I. Roll
( ) Alberta Harder (FS) ( ) Dave Fitzgerald (CBPP) ( ) Michael Hawfield (KPC)
( ) Soren Orley (FS) ( ) Eileen Weatherby (COH) ( ) Sheri Denison (Mat-su)
( ) Francisco Miranda (CAS, Chair) ( ) Irasema Ortega (COE) ( ) Kathrynn Hollis Buchanan (Kod)
( ) Barbara Harville (CAS) ( ) Jeffrey Callahan (CTC) ( ) Christina Stuive (ADV)
( ) Mari Ippolito (CAS) ( ) Utpal Dutta (SOE)
( ) Len Smiley (CAS) ( ) Kevin Keating (LIB)

Ex-Officio Members
( ) Susan Kalina
( ) Lora Volden
( ) Michael Worth

II. Approval of the Agenda (pg.1)

III. Approval of Meeting Summary (pg. 2)

IV. Administrative Report

A. Vice Provost for Undergraduate Academic Affairs Susan Kalina

B. University Registrar Lora Volden

V. Chair’s Report

A. UAB Chair- Francisco Miranda

B. GERC

VI. Program/Course Action Request- Second Readings

Chg BS, Chemistry (pg. 3-14)

VII. Program/Course Action Request- First Readings

VIII. Old Business

IX. New Business

A. Delete Course TECH 422 – Bachelor of Science, Technology (pg. 15)

B. Federal Compliance Regulations related to Grading and Attendance (pg. 16)

X. Informational Items and Adjournment
Undergraduate Academic Board
Summary

October 18, 2013
2:00-5:00
ADM 204

I. Roll
(x) Alberta Harder (FS)
(x) Soren Orley (FS)
(x) Francisco Miranda (CAS, Chair)
(x) Barbara Harville (CAS)
(x) Mari Ippolito (CAS)
(x) Len Smiley (CAS)
(x) Dave Fitzgerald (CBPP)
(x) Eileen Weatherby (COH)
(x) Jeffrey Callahan (CTC)
(x) Upal Dutta (SOE)
(x) Kevin Keating (LIB)
(x) Michael Hawfield (KPC)
(x) Sheri Denison (Mat-su)
(e) Irasema Ortega (COE)
(e) Kathrynn Hollis Buchanan (Kod)
(x) Jeffrey Callahan (CTC)
(x) Michael Worth

Ex-Officio Members
(x) Susan Kalina
( ) Lora Volden
( ) Kathrynn Hollis Buchanan

II. Approval of the Agenda (pg.1-2)
Approved

III. Approval of Meeting Summary (pg. 3-4)
Approved

IV. Administrative Report
A. Vice Provost for Undergraduate Academic Affairs Susan Kalina
NWCCU site visit is scheduled for Monday, October 21st; visit will focus on the Psychology doctoral program

B. University Registrar Lora Volden
No Report

V. Chair’s Report
A. UAB Chair- Francisco Miranda
B. GERC
Approved MUS/AKNS A216 with a change of title

VI. Program/Course Action Request- Second Readings
Add  MUS A216  World Indigenous Music (GER) (Cross Listed with AKNS A216) (3 cr)(3+0)(pg. 5-8)
Unanimously Approved

Add  AKNS A216  World Indigenous Music (GER) (Cross Listed with MUS A216) (3 cr)(3+0)(pg. 9-12)
Unanimously Approved

Chg  CHEM A411  Biophysical Chemistry (Stacked with CHEM A611) (3 cr)(3+0)(pg. 13-22)
Chg  CHEM A450  Environmental Chemistry (Stacked with (CHEM A650)(3 cr)(3+0)(pg. 23-33)
Chg  CHEM A477  Bioanalytical Chemistry (Stacked with CHEM A677)(3 cr)(3+6)(pg. 34-44)
Add  CHEM A480  Nuclear Magnetic Resonance (stacked with CHEM A680)(3 cr)(3+0)(pg. 45-53)
Add  CHEM A490  Selected Lecture Topics in Chemistry (Stacked with CHEM A690) (1-3 cr)(1-3+0)(pg. 54-63)
Add  CHEM A495  Chemistry Internship (3 cr)(0+9)(pg. 64-68)

