February 28, 2014
ADM 204
9:30 to 11:30

I. Roll Call
   () Arlene Schmuland   () Hsing-Wen Hu   () Sam Thiru
   () Susan Garton   () Peter Olsson   () Cindy Knall
   () Greg Protasel   () Anthony Paris   () GSA Vacancy
   () Dennis Drinka   () Patricia Sandberg   () FSAL vacancy
   () Jervette Ward   () Clayton Trotter

   Ex-Officio Members:
   () Greg Protasel   () Anthony Paris
   () GSA Vacancy   () David Yesner
   () Jervette Ward   () Clayton Trotter
   () Scheduling & Publications

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

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

IV. Program/Course Action Request – Second Reading
   Add GEOL A654 Glacial and Quaternary Geology (stacked with GEOL A454)(3 cr)(3+0)(pg. 5-12)
   Add GEOL A655 Permafrost (stacked with GEOL A455)(3 cr)(3+0)(pg. 13-20)
   Add GEOL A656 Geoarchaeology (stacked with GEOL A456)(3 cr)(3+0)(pg. 21-29)
   Add GEOL A660 Environmental Geochemistry (stacked with GEOL A460)(3 cr)(3+0)(pg. 30-39)
   Chg GEOL A690 Graduate Topics in Geology (stacked with GEOL A490)(1-4 cr)(1-4+0)(pg. 40-49)
   Chg Master of Education, Educational Leadership (pg. 50-56)
   Chg Graduate Certificate, Educational Leadership (pg. 57-65)
   Chg EDL A639 Politics, Law, and Ethics in Leadership (3 cr)(3+0)(pg. 66-71)
   Add EDL A651 Educator Supervision and Evaluation (3 cr)(3+0)(pg. 72-77)

V. Program/Course Action Request - First Readings
   Chg Prefix, COHI (pg. 78-80)
   Add ENGL A695 Advanced Internship in English (1-6 cr)(0+3-18)(pg. 81-84)
   Add PHYS A603 Advanced Quantum Mechanics (stacked with PHYS A403)(4 cr)(4+0)(pg. 85-92)
   Add PHYS A613 Advanced Statistical and Thermal Physics (stacked with PHYS A413)
   (4 cr)(4+0)(pg. 93-100)
   Add PHYS A656 Nonlinear Dynamics and Chaos (GER)(Cross-listed with CHEM/BIOL A656
   and stacked with CHEM/BIOL/PHYS A456)(3 cr)(3+0)(pg. 101-113)
   Add BIOL A656 Nonlinear Dynamics and Chaos (GER)(Cross-listed with CHEM/PHYS A656
   and stacked with CHEM/BIOL/PHYS A456)(3 cr)(3+0)(pg. 102-113)
   Add CHEM A656 Nonlinear Dynamics and Chaos (GER)(Cross-listed with PHYS/BIOL A656
   and stacked with CHEM/BIOL/PHYS A456)(3 cr)(3+0)(pg. 103-113)
   Add PHYS A690 Advanced Special Topics in Physics (stacked with A490)(1-4 cr)(1-4+0)(pg. 114-121)
   Add PHYS A698 Graduate Individual Research (1-6 cr)(0+3-18)(pg. 122-124)
   Add PHYS A699 Thesis (1-6 cr)(0+3-18)(pg. 125-127)
VI. Administrative Reports
   A. Associate Dean of the Graduate School David Yesner
   B. Graduate Student
   C. University Registrar Lora Volden

VII. Chair’s Report
   A. GAB Chair- Arlene Schmuland
   B. Faculty Alliance
   C. Graduate Council

VIII. Old Business

IX. New Business
   A. First Reading of Purge List: Academic Courses (pg. 128-131)
   B. First Reading of Purge List: GER Courses (pg. 132)

X. Informational Items and Adjournment
   A. Joint UAB/GAB meeting will be held on March 21st from 11:00 to 1:00 in ADM 142
February 14, 2014
ADM 204
9:30 to 11:30

I. Roll Call
(x) Arlene Schmuland (E) Hsing-Wen Hu (x) Sam Thiru
(x) Susan Garton (x) Peter Olsson (x) Cindy Knall
(x) Greg Protasel (x) Anthony Paris () GSA Vacancy
(x) Dennis Drinka (x) Patricia Sandberg () FSAL vacancy
(x) Jervette Ward (x) Clayton Trotter (x) Scheduling & Publications

Ex-Officio Members:
(x)  Greg Protasel  (x) Anthony Paris  () GSA Vacancy  (x) David Yesner
(x)  Dennis Drinka  () FSAL Vacancy  (x) Lora Volden
(x)  Jervette Ward  (x) Clayton Trotter

II. Approval of Agenda (pg. 1-2)
Approved with amendment to postponing Master of Education, Counselor Education

III. Approval of Meeting Summary (pg. 3-5)
Approved

Program/Course Action Request – Second Reading
Add GEOL A654 Glacial and Quaternary Geology (stacked with GEOL A454)(3 cr)(3+0)(pg. 6-13)
Add GEOL A655 Permafrost (stacked with GEOL A455)(3 cr)(3+0)(pg. 14-21)
Add GEOL A656 Geoarchaeology (stacked with GEOL A456)(3 cr)(3+0)(pg. 22-30)
Add GEOL A660 Environmental Geochemistry (stacked with GEOL A460)(3 cr)(3+0)(pg. 31-40)
Add GEOL A690 Graduate Topics in Geology (stacked with GEOL A460)(1-4 cr)(1-4+0)(pg. 41-50)
All GEOL courses are not approved for 2nd read

Add EDEN A601 Inquiry-Based Scholarship: Quantitative, Qualitative, Mixed-modes I (3 cr)(3+0)(pg. 51-56)
Add EDEN A602 Inquiry-Based Scholarship: Quantitative, Qualitative, Mixed-modes II (3 cr)(3+0)(pg. 57-62)
All EDEN courses are approved for 2nd read

IV. Program/Course Action Request - First Readings
Add BA A626 Strategic Leadership (3 cr)(3+0)(pg. 63-67)
Waived for first, approved for second

Add BA A649 Advanced Business Data Analysis (3 cr)(3+0)(pg. 68-71)
Waived for first, approved for second

Chg Master of Business Administration (pg. 72-82)
Waived for first, approved for second

Chg Master of Social Work (pg. 83-109)
Chg Master of Public Health (pg. 83-109)
Postponed until further notice

Add BIOM A692 Graduate Seminar (1 cr)(1+0)(pg. 110-112)
Add BIOM A696 Graduate Research Techniques (1 cr)(1+0)(pg. 113-116)
Add BIOM A698 Directed Research (1-6 cr)(0+3-18)(pg. 117-120)
Add BIOM A699 Thesis (1-9 cr)(0+3-27)(pg. 121-124)
All BIOM courses are waived for first, approved for second

Chg Master of Education, Counselor Education (pg. 125-136)
Postponed until credit hour issue is resolved

Chg Master of Education, Educational Leadership (pg. 137-143)
Chg Graduate Certificate, Educational Leadership (pg. 144-152)
Chg EDL A639 Politics, Law, & Ethics in Education (3 cr)(3+0)(pg. 153-158)
Chg EDL A651 Educator Supervision and Evaluation (3 cr)(3+0)(pg. 159-164)
All EDL curriculum accepted for first read
Administrative Reports

A. Associate Dean of the Graduate School David Yesner

DNP meeting to focus on issues brought up at the last GAB meeting was canceled and will be rescheduled.
MSCE met and signed curriculum passed Faculty Senate. Waiting for non-curricular piece for program accreditation which is still in process.
Suspension of MAT letter is in process; suspension of Graduate Certificate in Educational Leadership for superintendents due to de-accreditation is also in process.
Report by NWCC accreditation body is due by the end of February. Intend to reform and resubmit the concept of Graduate Faculty to GAB.
Masters projects are now being submitted to the Graduate School – reminders are being sent to graduate programs. Chapter 12 revision will be necessary to codify this. Will be meeting with Dean Rollins to discuss archiving of projects in the Consortium Library, as well as possibilities there for graduate student space.
E-portfolio use by graduate students to be discussed in meeting with new hire in IT Faculty Services. Currently training as academic dispute specialist.
Undertaking Program Prioritization review for the Graduate School.
Met with joint UAB/GAB Stacking Committee on ex officio basis – agree to review stacking polices of peer and aspirational peer institutions.
First December commencement ceremony will be held in the Alaska Airlines Center. There will not be a hooding ceremony attached.
Moving forward with GSA elections and activities; spring GSA Research Summit in 2015 will be allied with the new UAA Faculty Research Symposium which was just reviewed by Faculty Senate.

B. Graduate Student

C. University Registrar Lora Volden

Ecatalog Training will be held on March 26-27 in LIB 307

V. Chair’s Report

A. GAB Chair- Arlene Schmuland

B. Faculty Alliance

C. Graduate Council

VI. Old Business

VII. New Business

VIII. Informational Items and Adjournment

A. Stacking Subcommittee Report (pg. 165)

The combined GAB and UAB Subcommittee met for an hour on Wednesday, January 29, 2014 to discuss the challenges surrounding the stacking of graduate and undergraduate courses.
Discussion on an additional form requirement specifically for stacked courses or proposing a 500-level prefix for joint undergraduate and graduate courses.
Review of the Curriculum Guidance section concerning the CCG shows that there is a policy intention in the CH, but in its current form it may be difficult to implement.
### Course Action Request

**University of Alaska Anchorage**

**Proposal to Initiate, Add, Change, or Delete a Course**

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>1b. Division</th>
<th>1c. Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS CAS</td>
<td>AMSC Division of Math Science</td>
<td>Geological Sciences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Course Prefix</th>
<th>3. Course Number</th>
<th>4. Previous Course Prefix &amp; Number</th>
<th>5a. Credits/CEUs</th>
<th>5b. Contact Hours (Lecture + Lab)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL</td>
<td>A654</td>
<td>N/A</td>
<td>3</td>
<td>(3+0)</td>
</tr>
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</table>

#### 6. Complete Course Title
**Glacial and Quaternary Geology**

**Abbreviated Title for Transcript (30 character)**

#### 7. Type of Course
- [x] Academic
- [ ] Preparatory/Development
- [ ] Non-credit
- [ ] CEU
- [ ] Professional Development

#### 8. Type of Action:
- [x] Add
- [ ] Change
- [ ] Delete

If a change, mark appropriate boxes:
- [ ] Prefix
- [ ] Credits
- [ ] Title
- [ ] Grading Basis
- [ ] Course Description
- [ ] Test Score Prerequisites
- [ ] Other Restrictions
- [ ] Class
- [ ] Level
- [ ] College
- [ ] Major
- [ ] Other CCG (please specify)

#### 9. Repeat Status No
- [ ] # of Repeats
- [x] Max Credits

#### 10. Grading Basis
- [x] A-F
- [ ] P/NP
- [ ] NG

#### 11. Implementation Date
- From: Fall/2014
- To: /9999

#### 12. Cross Listed with
- [ ] Stacked with GEOL A454
- Cross-Listed Coordination

**Initiator Name (typed): Kristine J Crossen**

**Initiator Signed Initials:**

**Date:**

**13a. Impacted Courses or Programs:**

List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at [www.uaa.alaska.edu/governance](http://www.uaa.alaska.edu/governance).

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Catalog Page(s)</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geological Sciences - BS</td>
<td>110-112</td>
<td>2-28-13</td>
<td>L. Munk</td>
</tr>
<tr>
<td>AEST - COE</td>
<td>333-336</td>
<td>2-28-13</td>
<td>A. Dotson</td>
</tr>
</tbody>
</table>

**Initiator Email:** (uraa-faculty@lists.uaa.alaska.edu)

**13b. Coordination Email**

Date: 2-28-13

**13c. Coordination with Library Liaison**

Date: 4-1-13

**14. General Education Requirement**

Mark appropriate box:
- [ ] Oral Communication
- [ ] Written Communication
- [ ] Quantitative Skills
- [ ] Humanities
- [ ] Fine Arts
- [ ] Social Sciences
- [ ] Natural Sciences
- [ ] Integrative Capstone

**15. Course Description (suggested length 20 to 50 words)**

Examines glacial processes of erosion and deposition, and the modern and ancient landforms produced by ice. Topics include Quaternary history of glaciers, climate fluctuation, changes in terrestrial and marine environments, and evidence and techniques used to reconstruct past environments. Independent research project and weekend field trip required. Special Note: Students are required to have background in physical and historical geology and to provide their own transportation to field locales. Not available for credit if previously completed GEOL A454.

**16a. Course Prerequisite(s) (list prefix and number)**

<table>
<thead>
<tr>
<th>16b. Test Score(s)</th>
<th>16c. Co-requisite(s) (concurrent enrollment required)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**16d. Other Restriction(s)**

- [ ] College
- [ ] Major
- [ ] Class
- [x] Level

**16e. Registration Restriction(s) (non-codable)**

- Graduate Standing or instructor approval

**17. Mark if course has fees**

**18. Mark if course is a selected topic course**

**19. Justification for Action**

Designed as 600-level graduate course requiring individual independent research.

