - ASSESSMENT OF THE PROGRAM:

Description of the student learning outcomes assessment process.)

The Ph.D. graduate comprehensive exam will be changed so that students answer questions in at least 3 of the 5 core subject areas rather than in 3 out of 3 subject areas.

The comprehensive exam guide will be changed to read as follows:

A selection of questions will focus on the material covered in the BNS core courses (C654, C657, C674, C670, C675 including prerequisites) as well as the general biochemistry courses C450 and C451. Students will be required to answer questions in 3 of the 5 core course subject areas as well as questions pertaining to general biochemistry.

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.

Changing the name of the program from Biochemistry and Molecular Biology to Biochemistry and Neuroscience is justified because 5 out of 7 core faculty members have formal training and research programs in neuroscience. None of our core faculty conducts research in molecular biology. Neuroscience serves UAF and Alaska as an interdisciplinary field of study that prepares students for careers in medicine, pharmacy, veterinary medicine, nursing and biomedical research.

Expanding the choice of core courses is justified based on student demand, faculty expertise and breadth of biochemistry and neuroscience.

The department chose to add the requirement for GRE testing and with this change is putting this revision into the catalog.

The move of the M.S. degree to be a concentration under the Chemistry M.S. will unify and simplify program procedures for all of our M.S. students. However, operationally we have already had a similar set of procedures for all M.S. students, so this change will be simple and not a large change to graduate students.

APPROVALS:

See attached signatures and Memo

William Simpson

Date 20 Sep 2013

Signature, Chair, Program/Department of: Chemistry and Biochemistry

Date

Signature, Chair, College/School Curriculum Council for:

Date

Signature, Dean, College/School of:

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

Date

Signature, Chair, UAF Faculty Senate Curriculum Review Committee

F. IF MAJOR CHANGE - ASSESSMENT OF THE PROGRAM:

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APPROVALS:

William Simpson	Date	20 Sep 2013
Signature, Chair, Program/Department of: Chemistry and Biochemistry		
Thomas K. Green	Date	10-1-13
Signature, Chair, College/School Curriculum Council for: CNSM		
[Signature]	Date	10/2/13
Signature, Dean, College/School of: CNSM		

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

	Date	
Signature, Chair, UAF Faculty Senate Curriculum Review Committee		



Department of Chemistry and Biochemistry

900 Yukon Dr., Reichardt Building Room 194
P.O. Box 756160
Fairbanks, AK 99775-6160
(907) 474-5510 • Fax (907) 474-5640
chemistry.uaf@alaska.edu • www.uaf.edu/chem

America's Arctic University

3 March 2014

To: Provost Dr. Susan Henrichs
Through: Dr. Paul Layer, Dean, CNSM
From: Dr. Bill Simpson, Chemistry and Biochemistry Chair
Cc: Jayne Harvie, Coordinator, Faculty Senate Office

Subject: Masters of Science program reorganizations

As a result of our Spring 2013 department retreat, we decided to reorganize the three M.S. programs that are within the Chemistry and Biochemistry department. Specifically, we seek to and have submitted paperwork to Faculty Senate for the following actions:

Under the Chemistry M.A. and M.S. program:

- Add two concentrations to the M.S.:
 - Biochemistry and Neuroscience
 - Environmental Chemistry

Under Environmental Chemistry program:

- Retain the Ph.D.
- Suspend admissions to the M.S. and direct students to use the Chemistry M.S. / Environmental concentration instead

Under the Biochemistry and Molecular Biology program:

- Change the program name to Biochemistry and Neuroscience
- Retain the Ph.D.
- Suspend admissions to the M.S. and direct students to use the Chemistry M.S. / Biochemistry and Neuroscience concentration instead.

The net result of these actions is to “unify” our three M.S. degrees to be one M.S. degree, which will have a larger student flow and thus be more easily assessable. Procedures (e.g. comprehensive examinations, committee meeting procedures, assessment, etc.) for each of the separate M.S. degrees were already similar, but with this change, they would all be the same, allowing us to present information more easily to new students. Additionally, unification of the M.S. degrees may increase collaborative opportunities for faculty in the department, who would now share more common ground through this unified M.S. program.

The department still sees the areas of Biochemistry and Neuroscience and Environmental Chemistry as principal focal areas and the Ph.D. programs that we have in these two areas would continue to be our most advanced degrees. Most active research is in these areas, so it is likely that most graduate students will take the new M.S. concentrations. These M.S. degrees lead to high demand jobs in Environmental Chemistry, Neuroscience, and Biomedical areas.

With this memo, we request to suspend admissions and not list the M.S. in Biochemistry and Neuroscience (new name) and the M.S. in Environmental Chemistry the catalog. Students would be directed to take the M.S. Chemistry concentrations of the same name instead. If we find that this new plan is working in a couple of years, we will formally request to eliminate the M.S. programs that have been replaced by concentrations under the M.S. Chemistry.