All CHEM courses are unanimously approved
VII. Program/Course Action Request- First Readings
Chg BS, Chemistry (pg. 69-80)
  Accepted for first reading

Chg ART A270 Beginning Alaska Native Art (Stacked with ART A370/A470)
      (3 cr)(0+6)9pg. 81-85
  Waive first reading, approve for second

Chg ART A370 Intermediate Alaska Native Art (Stacked with ART A270/A470)
       (3 cr)(0+6)9pg. 86-91
  Waive first reading, approve for second

Chg ART A470 Advanced Alaska Native Art (Stacked with ART A270/A370)
        (3 cr)(0+6)9pg. 92-97
  Waive first reading, approve for second

VIII. Old Business
IX. New Business
X. Informational Items and Adjournment
1a. School or College
   AS CAS

1b. Department
   Chemistry

2. Complete Program Title/Prefix
   Bachelor of Science, Chemistry

3. Type of Program
   Choose one from the appropriate drop down menu:
   Undergraduate: or Graduate: 
   Bachelor of Science or CHOOSE ONE
   This program is a Gainful Employment Program:
   □ Yes or ☑ No

4. Type of Action:
   PROGRAM
   ☑ Add
   □ Change
   □ Delete
   PREFIX
   □ Add
   □ Change
   □ Inactivate

5. Implementation Date (semester/year)
   From: Spring/2014 To: 99/9999

6a. Coordination with Affected Units
   Department, School, or College: Math, Biological Sciences, Physics
   Initiator Name (typed): Eric Holmberg
   Initiator Signed Initials: 
   Date: 

6b. Coordination Email submitted to Faculty Listserv (uafaculty@lists.uaa.alaska.edu)
   Date: 12/20/2012

6c. Coordination with Library Liaison
   Date: 

7. Title and Program Description - Please attach the following:
   ☑ Cover Memo
   ☑ Catalog Copy in Word using the track changes function

8. Justification for Action
   Updating the requirements for the BS in Chemistry/Biochem option to reflect the skill set required in a graduate or work environment.

   Initiator (faculty only) Date
   Initiator (TYPE NAME) Date
   Dean/Director of School/College Date
   Undergraduate/Graduate Academic Board Chair Date
   Provost or Designee Date
1. A total of 122-125 credits is required for the degree, 42 credits of which must be upper division.

**Bachelor of Science, Natural Sciences**

The Department of Biological Sciences also oversees the Bachelor of Science in Natural Sciences. This curriculum emphasizes the interrelationships among the sciences. A program of study in the Natural Sciences requires that students select an option within the degree, and complete all courses required within the option, as well as sufficient science elective courses to meet minimum unit requirements for graduation. Students accepted into this flexible degree program select one of three options: the General Sciences Option is designed for students who are interested in understanding the interrelationships among various scientific fields, or in teaching science at the secondary level. The Pre-Health Professions Option is designed to meet the admission requirements of specific professional schools in medicine, dentistry, and veterinary medicine. The Environmental Sciences Option is designed to prepare students for graduate school or for employment in the private or public sector.

For a complete program description see the Natural Sciences section of this chapter.

**Minor, Biological Sciences**

Students majoring in another subject who wish to minor in Biological Sciences must complete the following requirements. A total of 28 credits is required for the minor, 12 of which must be upper division.