<table>
<thead>
<tr>
<th>20. Initator Name (faculty only): Kristine J Crossen</th>
<th>Initiator Signed Initials:</th>
<th>Date:</th>
</tr>
</thead>
</table>

**21. Approved**

**22. Disapproved**

**23. Dean/Director of School/College**

Date:

**24. Approved**

**25. Disapproved**

**26. Undergraduate/Graduate Academic Board Chairperson**

Date:

**27. Approved**

**28. Disapproved**

**29. Provost or Designee**

Date:
Course Content Guide  
University of Alaska Anchorage  

GEOL A654  
Glacial and Quaternary Geology  

I. Date of Initiation: Spring 2013  

II. Course Information  
A. College: CAS  
B. Course Subject: Geological Sciences  
C. Course Number: GEOL A654  
D. Number of Credits: 3.0 (3+0)  
E. Course Title: Glacial and Quaternary Geology  
F. Grading Basis: A-F  
G. Course Description: Examines glacial processes of erosion and deposition, and the modern and ancient landforms produced by ice. Topics include Quaternary history of glaciers, climate fluctuation, changes in terrestrial and marine environments, and evidence and techniques used to reconstruct past environments. Independent research project and weekend field trip required. Special Note: Students are required to have background in physical and historical geology and to provide their own transportation to field locales. Not available for credit if previously completed GEOL A454.  
H. Course Prerequisites: Instructor Approval  
I. Restrictions: Graduate Standing  
J. Fee: Yes  

III. Instructional Goals and Student Learning Outcomes  
A. Instructional Goals  
The instructor will:  
1. Present information concerning formation of, and the processes associated with, a variety of glaciers and their landforms.  
2. Present evidence for, and reconstructions of, the past Ice Ages.  
3. Teach students to analyze and critically evaluate the professional literature concerning glaciers and climate change.  

B. Student Learning Outcomes and Evaluation  
Upon completion of the course, the students will be able to:  

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Evaluations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine changes in environments based on glacial features and landforms</td>
<td>Exams and exercises</td>
</tr>
<tr>
<td>Reconstruct past environments based on evidence from pollen cores, invertebrates and vertebrate fossils, deep sea cores, stable isotopes, and radiometric dating</td>
<td>Exams and exercises</td>
</tr>
<tr>
<td>Critique the relevant professional literature considering both the techniques used to gather data and the resulting interpretations made by</td>
<td>Written summaries and discussion</td>
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</table>
the authors
Investigate an appropriate research topic, complete individual independent research based on primary data sets and make a professional quality presentation to the class

IV. Course Evaluations
Based on grades received on exams, class exercises, field trip attendance and independent research project presentation.

V. Course Level Justification
Requires students to have an adequate geological background and to analyze and critique the professional literature at an advanced level. Requires selection and completion of individual research using primary data sets, synthesis of literature and research results, and production of professional quality presentation.

VI. Topical Course Outline
A. Glaciology – Modern glacial processes
   1. Subglacial processes
   2. Meltwater processes
B. Glacial Geology – Glacial processes and landforms
   1. Erosional processes and landforms
   2. Debris transport
   3. Glacial depositional processes and landforms
   4. Glacial marine and glacial lacustrine processes and landforms
   5. Glacial reconstructions
C. Quaternary Geology - Reconstructing Past Ice Ages
   1. Isostacy and eustacy
   2. Palynological evidence and paleoenvironmental reconstructions
   3. Vertebrate and invertebrate evidence and paleoenvironments
   4. Dating techniques
   5. Deep sea cores and oxygen isotopes
   6. Ice cores and interpretations
D. Professional Papers – Summaries and Discussions
   1. Beringian paleoecology
   2. Cook Inlet Quaternary geology
   3. Little Ice Age reconstructions
   4. Mammoths
   5. Ice man of the Alps
E. Professional Quality Presentation
   1. Selection of appropriate topic
   2. Data collection and analysis
   3. Professional presentation
VII. Suggested Text(s)


VIII. Bibliography


## Course Action Request

**University of Alaska Anchorage**  
Proposal to Initiate, Add, Change, or Delete a Course

### 1. School or College  
AS CAS

### 1. Division  
AMSC Division of Math Science

### 1. Department  
Geological Sciences

### 2. Course Prefix  
GEOL

### 3. Course Number  
A454

### 4. Previous Course Prefix & Number  
N/A

### 5. Credits/CEUs  
3

### 6. Contact Hours  
(3+0)

### 12. Cross Listed with  
GEOL A654

### 13a. Impacted Courses or Programs:

- **Impacted Program/Course**: Geological Sciences - BS  
  **Impacted Catalog Page/s**: 110-112  
  **Impacted Date of Coordination**: 2-28-13  
  **Chair/Coordinator Contacted**: L. Munk

- **Impacted Program/Course**: ASET - COE  
  **Impacted Catalog Page/s**: 333-336  
  **Impacted Date of Coordination**: 2-28-13  
  **Chair/Coordinator Contacted**: A. Dotson

- **Impacted Program/Course**:  

### 13b. Coordination Email  
Date: 2-28-13

### 13c. Coordination with Library Liaison  
Date: 4-1-13

### 9. Repeat Status No  
# of Repeats  
Max Credits

### 10. Grading Basis  
A-F  
P/NP  
NG

### 11. Implementation Date  
From: Fall/2014  
To: /9999

### 14. General Education Requirement

- **Oral Communication**:  
- **Written Communication**:  
- **Quantitative Skills**:  
- **Humanities**:  
- **Fine Arts**:  
- **Social Sciences**:  
- **Natural Sciences**:  
- **Integrative Capstone**:  

### 16a. Course Prerequisite(s) (list prefix and number)

- GEOL A221 with minimum grade of C

### 16b. Test Score(s)

### 16c. Co-requisite(s) (concurrent enrollment required)

### 16d. Other Restriction(s)

- **College**:  
- **Major**:  
- **Class**:  
- **Level**:  

### 16e. Registration Restriction(s) (non-codable)

### 17. Mark if course if has fees

### 18. Mark if course is a selected topic course

### 19. Justification for Action

Course stacking to allow graduate students access to the course offering. Additional information concerning field trips.

### Initiator Signature

Kristine J Crossen  
Date: __________________

### Approved/Disapproved

- **Approved**: Dean/Director of School/College  
  **Disapproved**:  

- **Approved**: Undergraduate/Graduate Academic  
  **Disapproved**:  

- **Approved**: Board Chairperson  
  **Disapproved**:  

- **Approved**: Provost or Designee  
  **Disapproved**:  

---

Signature: __________________

Date: __________________

---

## Additional Information

- **Mark if course has fees**:  
- **Mark if course is a selected topic course**:  

---

## Course Prerequisites

- GEOL A221 with minimum grade of C

---

## Course Description

Examines glacial processes of erosion and deposition, and the modern and ancient landforms produced by ice. Topics include: Quaternary history of glaciers, climate fluctuation, changes in terrestrial and marine environments, and evidence and techniques used to reconstruct past environments. Weekend field trip required. Special note: Students are required to provide their own transportation to field locales.
Course Content Guide  
University of Alaska Anchorage  

GEOL A454  
Glacial and Quaternary Geology

I. Date of Initiation: Spring 2013

II. Course Information
A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A454
D. Number of Credits: 3.0 (3+0)
E. Course Title: Glacial and Quaternary Geology
F. Grading Basis: A-F
G. Course Description: Examines glacial processes of erosion and deposition, and the modern and ancient landforms produced by ice. Topics include: Quaternary history of glaciers, climate fluctuation, changes in terrestrial and marine environments, and evidence and techniques used to reconstruct past environments. Weekend field trip required. Special note: Students are required to provide their own transportation to field locales.

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A. Instructional Goals
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2. Present evidence for and reconstructions of the past Ice Ages.
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B. Student Learning Outcomes and Evaluation

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<tr>
<td>Critique the relevant professional literature considering both the techniques used to gather data and the resulting interpretations made by the authors</td>
<td>Written summaries and discussion</td>
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</table>
IV. **Course Evaluations**

Based on grades received on exams, class exercises, field trip attendance and report.

V. **Course Level Justification**

Refines skills students have learned in earlier courses and requires students to analyze and critique the professional literature.

VI. **Topical Course Outline**

A. **Glaciology – Modern Glacial Processes**
   1. Subglacial Processes
   2. Meltwater Processes

B. **Glacial Geology – Glacial Processes and Landforms**
   1. Erosional Processes and Landforms
   2. Debris Transport
   3. Glacial Depositional Processes and Landforms
   4. Glacial Marine and Glacial Lacustrine Processes and Landforms
   5. Glacial Reconstructions

C. **Quaternary Geology - Reconstructing Past Ice Ages**
   1. Isostacy and Eustacy
   2. Palynological Evidence and Paleoenvironmental Reconstructions
   3. Vertebrate and Invertebrate Evidence and Paleoenvironments
   4. Dating Techniques
   5. Deep Sea Cores and Oxygen Isotopes
   6. Ice Cores and Interpretations

D. **Professional Papers – Summaries and Discussions**
   1. Beringian Paleoecology
   2. Cook Inlet Quaternary Geology
   3. Little Ice Age Reconstructions
   4. Mammoths
   5. Ice Man of the Alps

VII. **Suggested Text(s)**


VIII. Bibliography


## Course Action Request

**University of Alaska Anchorage**  
Proposal to Initiate, Add, Change, or Delete a Course

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<thead>
<tr>
<th>2. Course Prefix</th>
<th>3. Course Number</th>
<th>4. Previous Course Prefix &amp; Number</th>
<th>5a. Credits/CEUs</th>
<th>5b. Contact Hours (Lecture + Lab)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL</td>
<td>A655</td>
<td>N/A</td>
<td>3</td>
<td>(3+0)</td>
</tr>
</tbody>
</table>

6. Complete Course Title

**Permafrost**  

Abbreviated Title for Transcript (30 character)

7. Type of Course

- [X] Academic  
- [ ] Preparatory/Development  
- [ ] Non-credit  
- [ ] CEU  
- [ ] Professional Development

8. Type of Action:  

- [X] Add  
- [ ] Change  
- [ ] Delete

If a change, mark appropriate boxes:

- [ ] Prefix  
- [ ] Credits  
- [ ] Title  
- [ ] Grading Basis  
- [ ] Contact Hours  
- [ ] Course Number  
- [ ] Repeat Status  
- [ ] Cross-Listed/Stacked  
- [ ] Course Description  
- [ ] Course Prerequisites  
- [X] Other Restrictions  
- [ ] Registration Restrictions  
- [ ] Class  
- [ ] Level  
- [ ] College  
- [ ] Major  
- [ ] Other CCG (please specify)

9. Repeat Status No  

- [X] No  
- [ ] # of Repeats  
- [ ] Max Credits

10. Grading Basis

- [X] A-F  
- [ ] P/NP  
- [ ] NG

11. Implementation Date

- [ ] semester/year  
- [ ] From: Fall/2014  
- [ ] To: /9999

12. Cross Listed with

- [ ] Stacked with GEOL A455  
- [ ] Cross-Listed Coordination

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at [www.uaa.alaska.edu/governance](http://www.uaa.alaska.edu/governance).

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<tr>
<td>1. Geological Sciences - BS</td>
<td>110-112</td>
<td>2/28/13</td>
<td>L. Munk</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initiator Name (typed): **Kristine J Crossen**  
Initiator Signed Initials: __________  
Date: __________

13b. Coordination Email  

Date: 2/28/13  
submitted to Faculty Listserv: [uaa-faculty@lists.uaa.alaska.edu](mailto:uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison  

Date: 4/1/13

14. General Education Requirement

- [ ] Oral Communication  
- [ ] Written Communication  
- [ ] Quantitative Skills  
- [ ] Humanities  
- [ ] Fine Arts  
- [ ] Social Sciences  
- [ ] Natural Sciences  
- [ ] Integrative Capstone

15. Course Description (suggested length 20 to 50 words)

Examines permafrost geomorphic processes, environments and landforms. Topics include properties of ground ice and patterned ground, permafrost landscape dynamics, engineering and environmental problems, and impacts of climate change on permafrost systems. One weekend field trip and independent research required. Special note: Students are required to have background in physical and historical geology and provide their own transportation to field locales. Not available for credit if previously completed GEOL A455.

16a. Course Prerequisite(s) (list prefix and number)  

16b. Test Score(s)  

16c. Co-requisite(s) (concurrent enrollment required)

16d. Other Restriction(s)

- [X] Mark if course has fees  
- [ ] Mark if course is a selected topic course

16e. Registration Restriction(s) (non-codable)

Graduate standing or instructor approval

17. Mark if course has fees

18. Mark if course is a selected topic course

19. Justification for Action

Designed as 600-level graduate course requiring independent research. Stacked with GEOL A455.

---

Initiator (faculty only)  

**Kristine J Crossen**  
Initiator (TYPE NAME)

[ ] Approved  
[ ] Disapproved

Dean/Director of School/College  

[ ] Approved  
[ ] Disapproved

Undergraduate/Graduate Academic  

[ ] Approved  
[ ] Disapproved

Board Chairperson  

[ ] Approved  
[ ] Disapproved

Provost or Designee  

[ ] Approved  
[ ] Disapproved

---

Initiator (faculty only)  

**Kristine J Crossen**  
Initiator (TYPE NAME)

[ ] Approved  
[ ] Disapproved

Department Chairperson  

[ ] Approved  
[ ] Disapproved

Curriculum Committee Chairperson  

[ ] Approved  
[ ] Disapproved

---

13
Course Content Guide  
University of Alaska Anchorage  

GEOL A655  
Permafrost  

**I. Date of Initiation:** Spring 2013  

**II. Course Information**  
A. College or School: CAS  
B. Course Subject: Geological Sciences  
C. Course Number: GEOL A655  
D. Number of Credits: 3.0 (3+0)  
E. Course Title: Permafrost  
F. Grading Basis: A-F  
G. Course Description: Examines permafrost geomorphic processes, environments and landforms. Topics include properties of ground ice and patterned ground, permafrost landscape dynamics, engineering and environmental problems, and impacts of climate change on permafrost systems. One weekend field trip and independent research required. Special note: Students are required have background in physical and historical geology and to provide their own transportation to field locales. Not available for credit if previously completed GEOL A455  
H. Restrictions: Graduate standing or instructor approval  
I. Fee: yes  

**III. Instructional Goals and Student Learning Outcomes**  
A. Instructional Goals. The instructor will:  
   1) Present concepts, methods, and problems important to the study of permafrost and periglacial geomorphology.  
   2) Guide students toward an understanding of the linkages between cryosphere processes and resulting patterns in landforms, surface features, and ecosystems.  
   3) Design lectures and class exercises that will present aspects of theoretical and applied methods of describing and investigating frozen ground phenomena.  