- BIOL A115 Fundamentals of Biology I 4
- BIOL A116 Fundamentals of Biology II 4
- BIOL A242 Fundamentals of Cell Biology 4
- BIOL A252 Principles of Genetics 4
- Upper division Biological Sciences electives 12

**FACULTY**

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- Eric Bortz, Assistant Professor
- Loren Buck, Professor, clbuck@uaa.alaska.edu
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- Kristine Mann, Professor Emeritus, afkem@uaa.alaska.edu
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- Frank von Hippel, Professor, favonhippel@uaa.alaska.edu

**CHEMISTRY**

ConocoPhillips Integrated Sciences Building (CPSB), Room 101Q, (907) 786-1238

www.uaa.alaska.edu/chemistry

Chemistry is the science concerned with substances and their properties, composition, and reactions. Recent advances in chemistry have exerted a profound influence on the progress of medicine, agriculture, industry, and commerce.
The undergraduate courses in Chemistry offered at UAA are designed primarily to provide a broad knowledge of the field as a part of the program of liberal education offered by the College of Arts and Sciences. They are also designed to provide a substantial foundation in chemistry for students interested in post-graduate studies in chemistry or the other sciences, preparation for professional degrees, teaching, or a career in government or industry. Students majoring in Chemistry will meet basic course requirements in inorganic, analytical, organic, physical chemistry and biochemistry.

The biochemistry option is designed for students who prefer a more biologically oriented approach to chemistry. During the past 25 years, biochemistry has become a central scientific discipline linking the chemical, physical, and biological sciences. By applying the concepts and methods of chemistry to the problems of biology, biochemists have made great progress in explaining life in chemical terms.

**High School Preparation**

The Bachelor of Science in Chemistry with options in Chemistry or Biochemistry is a four-year baccalaureate program which assumes a proper high school preparation. Consult the College of Arts and Sciences list of recommended preparatory courses in all disciplines. The specific coursework which a freshman student must have mastered for admission to the Chemistry program without a deficiency includes:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
</tr>
<tr>
<td>Algebra</td>
<td>2</td>
</tr>
<tr>
<td>(This must have included complex numbers, logarithms, quadratic functions, inequalities and absolute values, plus conic sections).</td>
<td></td>
</tr>
<tr>
<td>Geometry</td>
<td>1</td>
</tr>
<tr>
<td>Trigonometry</td>
<td>1/2</td>
</tr>
<tr>
<td>Natural Sciences</td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td>1</td>
</tr>
<tr>
<td>(This must cover mechanics, thermodynamics, electricity and magnetism, and optics).</td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td>1</td>
</tr>
<tr>
<td>(This must cover elementary laboratory procedures, introduction to atoms and molecules, chemical reactions, equilibrium, and an introduction to chemical calculations).</td>
<td></td>
</tr>
</tbody>
</table>

It is strongly recommended that students graduating from high school without the preparation indicated above enroll in available preparatory science courses during the summer session to make up deficiencies so that they can begin the fall semester with the correct sequence of the freshman Chemistry curriculum. If this is not done, it will be necessary to carry heavier course loads or take more than eight semesters to complete the degree. Students are reminded that it is imperative for them to regularly (at least once per semester) consult a departmental advisor to evaluate their progress through the program of study.

**Program Student Learning Outcomes**

It is expected that graduates of the Chemistry program will have the ability to:

1. Understand and critically solve problems related to the Physical and Natural Sciences and present those solutions for the advancement of knowledge in the field of Chemistry and Biochemistry.
2. Design and conduct experiments that include fieldwork, laboratory analyses, instrumental methods, theoretical development and interpretation in the discipline.

**Honors in Chemistry**

The Department of Chemistry awards departmental honors in Chemistry to undergraduate students who show exceptional performance in all of their coursework. To graduate with honors students must:

1. Satisfy all requirements for a Bachelor of Science degree in Chemistry.
2. Meet the requirements for Graduation with Honors as listed in Chapter 7.
3. Maintain a minimum GPA of 3.50 in Chemistry classes.
4. Complete, with distinction, a written assignment in the style of a chemical journal based on the research performed in CHEM A498.
5. Notify the Departmental Honors Committee in writing at the time they file their Application for Graduation with the Office of the Registrar that they intend to graduate with departmental honors.

**Bachelor of Science, Chemistry**

**Admission Requirements**

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7.
**Academic Progress**

In order to graduate with a BS in Chemistry, all courses covered under Major Requirements for a BS in Chemistry must be completed with a grade of C or better.

**Graduation Requirements**

Students must complete the following graduation requirements:

A. **General University Requirements**

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. **General Education Requirements**

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. **College of Arts and Sciences Requirements**

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section.

D. **Major Requirements**

Students are strongly encouraged to talk to a faculty advisor in the Chemistry Department to ensure that the necessary math and science courses are taken in the first two years of study.

1. Students working toward a degree in Chemistry can choose one of two options:

**Chemistry Option (83-84 credits)**

Complete the following required courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL A115</td>
<td>Fundamentals of Biology I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM A105</td>
<td>General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A105L</td>
<td>General Chemistry I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>CHEM A106</td>
<td>General Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A106L</td>
<td>General Chemistry II Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>CHEM A253</td>
<td>Principles of Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A312</td>
<td>Quantitative Analysis</td>
<td>5</td>
</tr>
<tr>
<td>CHEM A321</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A322</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A323L</td>
<td>Organic Chemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHEM A331</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A332</td>
<td>Physical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A333L</td>
<td>Physical Chemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHEM A434</td>
<td>Instrumental Methods</td>
<td>5</td>
</tr>
<tr>
<td>CHEM A441</td>
<td>Principles of Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A453</td>
<td>Advanced Inorganic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>CHEM A492</td>
<td>Undergraduate Seminar (1)</td>
<td>2</td>
</tr>
<tr>
<td>CHEM A498</td>
<td>Individual Research (3)</td>
<td>6</td>
</tr>
<tr>
<td>MATH A200</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH A201</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH A202</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH A314</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>PHYS A211</td>
<td>General Physics I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS A211L</td>
<td>General Physics I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS A212</td>
<td>General Physics II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS A212L</td>
<td>General Physics II Laboratory</td>
<td>1</td>
</tr>
</tbody>
</table>

*Upper Division Elective (choose one of the following) 3-4*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL A310</td>
<td>Principles of Physiology (4)</td>
</tr>
<tr>
<td>BIOL A415</td>
<td>Comparative Animal Physiology (3)</td>
</tr>
<tr>
<td>BIOL A461</td>
<td>Molecular Biology (3)</td>
</tr>
<tr>
<td>CHEM A442</td>
<td>Principles of Biochemistry II (3)</td>
</tr>
<tr>
<td>CHEM A450</td>
<td>Environmental Chemistry (3)</td>
</tr>
</tbody>
</table>
CHEM A456 Nonlinear Dynamics and Chaos (3)
CHEM A460 Chemical Ecotoxicology (3)
CHEM A471 Immunochemistry (4)
GEOL A321 Mineralogy (4)
GEOL A360 Geochemistry (3)
GEOL A460 Environmental Geochemistry (3)
MATH A302 Ordinary Differential Equations (3)
MATH A422 Partial Differential Equations (3)
PHYS A303 Modern Physics (3)
PHYS A320 Simulation of Physical Systems (3)
PHYS A403 Quantum Mechanics (3)
PHYS A413 Statistical and Thermal Mechanics (3)

**Biochemistry Option (88 credits)**

Complete the following required courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL A115</td>
<td>Fundamentals of Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL A116</td>
<td>Fundamentals of Biology II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL A242</td>
<td>Fundamentals of Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL A252</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BIOL A461</td>
<td>Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A105</td>
<td>General Chemistry I</td>
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<td>CHEM A105L</td>
<td>General Chemistry I Laboratory</td>
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</tr>
<tr>
<td>CHEM A106</td>
<td>General Chemistry II</td>
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<tr>
<td>CHEM A106L</td>
<td>General Chemistry II Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>CHEM A253</td>
<td>Principles of Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A312</td>
<td>Quantitative Analysis</td>
<td>5</td>
</tr>
<tr>
<td>CHEM A321</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A322</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A323L</td>
<td>Organic Chemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHEM A311</td>
<td>Physical Chemistry: A Biological Orientation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>CHEM A331</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A441</td>
<td>Principles of Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A442</td>
<td>Principles of Biochemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A443</td>
<td>Biochemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHEM A492</td>
<td>Undergraduate Seminar (1)</td>
<td>2</td>
</tr>
<tr>
<td>CHEM A498</td>
<td>Individual Research (3)</td>
<td>6</td>
</tr>
<tr>
<td>MATH A200</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH A201</td>
<td>Calculus II</td>
<td>4</td>
</tr>
</tbody>
</table>