B. Student Learning Outcomes and Evaluation. Upon completion of the course, the students will be able to:  

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Evaluations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrate knowledge of permafrost geomorphic processes, physical principles, and the factors affecting these processes</td>
<td>Exams and exercises</td>
</tr>
</tbody>
</table>
Combine knowledge gained about cryogenic processes with both predicted and observed patterns in landform and sediments

Integrate observational and conceptual information to interpret field data

Assess and critique current literature, formulate, justify, and adequately communicate educated opinions

Investigate an appropriate research topic, complete individual independent research based on primary data sets and make a professional quality presentation to the class

<table>
<thead>
<tr>
<th>Course Evaluation</th>
<th>Exams and exercises</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV. Course Evaluation</td>
<td></td>
</tr>
<tr>
<td>Students will be evaluated through exams focused on basic concepts, methods, and terminology. Essay components will be used to evaluate student ability to synthesize and communicate information. Exercises will be graded for quality of work, degree of understanding, and integration of outside knowledge. Students will discuss professional quality papers and make presentations.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Level Justification</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>V. Course Level Justification</td>
<td></td>
</tr>
<tr>
<td>This course uses both the conceptual and intellectual skills obtained in previous geology courses (including physical and historical geology) to apply to the study of permafrost. Students will not only learn new material, but will continue to develop and apply critical thinking skills, practice in scientific method, and synthesize the professional literature. Independent research using a primary data set and a professional quality presentation is required.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Topical Course Outline</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>VI. Topical Course Outline</td>
<td></td>
</tr>
<tr>
<td>A. Permafrost Definitions and Distribution</td>
<td></td>
</tr>
<tr>
<td>1. Continuous and discontinuous zones</td>
<td></td>
</tr>
<tr>
<td>2. Depth to permafrost base</td>
<td></td>
</tr>
<tr>
<td>3. Thickness of active layer</td>
<td></td>
</tr>
<tr>
<td>B. Active Layer</td>
<td></td>
</tr>
<tr>
<td>1. Capillarity and cryosuction processes</td>
<td></td>
</tr>
<tr>
<td>2. Segregation ice, jacking, heaving</td>
<td></td>
</tr>
<tr>
<td>3. Convection, cyoturbation, stone nets</td>
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</tr>
<tr>
<td>C. Mounded Landforms</td>
<td></td>
</tr>
<tr>
<td>1. Hummocks and frost mixing</td>
<td></td>
</tr>
<tr>
<td>2. Palsas, pingoes</td>
<td></td>
</tr>
<tr>
<td>D. Wedge Ice</td>
<td></td>
</tr>
<tr>
<td>1. Contraction cracking, wedge formation</td>
<td></td>
</tr>
<tr>
<td>2. Ice wedge polygons, erosional shorelines</td>
<td></td>
</tr>
</tbody>
</table>
E. Slope Processes and Landforms
   1. Weathering
   2. Solifluction, gelifluction, rock glaciers
   3. Tors, aliplanation terraces

F. Thermokarst
   1. Thaw lakes
   2. Fluvial and coastal slumping

G. Engineering aspects
   1. Pipelines and buildings
   2. Roads and landing fields

H. Pleistocene environments and climate change

I. Guest Lectures
   1. Ice roads
   2. Tundra plants
   3. Russian permafrost
   4. Snow patches

J. Trip to Permafrost Tunnel – Fairbanks

K. Student Presentations – variety of subject

VII. Suggested Text(s)


VIII. Bibliography


Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College
AS CAS

1b. Division
AMSC Division of Math Science

1c. Department
Geological Sciences

2. Course Prefix
GEOL

3. Course Number
A455

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(3+0)

6. Complete Course Title
Permafrost

Abbreviated Title for Transcript (30 character)

7. Type of Course
☒ Academic
☐ Preparatory/Development
☐ Non-credit
☐ CEU
☐ Professional Development

8. Type of Action:
☐ Add or
☒ Change or
☐ Delete

If a change, mark appropriate boxes:
☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☒ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☒ Course Description
☐ Course Prerequisites
☐ Co-requisites
☐ Test Score Prerequisites
☐ Registration Restrictions
☐ Other Restrictions
☐ School
☐ Major
☒ Class
☐ Level
☐ College
☐ Major
☐ Other CCG (please specify)

9. Repeat Status No

# of Repeats

Max Credits

10. Grading Basis
☒ A-F
☐ P/NP
☐ NG

11. Implementation Date
semester/year
From: Fall/2014
To: /9999

12. ☐ Cross Listed with

☒ Stacked with GEOL A655
Cross-Listed Coordination

13a. Impacted Courses or Programs:
List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Should be filled out by the initiator:
Initiator Name (typed): Kristine J Crossen
Initiator Signed Initials: __________
Date: __________

13b. Coordination Email
Date: 2/28/13
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
Date: 4/1/13

14. General Education Requirement

Mark appropriate box:
☐ Oral Communication
☐ Written Communication
☐ Quantitative Skills
☐ Humanities
☐ Fine Arts
☐ Social Sciences
☐ Natural Sciences
☐ Integrative Capstone

15. Course Description (suggested length 20 to 50 words)
Examines permafrost geomorphic processes, environments and landforms. Topics include properties of ground ice and patterned ground, permafrost landscape dynamics, engineering and environmental problems, and impacts of climate change on permafrost systems. One weekend field trip required. Special note: Students are required to provide their own transportation to field locales.

16a. Course Prerequisite(s) (list prefix and number)
GEOL A221 with minimum grade of C

16b. Test Score(s)

16c. Co-requisite(s) (concurrent enrollment required)

16d. Other Restriction(s)
☐ College
☐ Major
 ☐ Class
☐ Level

16e. Registration Restriction(s) (non-codable)
Instructor approval

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course stacking with GEOL A655. Additional information concerning field trips.

Initiator (faculty only)
Kristine J Crossen
Date: __________

Initiator (TYPE NAME)

☐ Approved
☒ Disapproved

Dean/Director of School/College
Date: __________

Undergraduate/Graduate Academic
Date: __________

Provost or Designee
Date: __________
I. Date of Initiation: Spring 2013

II. Course Information
   A. College or School: CAS
   B. Course Subject: Geological Sciences
   C. Course Number: GEOL A455
   D. Number of Credits: 3.0 (3+0)
   E. Course Title: Permafrost
   F. Grading Basis: A-F
   G. Course Description: Examines permafrost geomorphic processes, environments and landforms. Topics include properties of ground ice and patterned ground, permafrost landscape dynamics, engineering and environmental problems, and impacts of climate change on permafrost systems. One weekend field trip required. Special note: Students are required to provide their own transportation to field locales.
   H. Prerequisites: GEOL A221 with minimum grade of C
   I. Fee: yes

III. Instructional Goals and Student Learning Outcomes
   A. Instructional Goals. The instructor will:
      1) Present concepts, methods, and problems related to permafrost and periglacial geomorphology.
      2) Guide students toward an understanding of the linkages between cryosphere processes and resulting landforms, surface features, and ecosystems.
      3) Design lectures and class exercises that focus on aspects of theoretical and applied methods of describing and investigating frozen ground features.
   B. Student Learning Outcomes and Evaluation

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<th>Evaluations</th>
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<td>Demonstrate knowledge of permafrost geomorphic processes, physical principles, and the factors affecting these processes</td>
<td>Exams and exercises</td>
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<tr>
<td>Combine knowledge gained about cryogenic processes with both predicted and observed patterns in landform and sediments</td>
<td>Exams and exercises</td>
</tr>
<tr>
<td>Integrate observational and conceptual information to interpret field data</td>
<td>Projects</td>
</tr>
<tr>
<td>Assess and critique current literature, formulate, justify, and adequately communicate educated opinions</td>
<td>Summaries and projects</td>
</tr>
</tbody>
</table>
IV. Course Evaluation

Students will be evaluated through exams focused on basic concepts, methods, and terminology. Essay components will be used to evaluate student ability to synthesize and communicate information. Exercises will be graded for quality of work, degree of understanding, and integration of outside knowledge. Students will discuss professional quality papers and make presentations.

V. Course Level Justification

This course uses both the conceptual and intellectual skills obtained in previous geology courses to apply to the study of permafrost geology. Students will not only learn new material, but will continue to develop and apply critical thinking skills, practice in scientific method, and synthesize the professional literature as characteristic of upper division courses.

VI. Topical Course Outline

A. Permafrost Definitions and Distribution
   1. Continuous and discontinuous zones
   2. Depth to permafrost base
   3. Thickness of active layer

B. Active Layer
   1. Capillarity and cryosuction processes
   2. Segregation ice, jacking, heaving
   3. Convection, cyoturbation, stone nets

C. Mounded Landforms
   1. Hummocks and frost mixing
   2. Palsas, pingoes

D. Wedge Ice
   1. Contraction cracking, wedge formation
   2. Ice wedge polygons, erosional shorelines

E. Slope Processes and Landforms
   1. Weathering
   2. Solifluction, gelifluction, rock glaciers
   3. Tors, altiplanation terraces

F. Thermokarst
   1. Thaw lakes, fluvial and coastal

G. Engineering aspects
   1. Pipelines, roads, landing fields, buildings
H. Pleistocene environments and climate change

I. Guest Lectures
   1. Ice roads
   2. Tundra plants
   3. Russian permafrost
   4. Snow patches

J. Trip to Permafrost Tunnel – Fairbanks

K. Student Presentations – variety of subjects

VII. Suggested Text(s)


VIII. Bibliography


## Course Action Request
### University of Alaska Anchorage
#### Proposal to Initiate, Add, Change, or Delete a Course

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>1b. Division</th>
<th>1c. Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS CAS</td>
<td>AMSC Division of Math Science</td>
<td>Geological Sciences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Course Prefix</th>
<th>3. Course Number</th>
<th>4. Previous Course Prefix &amp; Number</th>
<th>5a. Credits/CEUs</th>
<th>5b. Contact Hours (Lecture + Lab)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL</td>
<td>A656</td>
<td>N/A</td>
<td>3</td>
<td>(3+0)</td>
</tr>
</tbody>
</table>

6. Complete Course Title
Geoarchaeology

**Abbreviated Title for Transcript (30 character)**

7. Type of Course
- [x] Academic
- [ ] Preparatory/Development
- [ ] Non-credit
- [ ] CEU
- [ ] Professional Development

8. Type of Action:
- [x] Add
- [ ] Change
- [ ] Delete

If a change, mark appropriate boxes:
- [ ] Prefix
- [ ] Credits
- [ ] Title
- [ ] Grading Basis
- [ ] Course Description
- [ ] Test Score Prerequisites
- [ ] Other Restrictions
- [ ] Class
- [ ] Level
- [ ] College
- [ ] Major
- [ ] Other CCG (please specify)

9. Repeat Status No
- # of Repeats
- Max Credits

10. Grading Basis
- [x] A-F
- [ ] P/NP
- [ ] NG

11. Implementation Date
- semester/year
- From: Fall/2014
- To: 9999

12. Cross Listed with
- [x] Stacked with GEOL A456

13a. Impacted Courses or Programs:
List any programs or college requirements that require this course.

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Catalog Page(s)</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Geological Sciences - BS</td>
<td>110-112</td>
<td>2/26/13</td>
<td>L. Munk</td>
</tr>
<tr>
<td>2. Anthropology - BS, BA</td>
<td>94-96</td>
<td>2/26/13</td>
<td>S. Langdon</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initiator Name (typed): Kristine J Crossen
Initiator Signed Initials: ___________ Date: ___________

13b. Coordination Email
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
Date: 4/1/13

14. General Education Requirement
Mark appropriate box:
- Oral Communication
- Written Communication
- Quantitative Skills
- Humanities
- Fine Arts
- Social Sciences
- Natural Sciences
- Integrative Capstone

15. Course Description (suggested length 20 to 50 words)
Integration of geology and archaeology. Rock identification of lithic sources, sediment analysis of site deposits, paleolandscape reconstruction, geochronology, and environmental change. Response to changes in resources and climate by past societies and application to contemporary problems and issues. Independent research project required. Special Note: Students are required to have background in physical and historical geology and provide their own transportation to field locales. Not available for credit if previously completed GEOL A456.

16a. Course Prerequisite(s) (list prefix and number)
16b. Test Score(s)
16c. Co-requisite(s) (concurrent enrollment required)
16d. Other Restriction(s)
- College
- Major
- Class
- Level
16e. Registration Restriction(s) (non-codable)
- Graduate standing or instructor permission

17. Mark if course has fees

18. Mark if course is a selected topic course

19. Justification for Action
Designed as 600-level graduate course requiring independent research. Stacked with GEOL A456.

Initiator (faculty only)

Initiator (TYPE NAME)

Approved
Disapproved

Dean/Director of School/College

Date

Department Chairperson

Date

Curriculum Committee Chairperson

Date

Undergraduate/Graduate Academic

Date

Board Chairperson

Date

Provost or Designee

Date
Course Content Guide
University of Alaska Anchorage

GEOL A656
Geoarchaeology

I. Date of Initiation: Spring 2013

II. Course Information
A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A656
D. Number of Credits: 3.0 (3+0)
E. Course Title: Geoarchaeology
F. Grading Basis: A-F
G. Course Description: Integration of geology and archaeology. Rock identification of lithic sources, sediment analysis of site deposits, paleolandscape reconstruction, geochronology, and environmental change. Response to changes in resources and climate by past societies and application to contemporary problems and issues. Independent research project required. Special Note: Students are required to have background in physical and historical geology and provide their own transportation to field locales. Not available for credit if previously completed GEOL A456.
H. Restrictions: Graduate standing or instructor approval
I. Fees: Yes

III. Instructional Goals and Student Learning Outcomes
A. Instructional Goals: The instructor will:
   1) Discuss the use of geologic concepts and methods to solve archaeological problems.
   2) Apply earth science approaches of chronology, sedimentology, and environmental reconstructions to archaeological situations.
   3) Appraise reading and writing skills that incorporate quantitative and critical thinking as applied to investigate past societies and their links to modern environmental and climatic problems.