(either Physics sequence)

<table>
<thead>
<tr>
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<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYS A123</td>
<td>Basic Physics I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS A123L</td>
<td>Basic Physics I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS A124</td>
<td>Basic Physics II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS A124L</td>
<td>Basic Physics II Laboratory</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>PHYS A211</td>
<td>General Physics I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS A211L</td>
<td>General Physics I Laboratory</td>
<td>1</td>
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<tr>
<td>PHYS A212</td>
<td>General Physics II</td>
<td>3</td>
</tr>
<tr>
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</tr>
</tbody>
</table>

**Upper Division Selective (choose from the following)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL A310</td>
<td>Principals of Physiology (4)</td>
<td></td>
</tr>
<tr>
<td>BIOL A340</td>
<td>General Microbiology (5)</td>
<td></td>
</tr>
<tr>
<td>BIOL A415</td>
<td>Comparative Animal Physiology (3)</td>
<td></td>
</tr>
</tbody>
</table>
2. A total of 120-126 credits is required for the degree, of which 42 credits must be upper division.

**Minor, Chemistry**

Students majoring in another subject who wish to minor in Chemistry must complete the following requirements. A total of 24 credits is required for the minor.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM A105</td>
<td>General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A105L</td>
<td>General Chemistry I Laboratory</td>
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</tr>
<tr>
<td>CHEM A106</td>
<td>General Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A106L</td>
<td>General Chemistry II Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>CHEM A312</td>
<td>Quantitative Analysis</td>
<td>5</td>
</tr>
<tr>
<td>CHEM A321</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A322</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A323L</td>
<td>Organic Chemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHEM A311</td>
<td>Physical Chemistry: A Biological Orientation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>CHEM A331</td>
<td>Physical Chemistry I (3)</td>
<td></td>
</tr>
</tbody>
</table>

**FACULTY**

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*Colin McGill, Assistant Professor, cmmcgill@uaa.alaska.edu*

*Mark McCoy, Assistant Professor, mrmccoy@uaa.alaska.edu*

*Liliya Vugmeyster, Assistant Professor, lvugmeyster@uaa.alaska.edu*
1. A total of 122-125 credits is required for the degree, 42 credits of which must be upper division.

**Bachelor of Science, Natural Sciences**

The Department of Biological Sciences also oversees the Bachelor of Science in Natural Sciences. This curriculum emphasizes the interrelationships among the sciences. A program of study in the Natural Sciences requires that students select an option within the degree, and complete all courses required within the option, as well as sufficient science elective courses to meet minimum unit requirements for graduation. Students accepted into this flexible degree program select one of three options: the General Sciences Option is designed for students who are interested in understanding the interrelationships among various scientific fields, or in teaching science at the secondary level. The Pre-Health Professions Option is designed to meet the admission requirements of specific professional schools in medicine, dentistry, and veterinary medicine. The Environmental Sciences Option is designed to prepare students for graduate school or for employment in the private or public sector.

For a complete program description see the Natural Sciences section of this chapter.

**Minor, Biological Sciences**

Students majoring in another subject who wish to minor in Biological Sciences must complete the following requirements. A total of 28 credits is required for the minor, 12 of which must be upper division.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL A115</td>
<td>Fundamentals of Biology I</td>
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<td>BIOL A116</td>
<td>Fundamentals of Biology II</td>
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<tr>
<td>BIOL A242</td>
<td>Fundamentals of Cell Biology</td>
<td>4</td>
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<tr>
<td>BIOL A252</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Upper division Biological Sciences electives</td>
<td>12</td>
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</tbody>
</table>

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**CHEMISTRY**

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www.uaa.alaska.edu/chemistry

Chemistry is the science concerned with substances and their properties, composition, and reactions. Recent advances in chemistry have exerted a profound influence on the progress of medicine, agriculture, industry, and commerce.
The undergraduate courses in Chemistry offered at UAA are designed primarily to provide a broad knowledge of the field as a part of the program of liberal education offered by the College of Arts and Sciences. They are also designed to provide a substantial foundation in chemistry for students interested in post-graduate studies in chemistry or the other sciences, preparation for professional degrees, teaching, or a career in government or industry. Students majoring in Chemistry will meet basic course requirements in inorganic, analytical, organic, physical chemistry and biochemistry.

The biochemistry option is designed for students who prefer a more biologically oriented approach to chemistry. During the past 25 years, biochemistry has become a central scientific discipline linking the chemical, physical, and biological sciences. By applying the concepts and methods of chemistry to the problems of biology, biochemists have made great progress in explaining life in chemical terms.

High School Preparation

The Bachelor of Science in Chemistry with options in Chemistry or Biochemistry is a four-year baccalaureate program which assumes a proper high school preparation. Consult the College of Arts and Sciences list of recommended preparatory courses in all disciplines. The specific coursework which a freshman student must have mastered for admission to the Chemistry program without a deficiency includes:

**English**
- 4 years

**Mathematics**
- **Algebra**: 2 years
  - (This must have included complex numbers, logarithms, quadratic functions, inequalities and absolute values, plus conic sections).
- **Geometry**: 1 year
- **Trigonometry**: 1/2 year

**Natural Sciences**
- **Physics**: 1 year
  - (This must cover mechanics, thermodynamics, electricity and magnetism, and optics).
- **Chemistry**: 1 year
  - (This must cover elementary laboratory procedures, introduction to atoms and molecules, chemical reactions, equilibrium, and an introduction to chemical calculations).

It is strongly recommended that students graduating from high school without the preparation indicated above enroll in available preparatory science courses during the summer session to make up deficiencies so that they can begin the fall semester with the correct sequence of the freshman Chemistry curriculum. If this is not done, it will be necessary to carry heavier course loads or take more than eight semesters to complete the degree.

Students are reminded that it is imperative for them to regularly (at least once per semester) consult a departmental advisor to evaluate their progress through the program of study.

Program Student Learning Outcomes

It is expected that graduates of the Chemistry program will have the ability to:

1. Understand and critically solve problems related to the Physical and Natural Sciences and present those solutions for the advancement of knowledge in the field of Chemistry and Biochemistry.
2. Design and conduct experiments that include fieldwork, laboratory analyses, instrumental methods, theoretical development and interpretation in the discipline.

Honors in Chemistry

The Department of Chemistry awards departmental honors in Chemistry to undergraduate students who show exceptional performance in all of their coursework. To graduate with honors students must:

1. Satisfy all requirements for a Bachelor of Science degree in Chemistry.
2. Meet the requirements for Graduation with Honors as listed in Chapter 7.
3. Maintain a minimum GPA of 3.50 in Chemistry classes.
4. Complete, with distinction, a written assignment in the style of a chemical journal based on the research performed in CHEM A498.
5. Notify the Departmental Honors Committee in writing at the time they file their Application for Graduation with the Office of the Registrar that they intend to graduate with departmental honors.
Bachelor of Science, Chemistry

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7.

Academic Progress

In order to graduate with a BS in Chemistry, all courses covered under Major Requirements for a BS in Chemistry must be completed with a grade of C or better.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section.

D. Major Requirements

Students are strongly encouraged to talk to a faculty advisor in the Chemistry Department to ensure that the necessary math and science courses are taken in the first two years of study.