B. Student Learning Outcomes and Evaluation: Upon completion of the course, the students will be able to:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify different lithologies used in tool making, determine Alaskan lithic sources, and analyze sediments and soils</td>
<td>Exams and exercises</td>
</tr>
<tr>
<td>Assess the processes that produce different types of landforms, and evaluate landforms using aerial photography</td>
<td>Exams</td>
</tr>
<tr>
<td>Critique the different dating techniques used in archaeological sites</td>
<td>Exams and exercises</td>
</tr>
</tbody>
</table>
Assess the major climate sequences over the past 4 million years, and judge the effect on site formation processes | Exercises
---|---
Demonstrate the ability to think critically about problems associated with partial data, discrepancies in dating techniques, and differences in data from a variety of sources | Discussion
Judge problems logically and resolve them reasonably using scientific methods | Exercises and exams
Assess past environmental changes and the impacts of human society and relate these to contemporary issues facing modern societies | Exercises and discussion
Investigate an appropriate research topic, complete individual independent research based on primary data sets and make a professional quality presentation to the class | Presentation

IV. Course Evaluations

The course will assess each student's ability to communicate effectively in both the written and oral formats through individual and group oral projects and through written synthesis of the professional literature. Projects will require students to locate and appropriately use a variety of library and web resources to complete their projects. The assignments will require quantitative and critical thinking skills to apply the lessons learned from past societies to understand and critically judge the responses of modern societies to problems of resource utilization, shortages, and climate change. The outcome will be evaluated using essay exams, research papers and/or oral presentations, class exercises, annotated bibliographies, and class discussions. Graduate students are required to complete an independent research project and make a professional quality presentation.

V. Course Level Justification

This interdisciplinary course incorporates both archaeology (anthropology) and geology. This course requires background in two different disciplines, and requires the students to have the ability to read, analyze and critique the professional literature at an advanced level. Requires selection and completion of individual research using primary data sets, synthesis of literature and research results, and production of professional quality presentation.

VI. Topical Course Outline

A. Lithics  
   1. Identification of rocks and minerals  
   2. Lithics used for tools and Alaskan lithic sources
B. Sediments  
   1. Depositional environments - fluvial, aeolian, glacial, coastal  
   2. Soil formation in different environments  
   3. Paleosols - buried soils
C. Paleolandscape reconstruction
   1. Processes of landscape formation - fluvial, aeolian, glacial, coastal
   2. Interpretation of aerial photography

D. Geochronology
   1. Radiometric dating techniques used in archaeology – C-14 and others
   2. Other types of dating – comogenic, OSL (optically stimulated luminescence)

E. Quaternary climate change
   1. Effect of climate change on site formation and preservation
   2. Human response to past climate change
   3. Modern climate change and its effect on human societies

F. Professional literature on important sites
   1. Reading professional papers
   2. Writing annotated bibliographies
   3. Class discussion

G. Independent research project and class presentation
   1. Individual research of materials or problem from archaeological site
   2. Professional quality presentation

VII. Suggested Text(s)


VIII. Bibliography


Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College
AS CAS

1b. Division
AMSC Division of Math Science

1c. Department
Geological Sciences

2. Course Prefix
GEOL

3. Course Number
A456

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(3+0)

6. Complete Course Title
Geoarchaeology

7. Type of Course
☒ Academic
☐ Preparatory/Development
☐ Non-credit
☐ CEU
☐ Professional Development

8. Type of Action:
☐ Add
☒ Change
☐ Delete

9. Repeat Status No

10. Grading Basis
☒ A-F
☐ P/NP
☐ NG

11. Implementation Date
From: Fall/2014
To: 9999

12. ☐ Cross Listed with
☒ Stacked with GEOL A656

13a. Impacted Courses or Programs:
List any programs or college requirements that require this course.

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<th>Initiator Name (typed): Kristine J Crossen</th>
<th>Initiator Signed Initials:</th>
<th>Date:</th>
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13b. Coordination Email
Date: 2/28/13
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
Date: 4/1/13

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication
☐ Written Communication
☐ Quantitative Skills
☐ Humanities
☐ Fine Arts
☐ Social Sciences
☐ Natural Sciences
☒ Integrative Capstone

15. Course Description (suggested length 20 to 50 words)
Integration of geology and archaeology. Rock identification of lithic sources, sediment analysis of site deposits, paleolandscape reconstruction, geochronology, and environmental change. Response to changes in resources and climate by past societies and application to contemporary problems and issues. Special Note: Students are required to provide their own transportation to field locales.

16a. Course Prerequisite(s) (list prefix and number)
ANTH A211 and GEOL A221 with minimum C grade

16b. Test Score(s)

16c. Co-requisite(s) (concurrent enrollment required)

16d. Other Restriction(s)
☒ College
☐ Major
☒ Class
☐ Level

16e. Registration Restriction(s) (non-codable)
Junior standing or higher

17. ☒ Mark if course has fees
☐ Mark if course is a selected topic course

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course stacking to allow graduate students access to the course offering. Additional information concerning field trips.

Initiator (faculty only) Kristine J Crossen
Date

Initiator (TYPE NAME) 

Approved
Disapproved
Dean/Director of School/College 

Date

Approved
Disapproved
Undergraduate/Graduate Academic 

Board Chairperson

Date

Approved
Disapproved
Provost or Designee 

Date
# Course Content Guide
## University of Alaska Anchorage

**GEOL A456**

**Geoarchaeology**

## I. Date of Initiation: Spring 2013

## II. Course Information

- **A. College:** CAS
- **B. Course Subject:** Geological Sciences
- **C. Course Number:** GEOL A456
- **D. Number of Credits:** 3.0 (3+0)
- **E. Course Title:** Geoarchaeology
- **F. Grading Basis:** A-F
- **G. Course Description:** Integration of geology and archaeology. Rock identification of lithic sources, sediment analysis of site deposits, paleolandscape reconstruction, geochronology, and environmental change. Response to changes in resources and climate by past societies and application to contemporary problems and issues. Special Note: Students are required to provide their own transportation to field locales.
- **H. Course Prerequisites:** ANTH A211 and GEOL A221 with minimum grade of C
- **I. Restrictions:** Junior standing or above
- **J. Fees:** Yes

## III. Instructional Goals and Student Learning Outcomes

### A. Instructional Goals:
The instructor will:

1) Present the use of geologic concepts and methods to solve archaeological problems.

2) Apply earth science approaches of chronology, sedimentology, and environmental reconstructions to archaeological situations.

3) Assign reading and writing exercises that incorporate quantitative and critical thinking skills applied to investigate past societies and their links to modern environmental and climatic problems.

### B. Student Learning Outcomes and Evaluations

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Evaluations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify different lithologies used in tool making, determine Alaskan lithic sources, and analyze sediments and soils</td>
<td>Exams and exercises</td>
</tr>
<tr>
<td>Assess the processes that produce different types of landforms, and evaluate landforms using aerial photography</td>
<td>Exams</td>
</tr>
<tr>
<td>Critique the different dating techniques used in archaeological sites</td>
<td>Exams and exercises</td>
</tr>
<tr>
<td>Assess the major climate sequences over the past 4 million years, and judge the effect on site formation processes</td>
<td>Exercises</td>
</tr>
<tr>
<td>Demonstrate the ability to think critically about problems associated with partial data, discrepancies in dating techniques, and differences in data from a variety of sources</td>
<td>Graded discussion</td>
</tr>
<tr>
<td>Judge problems logically and resolve them reasonably using scientific methods</td>
<td>Exercises and exams</td>
</tr>
<tr>
<td>Assess past environmental changes and their impacts of human society and relate these to contemporary issues facing modern societies</td>
<td>Exercises and discussion</td>
</tr>
</tbody>
</table>

### IV. Course Evaluations

The course will assess each student's ability to communicate effectively in both the written and oral formats through individual and group oral projects and through written synthesis of the professional literature. Projects will require students to locate and appropriately use a variety of library and web resources to complete their projects. The assignments will require quantitative and critical thinking skills to apply the lessons learned from past societies to understand and critically judge the responses of modern societies to problems of resource utilization, shortages, and climate change. The outcome will be evaluated using essay exams, class exercises, annotated bibliographies, and class discussions.

### V. Course Level Justification

This interdisciplinary capstone course incorporates both archaeology (anthropology) and geology and satisfies the general education requirement. This course enables students to apply their background skills in GER basic college level courses (Tier 1) with geology and archeology disciplinary areas (Tier 2). Students must meet the criteria of Junior standing and have taken two 200-level courses as prerequisites. This course is part of the geology curriculum, requires prerequisites from two different disciplines, and requires the students to have the ability to read, analyze and synthesize the professional literature.

### VI. Integrated Capstone Justification

1. Knowledge Integration/Interrelationships and synergy among GER disciplines:
   The course strives to integrate geology (natural science) and archaeology/anthropology (social science).

2. Effective Communication Skills: The course demands successful communication skills through essay examinations, individual and group classroom presentations, and discussions of current problems including climate change.
3. **Critical Thinking:** Students are required to integrate information across disciplines and to critically evaluate data, positions and arguments. They will be required to demonstrate their critical thinking in writing assignments, class presentations and examinations.

4. **Information Literacy:** Students will use computer and internet skills to acquire information, research scientific literature for information, and show that they can organize and analyze information from diverse sources. Discussions and presentations will test these skills.

5. **Quantitative Perspectives:** Students will use statistical analyses, graphical data, and tables of scientific data to investigate concepts and conclusions, and will generate graphical displays of their own results. Examinations and presentations will test these skills.

6. **Evolving Realities of the 21st century:** Understanding modern and past climate change as well as the human influences on climate change (and other processes occurring on the earth’s surface) help illustrate the connections between science, policy and social attitudes. This course strives to help students understand the impact of climate change on human societies (and vice versa) and understand the effects geologic processes on human societies (and vice versa) both in the past and present times.

**VII. Topical Course Outline**

A. **Lithics**
   1. Identification of rocks and minerals
   2. Lithics used for tools and Alaskan lithic sources

B. **Sediments**
   1. Depositional Environments - fluvial, aeolian, glacial, coastal
   2. Soil formation in different environments
   3. Paleosols - buried soils

C. **Paleolandscape reconstruction**
   1. Processes of landscape formation - fluvial, aeolian, glacial, coastal
   2. Interpretation of aerial photography

D. **Geochronology**
   1. Dating techniques used in archaeology - carbon dating, cosmogenic dating, radiometric dating, OSL (optically stimulated luminescence)

E. **Quaternary climate change**
   1. Effect of climate change on site formation and preservation
   2. Human response to past climate change
   3. Modern climate change and its effect on human societies

F. **Professional literature on important sites**
   1. Reading professional papers
   2. Writing annotated bibliographies
   3. Class discussion
VIII. Suggested Text(s)


IX. Bibliography


1a. School or College  
AS CAS

1b. Division  
AMSC Division of Math Science

1c. Department  
Geological Sciences

2. Course Prefix  
GEOL

3. Course Number  
A660

4. Previous Course Prefix & Number  
N/A

5a. Credits/CEUs  
3

5b. Contact Hours  
(Lecture + Lab) (3+0)

6. Complete Course Title  
Environmental Geochemistry

Abbreviated Title for Transcript (30 character)

7. Type of Course  
☒ Academic  ☐ Preparatory/Development  ☐ Non-credit  ☐ CEU  ☐ Professional Development

8. Type of Action:  
☒ Add  ☐ Change  ☐ Delete

If a change, mark appropriate boxes:
☐ Prefix  ☐ Course Number  ☐ Credits  ☐ Contact Hours  ☐ Grading Basis  ☐ Title  ☐ Repeat Status  ☐ Cross-Listed/Stacked  ☐ Course Description  ☐ Requisites  ☐ Test Score Prerequisites  ☐ Co-requisites  ☐ Other Restrictions  ☐ Registration Restrictions

9. Repeat Status No  
# of Repeats  
Max Credits

10. Grading Basis  
☒ A-F  ☐ P/NP  ☐ NG

11. Implementation Date  
semester/year  
From: Fall/2014  
To: 9999

12. ☐ Cross Listed with  
☑ Stacked with GEOL A460  
Cross-Listed Coordination

Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Catalog Page(s) Impacted</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geological Sciences BS</td>
<td>110-113</td>
<td>2/28/13</td>
<td>LeeAnn Munk</td>
</tr>
<tr>
<td>Chemistry BS</td>
<td>101-103</td>
<td>2/28/13</td>
<td>Eric Holmberg</td>
</tr>
<tr>
<td>Applied Environmental Science &amp; Technology MS</td>
<td>333-336</td>
<td>2/28/13</td>
<td>Aaron Dotson</td>
</tr>
</tbody>
</table>

Initiator Name (typed): Kristine J Crossen
Initiator Signed Initials: _________  Date:________________

13b. Coordination Email  
Date: 2/28/13  
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison  
Date: 4/1/13

14. General Education Requirement  
Mark appropriate box:
☐ Oral Communication  ☐ Written Communication  ☐ Quantitative Skills  ☐ Humanities
☐ Fine Arts  ☐ Social Sciences  ☐ Natural Sciences  ☐ Integrative Capstone

15. Course Description (suggested length 20 to 50 words)  
Principles and applications of environmental geochemistry on a global scale. Geochemical cycles and chemical mass balance of elements. Chemical weathering and the composition of natural waters. Processes affecting the distribution of trace elements in geologic environments. Stable isotope fractionation and applications to modeling environmental systems. Review of specific cases of modern environmental geochemistry problems. Independent research project required. Special Note: Students are required to have background in physical and historical geology. Not available for credit if previously completed GEOL A460.