1. Students working toward a degree in Chemistry can choose one of two options:

Chemistry Option (62-8383-84 credits)

Complete the following required courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL A115</td>
<td>Fundamentals of Biology I</td>
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<tr>
<td>CHEM A105</td>
<td>General Chemistry I</td>
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<tr>
<td>CHEM A105L</td>
<td>General Chemistry I Laboratory</td>
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<tr>
<td>CHEM A106</td>
<td>General Chemistry II</td>
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<td>CHEM A106L</td>
<td>General Chemistry II Laboratory</td>
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</tr>
<tr>
<td>CHEM A253</td>
<td>Principles of Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM A312</td>
<td>Quantitative Analysis</td>
<td>5</td>
</tr>
<tr>
<td>CHEM A321</td>
<td>Organic Chemistry I</td>
<td>3</td>
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<td>CHEM A322</td>
<td>Organic Chemistry II</td>
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<td>CHEM A331</td>
<td>Physical Chemistry I</td>
<td>3</td>
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<td>CHEM A332</td>
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<td>CHEM A333L</td>
<td>Physical Chemistry Laboratory</td>
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<tr>
<td>CHEM A434</td>
<td>Instrumental Methods</td>
<td>5</td>
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<tr>
<td>CHEM A441</td>
<td>Principles of Biochemistry I</td>
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</tr>
<tr>
<td>CHEM A453</td>
<td>Advanced Inorganic Chemistry</td>
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</tr>
<tr>
<td>CHEM A492</td>
<td>Undergraduate Seminar (I)</td>
<td>2</td>
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<tr>
<td>CHEM A498</td>
<td>Individual Research (I)</td>
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<tr>
<td>MATH A200</td>
<td>Calculus I</td>
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<tr>
<td>MATH A201</td>
<td>Calculus II</td>
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<tr>
<td>MATH A202</td>
<td>Calculus III</td>
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<td>MATH A314</td>
<td>Linear Algebra</td>
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<td>PHYS A211</td>
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<td>PHYS A212</td>
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<td>PHYS A212L</td>
<td>General Physics II Laboratory</td>
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</tr>
</tbody>
</table>

Upper Division Elective (choose one of the following) 3-4
BIOL A310  Principles of Physiology (4)
BIOL A415  Comparative Animal Physiology (4)
BIOL A461  Molecular Biology (3)
CHEM A442  Principles of Biochemistry II (3)
CHEM A450  Environmental Chemistry (3)
CHEM A456  Non-linear Dynamics and Chaos (3)
CHEM A460  Chemical Ecotoxicology (3)
CHEM A471  Immunochemistry (4)
GEOL A321  Mineralogy (4)
GEOL A360  Geochemistry (3)
GEOL A460  Environmental Geochemistry (3)
MATH A302  Ordinary Differential Equations (3)
MATH A422  Partial Differential Equations (3)
PHYS A303  Modern Physics (3)
PHYS A320  Simulation of Physical Systems (3)
PHYS A403  Quantum Mechanics (3)
PHYS A413  Statistical Mechanics and Thermal Mechanics (3)

Biochemistry Option (56-57-88 credits)

Complete the following required courses:
BIOL A115  Fundamentals of Biology I  4
BIOL A116  Fundamentals of Biology II  4
BIOL A242  Fundamentals of Cell Biology  4
BIOL A252  Principles of Genetics  4

Upper Division Biology (choose one of the following) 3-4
BIOL A310  Principles of Physiology (4)

or
BIOL A415  Comparative Animal Physiology (4)

or
BIOL A461  Molecular Biology (3)

CHEM A105  General Chemistry I  3
CHEM A105L  General Chemistry I Laboratory  1
CHEM A106  General Chemistry II  3
CHEM A106L  General Chemistry II Laboratory  1
CHEM A253  Principles of Inorganic Chemistry  3
CHEM A312  Quantitative Analysis  5
CHEM A321  Organic Chemistry I  3
CHEM A322  Organic Chemistry II  3
CHEM A323L  Organic Chemistry Laboratory  2
CHEM A331  Physical Chemistry/Biological Physical Chemistry: A Biological Orientation 3

or
CHEM A331  Physical Chemistry I  3
CHEM A421  Instrumental Methods  5
CHEM A441  Principles of Biochemistry I  3
CHEM A442  Principles of Biochemistry II  3
CHEM A443  Biochemistry Laboratory  2
CHEM A492  Undergraduate Seminar (1)  2
CHEM A498  Individual Research (3)  6
MATH A200  Calculus I  4
MATH A201  Calculus II  4
MATH A202  Calculus III  4

(upper Physics sequence)
PHYS A123  Basic Physics I  3
2. A total of 120-126 credits is required for the degree, of which 42 credits must be upper division.