16a. Course Prerequisite(s) (list prefix and number)  
16b. Test Score(s)  
16c. Co-requisite(s) (concurrent enrollment required)

16d. Other Restriction(s)  
☐ College  ☐ Major  ☐ Class  ☒ Level

16e. Registration Restriction(s) (non-codable)  
Graduate standing or instructor approval

17. ☒ Mark if course has fees  
18. ☐ Mark if course is a selected topic course

19. Justification for Action  
The course description, instructional goals, student outcomes, course outline, and course evaluation have been updated and/or condensed, the bibliography and suggested texts have been updated and this course will be stacked with GEOL A460.
<table>
<thead>
<tr>
<th>Role</th>
<th>Date</th>
<th>Approved</th>
<th>Disapproved</th>
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</thead>
<tbody>
<tr>
<td>Initiator (faculty only)</td>
<td>Kristine J Crossen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiator (TYPE NAME)</td>
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<td>Dean/Director of School/College</td>
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<td>Department Chairperson</td>
<td>Date</td>
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<td>Curricular Committee Chairperson</td>
<td>Date</td>
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<td>Provost or Designee</td>
<td>Date</td>
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<tr>
<td>Undergraduate/Graduate Academic Board Chairperson</td>
<td>Date</td>
<td></td>
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</tr>
</tbody>
</table>
I. Date of Initiation: Spring 2013

II. Course Information
   A. College or School: CAS
   B. Course Subject: Geological Sciences
   C. Course Number: A660
   D. Number of Credits: 3.0 (3+0)
   E. Course Title: Environmental Geochemistry
   F. Grading Basis: A-F
   G. Course Description: Principles and applications of environmental geochemistry on a global scale. Geochemical cycles and chemical mass balance of elements. Chemical weathering and the composition of natural waters. Processes affecting the distribution of trace elements in geologic environments. Stable isotope fractionation and applications to modeling environmental systems. Review of specific cases of modern environmental geochemistry problems. Independent research project required. Special Note: Students are required to have background in physical and historical geology. Not available for credit if previously completed GEOL A460.
   H. Restrictions: Graduate standing or instructor approval
   I. Fees: yes

III. Instructional Goals and Student Learning Outcomes:
   A. Instructional Goals. The instructor will:
      1. Present the concepts important in the study of environmental geochemistry
      2. Guide students to an understanding of the principles and applications of geochemistry to various environmental problems
      3. Demonstrate how to utilize geochemical data to understand the geochemical cycles of metals
      4. Provide novel and challenging assignments that require students to take their knowledge beyond the classroom instruction to solve “real world” problems
      5. Provide additional opportunities for graduate level students to develop their critical thinking skills through the analysis of professional literature in environmental geochemistry and the design and completion of independent research projects.

   B. Student Learning Outcomes and Evaluation. Upon completion of the course, the students will be able to:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Evaluation</th>
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<tbody>
<tr>
<td>Model the distribution of chemical elements between geochemical reservoirs on Earth</td>
<td>Homework assignments, quizzes and exams</td>
</tr>
</tbody>
</table>
Utilize geochemical models to understand the composition of natural waters and the effects of pollution | Homework assignments, quizzes and exams

Derive the principles of isotope fractionation and applications to environmental problems at local, regional, national or international scale | Analysis, discussion, and synthesis of relevant professional literature, complete an original research project

Investigate an appropriate research topic, complete individual independent research based on primary data sets and make a professional quality presentation to the class | Analysis of data set, discussion, and synthesis of relevant professional literature, presentation

IV. Course Evaluation
Students are evaluated based on homework assignments, quizzes, exams, class project, research paper and oral presentation.

V. Course Level Justification
Requires students to have an adequate geological background and to analyze and critique the professional literature at an advanced level. Requires selection and completion of individual research using primary data sets, synthesis of literature and research results, and production of professional quality presentation.

VI. Topical Course Outline
A. Global water cycle
   1. Distribution of water on the planet
   2. Chemical composition of natural waters

B. General geochemical cycles
   1. Groundwater
   2. Surface water
   3. Oceans

C. Chemical weathering
   1. Major and trace element cycles
   2. Soil formation
   3. Stable isotope fractionation and environmental applications

D. Water quality
   1. Baseline geochemistry
   2. Assessing contamination

E. Original research project
   1. Investigate an original research problem
   2. Analyze original data
   3. Investigate published literature
   4. Give a professional quality presentation
VII. Suggested Text(s)


VIII. Example Bibliography


Lyons, W.B., Harmon, R.S., eds., 2012, Urban Geochemistry, Elements, vol.8, no.6, ISSN 1811-5209, 401-480.

### 1. School or College
AS CAS

### 1b. Division
AMSC Division of Math Science

### 1c. Department
Geological Sciences

### 2. Course Prefix
GEOL

### 3. Course Number
A460

### 4. Previous Course Prefix & Number
N/A

### 5a. Credits/CEUs
3

### 5b. Contact Hours
(Lecture + Lab)
(3+0)

### 6. Complete Course Title
Environmental Geochemistry

### 7. Type of Course
- [x] Academic
- [ ] Preparatory/Development
- [ ] Non-credit
- [ ] CEU
- [ ] Professional Development

### 8. Type of Action:
- [ ] Add
- [x] Change
- [ ] Delete

### 9. Repeat Status No
- # of Repeats
- Max Credits

### 10. Grading Basis
- [x] A-F
- [ ] P/NP
- [ ] NG

### 11. Implementation Date
From: Fall/2014
To: 9999

### 12. Cross Listed with
- [x] GEOL A660

### 13a. Impacted Courses or Programs:
- **Geological Sciences BS 110-112**: 2/28/13  LeeAnn Munk
- **Chemistry BS 101-103**: 2/28/13  Eric Holmberg
- **Applied Environmental Science Technology MS 333-336**: 2/28/13  A. Dotson

### 14. General Education Requirement
- [ ] Oral Communication
- [ ] Written Communication
- [ ] Quantitative Skills
- [ ] Social Sciences
- [ ] Natural Sciences
- [ ] Integrative Capstone

### 15. Course Description (suggested length 20 to 50 words)

### 16a. Course Prerequisite(s)
GEOL A360 with minimum grade of C

### 16b. Test Score(s)

### 16c. Co-requisite(s) (concurrent enrollment required)

### 16d. Other Restriction(s)
- [x] College
- [ ] Major
- [ ] Class
- [ ] Level

### 16e. Registration Restriction(s) (non-codable)

### 17. Mark if course has fees

### 18. Mark if course is a selected topic course

### 19. Justification for Action
The course description, student outcomes, course outline, and course evaluation have been updated and/or condensed, the bibliography and suggested texts have been updated and this course will be stacked at the 600 level to allow graduate students to take it for graduate credit.
<table>
<thead>
<tr>
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<td>Kristine J. Crossen</td>
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<th>Department Chairperson</th>
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<th>Curriculum Committee Chairperson</th>
<th>Date</th>
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I. Date of Initiation: Spring 2013

II. Course Information
   A. College or School: CAS
   B. Course Subject: Geological Sciences
   C. Course Number: A460
   D. Number of Credits: 3.0 (3+0)
   E. Course Title: Environmental Geochemistry
   F. Grading Basis: A-F
   G. Course Description: Principles and applications of environmental geochemistry on a global scale. Geochemical cycles and chemical mass balance of elements. Chemical weathering and the composition of natural waters. Processes affecting the distribution of trace elements in geologic environments. Stable isotope fractionation and applications to modeling environmental systems. Review of specific cases of modern environmental geochemistry problems.
   H. Course Prerequisites: GEOL A360 with minimum grade of C or instructor approval
   I. Fees: yes

III. Instructional Goals and Student Learning Outcomes
   A. Instructional Goals. The instructor will:
      1) present the concepts important in the study of environmental geochemistry
      2) guide students to an understanding of the principles and applications of geochemistry to various environmental problems
      3) demonstrate how to utilize geochemical data to understand the geochemical cycles of metals
      4) provide novel and challenging assignments that require students to take their knowledge beyond the classroom instruction to solve “real world” problems

   B. Student Learning Outcomes and Evaluation

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<tr>
<td>Derive the principles of isotope fractionation and applications to environmental problems</td>
<td>Analysis, discussion, and synthesis of relevant professional literature, complete a group research project</td>
</tr>
</tbody>
</table>
Use a dataset to apply to the understanding of a local, regional, national or international environmental problem

| Analysis of data set, discussion, and synthesis of relevant professional literature, group presentation |

IV. Course Evaluation

Students are evaluated based on homework assignments, quizzes, exams, class project, and group presentation.

V. Course Level Justification

This course has a 300-level prerequisite and builds upon materials from GEOL A360.

VI. Topical Course Outline

A. Global water cycle
   1. Distribution of water on the planet
   2. Chemical composition of natural waters

B. General geochemical cycles
   1. Groundwater
   2. Surface water
   3. Oceans

C. Chemical weathering
   1. Major and trace element cycles
   2. Soil formation
   3. Stable isotope fractionation and environmental applications

D. Water quality
   1. Baseline geochemistry
   2. Assessing contamination

VII. Suggested Text(s)


VIII. Bibliography


Lyons, W.B., Harmon, R.S., eds., 2012, Urban Geochemistry, Elements, vol.8, no.6, ISSN 1811-5209, 401-480.

1a. School or College  
AS CAS  

1b. Division  
AMSC Division of Math Science  

1c. Department  
Geological Sciences  

2. Course Prefix  
GEOL  

3. Course Number  
A690  

4. Previous Course Prefix & Number  
Reinstate  

5a. Credits/CEUs  
1-4  

5b. Contact Hours  
(Lecture + Lab) (1-4+)  

6. Complete Course Title  
Graduate Topics in Geology  

Abbreviated Title for Transcript (30 character)  

7. Type of Course  
☐ Academic  
☐ Preparatory/Development  
☐ Non-credit  
☐ CEU  
☐ Professional Development  

8. Type of Action:  
☐ Add  
☐ Change  
☐ Delete  

If a change, mark appropriate boxes:  
☐ Prefix  
☐ Credits  
☐ Course Number  
☐ Title  
☐ Grading Basis  
☐ Repeat Status  
☐ Contact Hours  
☐ Cross-Listed/Stacked  
☐ Course Description  
☐ Co-requisites  
☐ Test Score Prerequisites  
☐ Registration Restrictions  
☐ Other Restrictions  
☐ Class  
☐ Level  
☐ College  
☐ Major  
☐ Other CCG (please specify)  

9. Repeat Status Yes  
# of Repeats 2  
Max Credits 9  

10. Grading Basis  
☐ A-F  
☐ P/NP  
☐ NG  

11. Implementation Date  
From: Fall/2014  
To: /9999  

12. ☐ Cross Listed with  
Stacked with GEOL A490  
Cross-Listed Coordination  

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.  
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at [www.uaa.alaska.edu/governance](http://www.uaa.alaska.edu/governance).  

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<th>Chair/Coordinator Contacted</th>
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</tbody>
</table>

Initiator Name (typed): Kristine J Crossen  
Initiator Signed Initials:  
Date:  

13b. Coordination Email  
Date: 2/28/13  
submitted to Faculty Listserv: [uaa-faculty@lists.uaa.alaska.edu](mailto:uaa-faculty@lists.uaa.alaska.edu)  

13c. Coordination with Library Liaison  
Date: 4-1-13  

14. General Education Requirement  
Mark appropriate box:  
☐ Oral Communication  
☐ Written Communication  
☐ Quantitative Skills  
☐ Humanities  
☐ Fine Arts  
☐ Social Sciences  
☐ Natural Sciences  
☐ Integrative Capstone  

15. Course Description (suggested length 20 to 50 words)  
Intensive study of narrowly defined topic in geology with emphasis on current problems. Independent research project required. Special Note: Students are required to have background in physical and historical geology. Class may be repeated with change of title.  

16a. Course Prerequisite(s) (list prefix and number)  
16b. Test Score(s)  
16c. Co-requisite(s) (concurrent enrollment required)  

16d. Other Restriction(s)  
☐ College  
☐ Major  
☐ Class  
☐ Level  

16e. Registration Restriction(s) (non-codable)  
Graduate standing or instructor approval  

17. ☐ Mark if course has fees  

18. ☐ Mark if course is a selected topic course  

19. Justification for Action  
Graduate level course to be stacked with GEOL A490.  

Initiator (faculty only)  
Kristine J Crossen  
Initiator (TYPE NAME)  

Approved  
Disapproved  

Dean/Director of School/College  
Date  

Undergraduate/Graduate Academic  
Board Chairperson  
Date  

Provost or Designee  
Date  

Curriculum Committee Chairperson  
Date  

Approved  
Disapproved
Course Content Guide  
University of Alaska Anchorage  
Department of Geological Sciences  

GEOL A690  
Graduate Topics in Geology  

I. Date of Initiation: Spring 2013  

II. Course Information  
A. College or School: College of Arts and Sciences  
B. Course Title: Graduate Topics in Geology  
C. Course Subject/Number: GEOL A690  
D. Credit Hours: 1-4  
E. Contact time: (1-4 + 0)  
F. Grading Information: A-F  
G. Course Description: Intensive study of narrowly defined topic in geology with emphasis on current problems. Independent research project required. Special Note: Students are required to have background in physical and historical geology. Class may be repeated with change of title.  
H. Registration Restrictions: Graduate standing or instructor approval  
I. Lab fees: yes  

III. Instructional Goals and Student Learning Outcomes  
A. Instructional Goals. The instructor will:  
1) Convey the geological concepts to the study of the particular topic.  
2) Demonstrate the applications of the selected topic to solving geologic problems and problems related to environmental sciences or other areas of interest.  
3) Guide students to utilize their problem solving skills to understand both the principles and applications of the selected geologic topic.  
4) Guide students in choosing a research topic and completing it in a professional manner.  

B. Student Learning Outcomes and Evaluation. Upon completion of the course, the students will be able to:  

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply the principles of the selected topic to geologic, environmental, and other appropriate fields of study</td>
<td>Exams</td>
</tr>
<tr>
<td>Analyze recent literature and examples of modern applications of geological studies</td>
<td>Literature reviews and discussion</td>
</tr>
<tr>
<td>Demonstrate research skills by participating in original research projects</td>
<td>Presentations and written papers</td>
</tr>
</tbody>
</table>
IV. Course Activities:

The course consists of lectures, discussions, and small group collaboration facilitated by the instructor. Each student will initiate and complete an individual project under the direction of the instructor.

V. Methods of Assessment:

Students will be evaluated based on homework assignments, exams, presentations, reports, and analysis, discussion, and synthesis of professional literature and the design and completion of professional quality research projects. Grades will be determined according to the syllabus of the individual instructor.

VI. Course Level Justification:

Requires students to have an adequate geological background and to analyze and critique the professional literature at an advanced level. Requires selection and completion of individual research using primary data sets, synthesis of literature and research results, and production of professional quality presentation.

VII. Topical Course Outline:

Course outline will vary by topics selected.

Example from previous course - GEOL A690 - Isotope Geochemistry

A. Principles of radiogenic isotope geochemistry
   1. Law of radioactivity
   2. Radioactive decay modes

B. Isotope geochronometers
   1. Methods of dating
   2. Applications of radioactive isotopes to environmental problems

C. Principles of stable isotope geochemistry
   1. Isotope fractionation
   2. Equilibrium effects
   3. Kinetic effects
   4. Biological fractionation
D. Unconventional isotopes
   1. Trace metal isotopes
   2. Other light stable isotopes

E. Original research project
   1. Investigate an original research problem
   2. Analyze original data
   3. Investigate published literature
   4. Give a professional quality presentation

VIII. Suggested Text(s):

Texts will vary depending on the topic of the course.

Example from Isotope Geochemistry Above:


IX. Bibliography:

References will vary depending on the selected topic.

Example from Isotope Geochemistry Above.


Course Action Request  
University of Alaska Anchorage  
Proposal to Initiate, Add, Change, or Delete a Course

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>1b. Division</th>
<th>1c. Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS CAS</td>
<td>AMSC Division of Math Science</td>
<td>Geological Sciences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Course Prefix</th>
<th>3. Course Number</th>
<th>4. Previous Course Prefix &amp; Number</th>
<th>5a. Credits/CEUs</th>
<th>5b. Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL</td>
<td>A490</td>
<td>N/A</td>
<td>1-4</td>
<td>(Lecture + Lab) (1-4+0)</td>
</tr>
</tbody>
</table>

6. Complete Course Title  
Advanced Topics in Geology

Abbreviated Title for Transcript (30 character)

7. Type of Course  
☐ Academic  ☐ Preparatory/Development  ☐ Non-credit  ☐ CEU  ☐ Professional Development

8. Type of Action:  
☐ Add  ☒ Change  ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix  ☐ Credits  ☐ Course Number  ☐ Contact Hours  ☐ Repeat Status  ☐ Title  ☐ Grade Basis  ☐ Cross-Listed/Stacked  ☐ Course Description  ☐ Test Score Prerequisites  ☐ Co-requisites  ☐ Other Restrictions  ☐ Class  ☐ Level  ☐ College  ☐ Major  ☒ Other CCG (please specify)

9. Repeat Status Yes  
# of Repeats:  
Max Credits: x

10. Grading Basis  
☐ A-F  ☐ P/NP  ☐ NG

11. Implementation Date  
semester/year:
From: Fall/2014  
To: 9/999

12. ☐ Cross Listed with  
Stacked with GEOL A690

Cross-Listed Coordination

Initiator Name (typed): Kristine J Crossen  
Initiator Signed Initials:  
Date:

13a. Impacted Courses or Programs:  
List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Catalog Page(s) Impacted</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Geological Sciences - BS</td>
<td>110-112</td>
<td>2/28/13</td>
<td>L. Munk</td>
</tr>
<tr>
<td>2. Natural Science - BS</td>
<td>125-129</td>
<td>2/28/13</td>
<td>F. Rainey</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initiator Name (typed): Kristine J Crossen  
Initiator Signed Initials:  
Date:

13b. Coordination Email  
Date: 2/28/13  
submitted to Faculty Listserv: uaa-faculty@lists.uaa.alaska.edu

13c. Coordination with Library Liaison  
Date: 4/1/13

14. General Education Requirement  
Mark appropriate box:

☐ Oral Communication  ☐ Written Communication  ☐ Quantitative Skills  ☐ Humanities
☐ Fine Arts  ☐ Social Sciences  ☐ Natural Sciences  ☐ Integrative Capstone

15. Course Description (suggested length 20 to 50 words)  
Detailed study of a selected topic in geology.

16a. Course Prerequisite(s) (list prefix and number)  
GEOL A221 with minimum grade of C

16b. Test Score(s)

16c. Co-requisite(s) (concurrent enrollment required)

16d. Other Restriction(s)

☐ College  ☐ Major  ☐ Class  ☐ Level

16e. Registration Restriction(s) (non-codable)

17. ☒ Mark if course has fees

18. ☒ Mark if course is a selected topic course

19. Justification for Action  
Change to be stacked with GEOL A690.

Initiator (faculty only)  
Date

Kristine J Crossen  
Initiator (TYPE NAME)

Approved  ☐ Disapproved

Dean/Director of School/College  
Date

Approved  ☐ Disapproved

Undergraduate/Graduate Academic  
Date

Approved  ☐ Disapproved

Board Chairperson  
Date

Approved  ☐ Disapproved

Provost or Designee  
Date

45
I. Date of Initiation: Spring 2013

II. Course Information
   A. College or School: College of Arts and Sciences
   B. Course Title: Advanced Topics in Geology
   C. Course Subject/Number: GEOL A490
   D. Credit Hours: 1-4
   E. Contact time: (1-4 + 0)
   F. Grading Information: A-F
   G. Course Description: Detailed study of a selected topic in geology.
   H. Status of course relative to degree program: May be used as upper-division elective to satisfy Geological Sciences major or minor.
   I. Course Attributes: Applies toward upper division requirement for Geological Sciences major or minor.
   J. Lab fees: yes
   K. Course Prerequisites: GEOL A221 with minimum grade of C

III. Instructional Goals and Student Learning Outcomes:
   A. Instructional Goals. The instructor will:
      1) Convey the geological concepts to the study of the particular topic.
      2) Demonstrate the applications of the selected topic to solving geologic problems and problems related to environmental sciences or other areas of interest.
      3) Guide students to utilize their problem solving skills to understand both the principles and applications of the selected geologic topic.

   B. Student Learning Outcomes and Evaluations

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply the principles of the selected topic to geologic, environmental, and other appropriate field of study.</td>
<td>Exams</td>
</tr>
<tr>
<td>Analyze recent literature and examples of modern applications of geological studies.</td>
<td>Literature reviews, class discussion</td>
</tr>
<tr>
<td>Optional: Develop research skills by participating in original research group projects with their peers</td>
<td>Professional presentation</td>
</tr>
</tbody>
</table>
IV. Course Activities

The course consists of lectures, discussions, and small group collaboration facilitated by the instructor.

V. Methods of Assessment:

Students will be evaluated based on homework assignments, exams, presentations, reports, and analysis, discussion, and synthesis of professional literature. Some classes will require the design and completion of group research projects. Grades will be determined according to the syllabus of the individual instructor.

VI. Course Level Justification

Designed for Geological Science majors as an elective undergraduate course comparable to 400-level offerings at other universities. Designed to provide flexibility to offer and teach innovative senior-level lecture courses on a developmental basis. Such courses are essential to the student’s ability to succeed and integrate content with other 400-level courses in geological sciences.

VII. Topical Course Outline

Course outline will vary by topics selected.

Example from existing course - GEOL A490 - Isotope Geochemistry

A. Principles of radiogenic isotope geochemistry
   1. Law of radioactivity
   2. Radioactive decay modes

B. Isotope geochronometers
   1. Methods of dating
   2. Applications of radioactive isotopes to environmental problems

C. Principles of stable isotope geochemistry
   1. Isotope fractionation
   2. Equilibrium effects
   3. Kinetic effects
   4. Biological fractionation

D. Unconventional isotopes
   1. Trace metal isotopes
   2. Other light stable isotopes
VIII. Suggested Text(s)

Texts will vary depending on the topic of the course.

Example from Isotope Geochemistry above:


IX. Bibliography - References will vary depending on the selected topic.

Example from Isotope Geochemistry above.


TO: Graduate Academic Board
FROM: Robyn Rehmann, Assistant Professor, Educational Leadership, COE
DATE: February 5, 2014
SUBJECT: Program Action Request for Masters of Education in Educational Leadership

The Education Leadership Program, College of Education, is bringing forward a program action request for the Masters of Education degree in Educational Leadership. The current curriculum was written twelve years ago based on the educational needs and issues facing administrators at that time. School leadership demands and expectations have evolved in recent years. These changes require adjustments in practice and expertise from a focus on school management to instructional leadership with an emphasis on research-based practice and social justice.

The program revisions include changes in both admission requirements and curriculum. The changes are as follows:

1. Candidates will be required to write an educational goal statement
2. Three professional recommendations will be required to include one from a current educational supervisor who has evaluated the candidate.
3. The core classes have been revised both in focus and content. Two classes, EDL A637 and EDL A638, were approved last year. A third class, EDL A639 is presented today.
4. Three courses are added to the required curriculum.
   a. EDL A610, Orientation to Graduate Studies in Leadership, and EDL A620, Leadership in Alaska Culture and Social Justice Issues, were approved last year.
   b. EDL A651, Educator Supervision and Evaluation, prepares the future principal with the skills to lead educators and improve instruction in compliance with changes in state regulations. This class is presented today.

If approved, the MED in Educational Leadership will consist of the following classes for a total of 36 credits:

Foundational Core (12 credits)
EDL A610 Orientation to Graduate Studies in Leadership 3 credits
EDL A620 Leadership in Alaska Culture and Social Justice Issues 3 credits
EDL A660 Fundamentals in Research in Education 2 credits
EDL A661 Data-Informed Instruction 2 credits
EDL A667 Program Evaluation 2 credits
Principal Core  (24 credits)
EDL A637  Educational Leadership and Organizational Behavior  3 credits
EDL A638  Instructional and Curricular Leadership  3 credits
EDL A639  Politics, Law and Ethics in Leadership  3 credits
EDL A651  Educator Supervision and Evaluation  3 credits
EDL A641  Principal’s Internship (2 semesters)  6 credits
EDL A642  Principal’s Seminar I  3 credits
EDL A643  Principal’s Seminar II  3 credits

The recommended program action request will result in a graduate certification program for a principal endorsement that is current and relevant to the demands of public educational practice in Alaska and at the national level.
Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College
EA COE

1b. Department
EDL

2. Complete Program Title/Prefix
   Educational Leadership/ EDL

3. Type of Program
   Choose one from the appropriate drop down menu:
   Undergraduate: Choose one or Graduate: Master of Education

   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: Fall 2014 To: 9999

6a. Coordination with Affected Units
   Department, School, or College: COE
   Initiate Name (typed): Robyn Riehman
   Initiate Signed Initials: Date:

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 1/30/2014

6c. Coordination with Library Liaison Date: 1/30/2014

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

8. Justification for Action
   The Educational Leadership Master of Education program for principal certification has been revised. Courses have been reviewed and one new class is being added this year while two new classes were added this catalog year. These changes provide relevancy to assist school leaders in meeting current and future needs of the educational system in Alaska.

   Initiator (faculty only) Date

   ☐ Approved DIS Approve Dean/Director of School/College Date

   Initiator (TYPE NAME)

   ☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date

   ☐ Approved ☐ Disapproved Department Chair Date

   ☐ Approved ☐ Disapproved Provost or Designee Date

   ☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date
C. Educational Leadership

www.uaa.alaska.edu/coe/degrees

The MEd in Educational Leadership is designed for individuals seeking advanced professional preparation to become school leaders. The program specifically prepares individuals for principal or teacher leadership positions. The options include:

- Principal (with Type B certificate)
- Teacher Leadership (without Type B certificate) — admission suspended

Admission Requirements

1. Satisfy Admission Requirements for Graduate Degrees at the beginning of this chapter and Admission Requirements for Master of Education degrees at the beginning of this section.
2. Have at least three years of experience as a certificated elementary teacher, secondary teacher, or special services provider (Type C).
3. Hold a current teacher certificate or provide evidence of eligibility for an Alaska Teacher Certificate.
4. Submit an educational goal statement.
5. Submit three letters of recommendation or rating forms. At least one rating form must be from an educational supervisor who has evaluated the candidate.

Program Student Learning Outcomes

Student learning outcomes for the MEd in Educational Leadership are based on the Educational Leadership Constituent Council (ELCC) Standards for School Leaders. Students who complete the Educational Leadership degree program will be able to:

1. Facilitate the development, articulation, implementation, and stewardship of a shared school vision of learning through the collection and use of data to identify school goals, assess organizational effectiveness, and implement school plans; promotion of continual and sustainable school improvement; and evaluation of school progress and revision of school plans supported by stakeholders.
2. Sustain a school culture, trust and a personalized learning environment with high expectations; create and evaluate a comprehensive, rigorous and coherent curricular and instructional school program; develop and supervise the instructional and leadership capacity of school staff; and promote the most effective and appropriate technologies to support teaching and learning.
3. Ensure effective management of operations and resources for a safe, efficient, and effective learning environment; capacity for distributed leadership to support high-quality instruction and student learning.
4. Collaborate with faculty, families and community members regarding diverse community needs and mobilizing community resources to achieve defined organizational outcomes; building and sustaining positive relationships with families and community partners.
5. Act with integrity and fairness in an ethical reflective manner; promoting social justice to ensure individual student needs in all aspects of schooling.
6. Understand, respond to, and influence the larger political, social, economic, legal and cultural context; anticipating emerging trends and initiatives while adapting leadership strategies.

a. Principal (with Type B Administrator Certificate)

Students completing this program are eligible for an institutional recommendation for an administrator certificate to serve as school principals.