**Minor, Chemistry**

Students majoring in another subject who wish to minor in Chemistry must complete the following requirements. A total of 24 credits is required for the minor.

<table>
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<th>Credits</th>
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<tbody>
<tr>
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<tr>
<td>CHEM A311</td>
<td>Physical Chemistry:</td>
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<tr>
<td></td>
<td>A Biological Orientation (3)</td>
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<tr>
<td></td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>CHEM A331</td>
<td>Physical Chemistry I (3)</td>
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</tbody>
</table>

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Liliya Vugmeyster, Assistant Professor, lvugmeyster@uaa.alaska.edu
October 8, 2013

Lora Volden, UAA Registrar

M. Angela Dirks, Associate Professor, CTE Department Chair

Delete Course TECH 422 – Bachelor of Science, Technology

TECH A422, Senior Project, was a required course for the Science and Technology emphasis of the BS Technology (BST) through the 2005-2006 catalog year. The BST curriculum underwent a significant revision that took effect in the 2006-2007 catalog year. One of the changes was to eliminate TECH A422 and replace it with TECH A453, the Capstone Project.

TECH A453 has been taught since spring 2007 and has been the final capstone course for all Bachelor of Science, Technology (BST) students in catalogs since fall 2006.

TECH 453 is a significantly different course from TECH 422. TECH 453 was built as a GER Tier 3 course to specifically meet BST program outcomes. For students in catalogs starting with 2006-2007 TECH 422 is NOT an adequate substitute since it does not provide the data to assess program outcomes. TECH 422 applies only to students admitted to the BST prior to fall of 2006. Those admissions now fall outside the seven-year window; all students have graduated or their admission has expired.

DegreeWorks currently accepts TECH 422 as a substitute for TECH 453. Because these are not equivalent classes, this oversight needs to be corrected.

The program therefore respectfully requests that TECH 422 be not allowed to replace TECH 453, Capstone Project.
This summer the Office of Financial Aid underwent an informal compliance review. The outside review team identified one issue of particular concern for the campus. This issue has to do with reporting when a student commenced attendance. I am requesting feedback from the Faculty Senate Executive Board regarding compliance with federal regulations related to this issue. It is important to note that other institutions have been audited on this and have been required to pay back aid which had been awarded.

Federal regulations require that schools:

- Verify if a student EVER attended (if they ever sat in a seat, were involved online, etc.)
- If they did begin, identify when they stopped
  - Benefits related to VA need a hard date of last attendance. This population is small and our financial aid office has indicated that they can manually handle this work load.
  - If a student receives a non-passing grade, UAA needs to report if they participated beyond 60% of the course meeting days.
- Report any audits registered after the 100% refund period as attempted hours. We don’t have a way to do this with our current deadlines and database.

Although UAA implemented a date of last attendance for grades of “F” or “NB” last fall, we have not yet created a procedure for indicating commencing attendance.

Our obligation is to have a policy which allows for federal regulations to be followed and to make a good faith effort to comply. It is not expected that faculty members keep attendance records. However, we need to report occurrences where students never attended a class in which they are formally registered.

In regards to attendance, I ask the E-Board to consider and weigh the following options:

Option One: Request that faculty utilize the “Attend Hours” in UAOnline grading. If a student never attended, faculty should enter a value of “0.”

Option Two: Create a new grade “NA,” which would indicate the student never attended. Faculty would also need to determine if this has any impact on GPA.

Option Three: Create a policy which would require faculty to initiate a drop for any student who has not attended by the end of the add/drop period or made special arrangements with the faculty member.

I would also suggest that UAA revise the deadline related to audits to align with the add/drop deadline.