Background Check Requirements

See Field Placements located at the beginning of the College of Education section of this chapter.

Program Requirements

This program includes courses delivered by distance. Admitted students must have the technological knowledge and skills to engage in distance learning.

1. Foundation Core (6 credits):
   - EDL A610 Orientation to Graduate Studies in Leadership 3
   - EDL A620 Leadership in Alaska Culture and Social Justice Issues 3

2. Research Foundation (6 credits)
   - EDRS A660 Fundamentals of Research in Education 2
   - EDRS A661 Data-Informed Instruction 2
   - EDRS A667 Program Evaluation 2
3. **Principal Core (24 credits):**
   
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDL A637</td>
<td>Educational Leadership and Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>EDL A638</td>
<td>Instructional and Curricular Leadership (3)</td>
<td>3</td>
</tr>
<tr>
<td>EDL A639</td>
<td>Politics, Law and Ethics In Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDL A641</td>
<td>Principal Internship (3-6)</td>
<td>6</td>
</tr>
<tr>
<td>EDL A642</td>
<td>Principal’s Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>EDL A643</td>
<td>Principal’s Seminar II</td>
<td>3</td>
</tr>
<tr>
<td>EDL A651</td>
<td>Educator Supervision And Evaluation</td>
<td>3</td>
</tr>
</tbody>
</table>


5. A total of 36 credits is required for the degree and to apply for an institutional recommendation for a Type B Administrator Certificate from the Alaska Department of Education and Early Development (EED).

   *Alaska certification note: EED requires 3 credits of multicultural education/cross-cultural communication and 3 credits of Alaska studies for state licensure. EDL A620 meets the requirement for multicultural education/cross-cultural communication. See the Alaska Department of Education and Early Development website for more information: www.eed.state.ak.us.*

b. **Teacher Leadership**

   *Admission to the Teacher Leadership option is suspended.*
A. C. Educational Leadership

The MEd in Educational Leadership is designed for individuals seeking advanced professional preparation to become school leaders. The program specifically prepares individuals for principal or teacher leadership positions. The options include:

- Principal (with Type B certificate)
- Teacher Leadership (without Type B certificate) — admission suspended

Admission Requirements

1. Satisfy Admission Requirements for Graduate Degrees at the beginning of this chapter and Admission Requirements for Master of Education degrees at the beginning of this section.
2. Have at least three years of experience as a certificated elementary teacher, secondary teacher, or special services provider (Type C).
3. Hold a current teacher certificate or provide evidence of eligibility for an Alaska Teacher Certificate.
4. Submit an educational goal statement.
5. Submit three letters of recommendation or rating forms. At least one rating form must be from an educational supervisor who has evaluated the candidate.

Program Student Learning Outcomes

Student learning outcomes for the MEd in Educational Leadership are based on the Educational Leadership Constituent Council (ELCC) Standards for School Leaders. Students who complete the Educational Leadership degree program will be able to:

1. Facilitate the development, implementation, and monitoring of a shared vision of learning, involving all stakeholders.
2. Facilitate the development, articulation, implementation, and stewardship of a shared school vision of learning through the collection and use of data to identify school goals, assess organizational effectiveness, and implement school plans; promotion of continual and sustainable school improvement; and evaluation of school progress and revision of school plans supported by stakeholders.
3. Shape, sustain, and utilize a school culture and instructional program based on student learning and professional growth.
4. Sustain a school culture, trust and a personalized learning environment with high expectations; create and evaluate a comprehensive, rigorous and coherent curricular and instructional school program; develop and supervise the instructional and leadership capacity of school staff; and promote the most effective and appropriate technologies to support teaching and learning.
5. Ensure effective management of operations and resources for a safe, efficient, and effective learning environment; capacity for distributed leadership to support high-quality instruction and student learning.
6. Collaborate with family and community members to mobilize community resources to respond to diverse community interests and needs.
7. Collaborate with faculty, families and community members regarding diverse community needs and mobilizing community resources to achieve defined organizational outcomes; building and sustaining positive relationships with families and community partners.
8. Act with integrity and fairness in an ethical, reflective manner; promoting social justice to ensure individual student needs in all aspects of schooling.
9. Understand, respond to, and influence the larger political, social, economic, legal and cultural context; anticipating emerging trends and initiatives while adapting leadership strategies.

a. Principal (with Type B Administrator Certificate)

Students completing this program are eligible for an institutional recommendation for an administrator certificate to serve as school principals.

Background Check Requirements

See Field Placements located at the beginning of the College of Education section of this chapter.

Program Requirements

This program includes courses delivered by distance. Admitted students must have the technological knowledge and skills to engage in distance learning.

1. Foundation Core (642 credits):
   - EDL A610 Orientation to Graduate Studies in Leadership 3
   - EDL A620 Leadership in Alaska Culture and Social Justice Issues 3
2. Research Foundation (6 credits)

EDRS A660  Fundamentals of Research in Education  2
EDRS A661  Data-Informed Instruction  2
EDRS A667  Program Evaluation  2

2.1. Principal Core (24 credits):

EDL A637  Educational Leadership and Organizational Behavior  3
EDL A631  Culture, Community, and the Curriculum (3)
EDL A638  Instructional and Curricular Leadership (3)  3

EDL A631  Culture, Community, and the Curriculum (3)
EDL A639  The Politics, Law and Ethics of Education In Leadership  3
EDL A651  Educator Supervision  3
EDL A640  Law and Ethics in Education  3
EDL A641  Principal Internship (3-6)  6
EDL A642  Principal’s Seminar I  3
EDL A643  Principal’s Seminar II  3
EDL A651  Educator Supervision And Evaluation  3

2.4. Comprehensice portfolio documenting attainment of ELCC standards required.

A total of 36 credits is required for the degree and to apply for an institutional recommendation for a Type B Administrator Certificate from the Alaska Department of Education and Early Development (EED).

Alaska certification note: EED requires 3 credits of multicultural education/cross-cultural communication and 3 credits of Alaska studies for state licensure. EDL A620 meets the requirement for multicultural education/cross-cultural communication. See the Alaska Department of Education and Early Development website for more information: www.eed.state.ak.us.

b. Teacher Leadership

Admission to the Teacher Leadership option is suspended.
TO: Graduate Academic Board

FROM: Robyn Rehmann, Assistant Professor, Educational Leadership, COE

DATE: February 5, 2014

SUBJECT: Program Action Request for Educational Leadership Graduate Certificate

The Educational Leadership Program, College of Education, is bringing forward a program action request for the Educational Leadership Graduate Certificate for individuals with a master's degree who are seeking advanced professional preparation to become a principal. The current curriculum was written twelve years ago based on the educational needs and issues facing administrators at that time. The demands and expectations for school leadership have evolved in recent years requiring changes in practice and expertise. This has created a change in focus from school management to instructional leadership with an emphasis on research-based practice and social justice.

The program revisions include changes in both admission requirements and credits. The changes are as follows:

1. Candidates entering the program are required to hold a master's degree. This will include a minimum of six credits in educational research methodology.

2. At least one of the required professional references for admission will be from a current educational supervisor who has evaluated the candidate.

3. The core classes have been revised both in focus and content. Two classes, EDL A637 and EDL A638, were approved last year. A third class, EDL A639 is presented today.

4. Two classes will be added to the required curriculum.
   a. EDL A610, Orientation to Graduate Studies in Leadership, approved last year for the MED will be added to the graduate certificate program.
   b. EDL A651, Educator Supervision and Evaluation, prepares the future principal with the skills to lead educators and improve instruction in compliance with changes in state regulations. This class is presented today.

If approved, the Graduate Certificate in Educational Leadership will be 27 credits:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDL A610</td>
<td>Orientation to Graduate Studies in Leadership</td>
<td>3 credits</td>
</tr>
<tr>
<td>EDL A637</td>
<td>Educational Leadership and Organizational Behavior</td>
<td>3 credits</td>
</tr>
<tr>
<td>EDL A638</td>
<td>Instructional and Curricular Leadership</td>
<td>3 credits</td>
</tr>
<tr>
<td>EDL A639</td>
<td>Politics, Law and Ethics in Leadership</td>
<td>3 credits</td>
</tr>
<tr>
<td>EDL A651</td>
<td>Educator Supervision and Evaluation</td>
<td>3 credits</td>
</tr>
<tr>
<td>EDL A641</td>
<td>Principal’s Internship (2 semesters)</td>
<td>6 credits</td>
</tr>
<tr>
<td>EDL A642</td>
<td>Principal’s Seminar I</td>
<td>3 credits</td>
</tr>
<tr>
<td>EDL A643</td>
<td>Principal’s Seminar II</td>
<td>3 credits</td>
</tr>
</tbody>
</table>
The recommended program action request will result in a graduate certificate program for a principal endorsement that is current and relevant to the demands of public educational practice in Alaska and at the national level.
# Program/Prefix Action Request

**University of Alaska Anchorage**

Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

## 1. School or College
- EA COE

## 2. Complete Program Title/Prefix
- Educational Leadership/EDL

## 3. Type of Program
- Choose one from the appropriate drop down menu:
  - Undergraduate: [ ]
  - Graduate: [ ]

This program is a Gainful Employment Program: [ ] Yes [ ] No

## 4. Type of Action:
- **PROGRAM**
  - [ ] Add
  - [x] Change
  - [ ] Delete

- **PREFIX**
  - [ ] Add
  - [ ] Change
  - [ ] Inactivate

## 5. Implementation Date (semester/year)
- From: Fall 2014
- To: Spring 2016

## 6. Coordination with Affected Units
- Department, School, or College: COE

### Initiator Name (typed):
- Robyn Rechmann

### Initiator Signed Initials:

### Date:

## 6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu)

### Date: 1/30/2014

## 6c. Coordination with Library Liaison

### Date: 1/30/2014

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

## 8. Justification for Action

The Educational Leadership graduate certificate program for principal certification has been updated and substantially revised for individuals with a Masters in Education seeking advanced professional preparation. These changes assist in providing relevancy for school leaders to meet current and future needs of public schools in Alaska and the nation.

---

### Initiator (faculty only)

<table>
<thead>
<tr>
<th>Date</th>
<th>Approved</th>
<th>Disapproved</th>
</tr>
</thead>
</table>

### Initiator (TYPE NAME)

<table>
<thead>
<tr>
<th>Date</th>
<th>Approved</th>
<th>Disapproved</th>
</tr>
</thead>
</table>

<table>
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<tr>
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<th>Disapproved</th>
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<th>Date</th>
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<th>Date</th>
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</table>
B. Graduate Certificates, Educational Leadership

Principal and Superintendent

The Educational Leadership Graduate Certificate programs are designed for individuals with master’s degrees who are seeking advanced professional preparation to become principals or superintendents.

Program Student Learning Outcomes

Student outcomes for these certificates are based on the Educational Leadership Constituent Council (ELCC) Standards for School Leaders, 2011 Building level. Students who complete the Educational Leadership Graduate Certificate programs will be able to:

1. Collaboratively facilitate the development, articulation, implementation, and stewardship of a shared school vision of learning through the collection and use of data to identify school goals, assess organizational effectiveness, and implement school plans; promotion of continual and sustainable school improvement; and evaluation of school progress and revision of school plans supported by stakeholders.
2. Sustain a school culture, trust and a personalized learning environment with high expectations; create and evaluate a comprehensive, rigorous and coherent curricular and instructional school program; develop and supervise the instructional and leadership capacity of school staff; and promote the most effective and appropriate technologies to support teaching and learning.
3. Ensure effective management of operations and resources for a safe, efficient, and effective learning environment; capacity for distributed leadership to support high-quality instruction and student learning.
4. Collaborate with faculty, families and community members regarding diverse community needs and mobilizing community resources to achieve defined organizational outcomes; building and sustaining positive relationships with families and community partners.
5. Act with integrity and fairness in an ethical reflective manner; promoting social justice to ensure individual student needs inform all aspects of schooling.
6. Understand, respond to, and influence the larger political, social, economic, legal and cultural context; anticipating emerging trends and initiatives while adapting leadership strategies.

Admission Requirements

1. Satisfy Admission Requirements for Graduate Certificates found at the beginning of this chapter.
2. Hold a master’s degree from a regionally accredited institution with a grade point average of 3.00 on a 4.00 scale. This will include a minimum of six credits in educational research methodology.
3. Hold appropriate certification:
   a. Current teacher or special services provider (Type C) certificate or equivalent for Educational Leadership Graduate Certificate: Principal.
4. Provide a resume documenting educational experience including at least three years of experience as a certificated elementary teacher, secondary teacher, or special services provider (Type C).
5. Submit an educational goal statement.
6. Submit three letters of recommendation or rating forms from professional references. At least one of the professional references must be from a current educational supervisor who has evaluated the candidate.

Graduation Requirements

1. Satisfy the University Requirements for Graduate Certificates found at the beginning of this chapter.
2. Complete program requirements below.
**Educational Leadership: Principal (K-8, 7-12, or K-8 & 7-12), Graduate Certificate**

**Background Check Requirements**

See Field Placements located at the beginning of the College of Education section of this chapter.

**Program Requirements**

This program includes courses delivered by distance. Admitted students must have the technological knowledge and skills to engage in distance learning.

1. Complete required courses (27 credits):
   - EDL A610 Orientation to Graduate Studies in Leadership 3
   - EDL A637 Educational Leadership and Organizational Behavior 3
   - EDL A638 Instructional and Curricular Leadership 3
   - EDL A639 Politics, Law and Ethics in Leadership 3
   - EDL A641 Principal Internship (3-6) 6
   - EDL A642 Principal’s Seminar I 3
   - EDL A643 Principal’s Seminar II 3
   - EDL A651 Educator Supervision and Evaluation 3

2. Complete portfolio documenting attainment of ELCC standards.

3. Complete a total of 27 credits for the certificate and to apply for an institutional recommendation for the Type B Administrator Certificate with a principal endorsement from the Alaska Department of Education and Early Development.

*Alaska certification note: The Alaska Department of Education and Early Development requires 3 credits of multicultural education/cross-cultural communication and 3 credits of Alaska studies for state licensure. See www.eed.state.ak.us for more information.*

**Educational Leadership: Superintendent (K-12), Graduate Certificate**

**Program Requirements**

This program includes courses delivered by distance. Admitted students must have the technological knowledge and skills to engage in distance learning.

1. Complete required courses (24 credits):
   - EDL A671 Superintendent Stewardship and Systemic Change 3
   - EDL A672 Student Performance: Academic and Developmental 3
   - EDL A673 Human Resource Management and Labor Relations 3
   - EDL A674 Public School Finance and Facilities 3
   - EDL A675 Superintendent Internship (3-6) 6
   - EDL A676 Superintendent Seminar I 3
   - EDL A677 Superintendent Seminar II 3
2. Complete portfolio documenting attainment of ELCC standards.

3. Complete a total of 24 credits for the certificate and to apply for an institutional recommendation for the superintendent endorsement from the Alaska Department of Education and Early Development.

   Alaska certification note: The Alaska Department of Education and Early Development requires 3 credits of multicultural education/cross-cultural communication and 3 credits of Alaska studies for state licensure. See www.eed.state.ak.us for more information.

Institutional Recommendation Principal Type B Administrator Certificate or Superintendent Endorsement

Following are the requirements for an institutional recommendation. The candidates must have:

a. Completed all program courses with a grade of C or higher.

b. Received a cumulative GPA of 3.00 in the program coursework.

c. Met all requirements for a current Alaska Teacher Certificate, or Type C Special Services Certificate or equivalent from another state.

d. Acquired appropriate professional experience:
   • For Principal Type B Administrator Certificate, candidates must have three years of successful certificated contract experience as a teacher or special services provider (Type C).
   • For a Superintendent’s endorsement, candidates must have five years (minimum three years as a teacher and one as an administrator) of experience.

e. Earned a master’s degree from a regionally accredited institution.

f. Demonstrated basic computer/technology competence.

g. Demonstrated mastery of the relevant ELCC 2011 standards through a professional portfolio.
A.B. Graduate Certificates, Educational Leadership
www.uaa.alaska.edu/coe/degrees

Principal and Superintendent
The Educational Leadership Graduate Certificate programs are designed for individuals with master’s degrees who are seeking advanced professional preparation to become principals or superintendents.

Program Student Learning Outcomes
Student outcomes for these certificates are based on the Educational Leadership Constituent Council (ELCC) Standards for School Leaders. 2011 Building level. Students who complete the Educational Leadership Graduate Certificate programs will be able to:

1. Collaboratively facilitate the development, articulation, implementation, and stewardship of a shared school vision of learning through the collection and use of data to identify school goals, assess organizational effectiveness, and implement school plans; promotion of continual and sustainable school improvement; and evaluation of school progress and revision of school plans supported by stakeholders.
2. Sustain a school culture, trust and a personalized learning environment with high expectations; create and evaluate a comprehensive, rigorous and coherent curricular and instructional school program; develop and supervise the instructional and leadership capacity of school staff; and promote the most effective and appropriate technologies to support teaching and learning.
3. Ensure effective management of operations and resources for a safe, efficient, and effective learning environment; capacity for distributed leadership to support high-quality instruction and student learning.
4. Collaborate with faculty, families and community members regarding diverse community needs and mobilizing community resources to achieve defined organizational outcomes; building and sustaining positive relationships with families and community partners.
5. Act with integrity and fairness in an ethical reflective manner; promoting social justice to ensure individual student needs inform all aspects of schooling.
6. Understand, respond to, and influence the larger political, social, economic, legal and cultural context; anticipating emerging trends and initiatives while adapting leadership strategies.

Admission Requirements
1. Satisfy Admission Requirements for Graduate Certificates found at the beginning of this chapter.
2. Hold a master’s degree from a regionally accredited institution with a grade point average of 3.00 on a 4.00 scale. This will include a minimum of six credits in educational research methodology.
3. Hold appropriate certification:
   a. Current teacher or special services provider (Type C) certificate or equivalent for Educational Leadership Graduate Certificate: Principal.
4. Provide a resume documenting educational experience including at least three years of experience as a certificated elementary teacher, secondary teacher, or special services provider (Type C).
5. Submit an educational goal statement.
6. Submit three letters of recommendation or rating forms from professional references. At least one of the professional references must be from a current educational supervisor who has evaluated the candidate.

**Graduation Requirements**

1. Satisfy the University Requirements for Graduate Certificates found at the beginning of this chapter.
2. Complete program requirements below.

**Educational Leadership: Principal (K-8, 7-12, or K-8 & 7-12), Graduate Certificate**

**Background Check Requirements**

See Field Placements located at the beginning of the College of Education section of this chapter.

**Program Requirements**

This program includes courses delivered by distance. Admitted students must have the technological knowledge and skills to engage in distance learning.

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<td>Educational Leadership and Organizational Behavior</td>
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<td>EDL A638</td>
<td>Instructional and Curricular Leadership</td>
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<td>EDL A639</td>
<td>Politics, Law and Ethics in Leadership/Politics of Education</td>
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<td>EDL A640</td>
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<td>EDL A643</td>
<td>Principal’s Seminar II</td>
</tr>
<tr>
<td>EDL A651</td>
<td>Educator Supervision and Evaluation</td>
</tr>
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</table>

1. Complete required courses (274 credits):

2. Complete portfolio documenting attainment of ELCC standards.

3. Complete a total of 274 credits for the certificate and to apply for an institutional recommendation for the Type B Administrator Certificate with a principal endorsement from the Alaska Department of Education and Early Development.

*Alaska certification note: The Alaska Department of Education and Early Development requires 3 credits of multicultural education/cross-cultural communication and 3 credits of Alaska studies for state licensure. See www.edd.state.ak.us for more information.*

**Educational Leadership: Superintendent (K-12), Graduate Certificate**

**Program Requirements**

This program includes courses delivered by distance. Admitted students must have the technological knowledge and skills to engage in distance learning.
1. Complete required courses (24 credits):

   - EDL A671 Superintendent Stewardship and Systemic Change 3
   - EDL A672 Student Performance: Academic and Developmental 3
   - EDL A673 Human Resource Management and Labor Relations 3
   - EDL A674 Public School Finance and Facilities 3
   - EDL A675 Superintendent Internship (3-6) 6
   - EDL A676 Superintendent Seminar I 3
   - EDL A677 Superintendent Seminar II 3

2. Complete portfolio documenting attainment of ELCC standards.

3. Complete a total of 24 credits for the certificate and to apply for an institutional recommendation for the superintendent endorsement from the Alaska Department of Education and Early Development.

   **Alaska certification note:** The Alaska Department of Education and Early Development requires 3 credits of multicultural education/cross-cultural communication and 3 credits of Alaska studies for state licensure. See [www.eed.state.ak.us](http://www.eed.state.ak.us) for more information.

**Institutional Recommendation Principal Type B Administrator Certificate or Superintendent Endorsement**

Following are the requirements for an institutional recommendation. The candidates must have:

a. Completed all program courses with a grade of C or higher.
b. Received a cumulative GPA of 3.00 in the program coursework.
c. Met all requirements for a current Alaska Teacher Certificate, or Type C Special Services Certificate or equivalent from another state.
d. Acquired appropriate professional experience:
   - For Principal Type B Administrator Certificate, candidates must have three years of successful certificated contract experience as a teacher or special services provider (Type C).
   - For a Superintendent’s endorsement, candidates must have five years (minimum three years as a teacher and one as an administrator) of experience.
e. Earned a master’s degree from a regionally accredited institution.
f. Demonstrated basic computer/technology competence.
g. Demonstrated mastery of the relevant ELCC 2011 standards through a professional portfolio.
### Course Action Request

**University of Alaska Anchorage**  
Proposal to Initiate, Add, Change, or Delete a Course

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<th>1b. Division</th>
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<th>5b. Contact Hours (Lecture + Lab)</th>
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#### Complete Course Title
- Politics, Law, & Ethics in Leadership
- Pol Law & Ethics in Leadership

**Abbreviated Title for Transcript (30 character)**

#### 7. Type of Course
- [ ] Academic
- [ ] Preparatory/Development
- [ ] Non-credit
- [ ] CEU
- [ ] Professional Development

#### 8. Type of Action
- [ ] Add
- [ ] Change
- [ ] Delete

If a change, mark appropriate boxes:

- [ ] Prefix
- [ ] Credits
- [ ] Title
- [ ] Grading Basis
- [ ] Course Description
- [ ] Test Score Prerequisites
- [ ] Other Restrictions
  - [ ] Class Level
  - [ ] College Major
  - [ ] Other (please specify)

#### 9. Repeat Status
- [ ] None
- [ ] Max Credits 3

10. Grading Basis
- [x] A-F
- [ ] P/NP
- [ ] NG

#### 11. Implementation Date
- From: Spring/2015
- To: /9999

12. [ ] Cross Listed with

13. Co-requisite(s) (concurrent enrollment required)

14. General Education Requirement
- [ ] Oral Communication
- [ ] Written Communication
- [ ] Quantitative Skills
- [ ] Humanities
- [ ] Fine Arts
- [ ] Social Sciences
- [ ] Natural Sciences
- [ ] Integrative Capstone

15. Course Description (suggested length 20 to 50 words)

Examines knowledge and skills required for implementing political, legal and ethical practices within an educational setting. Analyzes legal and policy issues and politics impacting public education. Integrates professional practice standards, school board policies and regulations, constitutional, statutory, and case law.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
- EDL A610

16b. Co-requisite(s) (concurrent enrollment required)

16c. Other Restriction(s)
- [x] College
- [ ] Major
- [ ] Class
- [ ] Level

16d. Registration Restriction(s) (non-codable)
- Graduate Studies and admission to College of Education

17. [ ] Mark if course has fees

18. [ ] Mark if course is a selected topic course

19. Justification for Action

Updated course to provide relevancy, and recency to content.

**Initiator Name (typed): Liz Boario**  
Initiator Signed Initials: _________  Date: __________________

**Initiator Name (typed): Liz Boario**  
Initiator Signed Initials: _________  Date: __________________

13b. Coordination Email  
Date: 12/10/2013  
submitted to Faculty Listserv: [uaa-faculty@lists.uaa.alaska.edu](mailto:uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison  
Date: 1/29/2014

**14. General Education Requirement**  
Mark appropriate box:

- [ ] Oral Communication  
- [ ] Written Communication  
- [ ] Quantitative Skills  
- [ ] Humanities  
- [ ] Fine Arts  
- [ ] Social Sciences  
- [ ] Natural Sciences  
- [ ] Integrative Capstone

**15. Course Description** (suggested length 20 to 50 words)

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**16a. Course Prerequisite(s)** (list prefix and number or test code and score)
- EDL A610

**16b. Co-requisite(s)** (concurrent enrollment required)

**16c. Other Restriction(s)**
- [x] College
- [ ] Major
- [ ] Class
- [ ] Level

**16d. Registration Restriction(s)** (non-codable)
- Graduate Studies and admission to College of Education

17. [ ] Mark if course has fees

18. [ ] Mark if course is a selected topic course

**19. Justification for Action**
Updated course to provide relevancy, and recency to content.

**Initiator (faculty only)**  
Date

**Initiator (TYPE NAME)**  
Approved  
Disapproved  
Date

**Approved**

**Disapproved**

**Department Chair**  
Date

**Approved**

**Disapproved**

**Board Chair**  
Date

**Approved**

**Disapproved**

**Provost or Designee**  
Date

**Approved**

**Disapproved**

**University of Alaska Anchorage**  
Proposal to Initiate, Add, Change, or Delete a Course

66
I. Date Initiated: November 25, 2013

II. Information for the Course Action Request

College/School: College of Education

Department: Educational Leadership

Subject: EDL

Course Number: A639

Title: Politics, Law and Ethics in Leadership

Credits: 3

Grading Basis: A-F

Implementation Date: Spring 2015

Course Description: Examines knowledge and skills required for implementing political, legal and ethical practices within an educational setting. Analyzes legal and policy issues, and politics impacting public education. Integrates professional practice standards, school board policies and regulations, constitutional, statutory and case law.

Course Prerequisite(s): EDL A610

Test Score(s): N/A

Corequisite(s): N/A

Registration
Restrictions: Admission to College of Education, Graduate Status

Course Fee: No

Justification: This graduate-level course is intended for certified teachers in pursuit of a graduate certificate or master’s degree in EDL and elective for graduate programs.
III. Instructional Goals, Student Learning Outcomes, and Assessment Procedures

A. Instructional Goals

The instructor will:

1. Discuss the role of both federal and state constitutions, statutes, and landmark case law on educational processes

2. Synthesize federal and state political influences on local education policies

3. Examine the management of school operations, with a focus on legal, moral, and ethical issues

4. Analyze the impact of legal cases on Alaskan schools

5. Relate the impact of socio-cultural, economic, and political factors to school practice

6. Analyze beliefs and practices related to diverse ethnic groups and cross-cultural awareness

7. Examine moral, ethical, and value judgments in relationship to Alaskan educational situations

B. Student Learning Outcomes/Assessment Procedures

<table>
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<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Procedures</th>
<th>Standards</th>
<th>Core Values</th>
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<tbody>
<tr>
<td><strong>Upon successful completion of the course, the student will be able to do the following:</strong></td>
<td><strong>This outcome will be assessed by one or more of the following:</strong></td>
<td><strong>This outcome will be the following state and/or national standard:</strong></td>
<td><strong>This outcome addresses the following core value:</strong></td>
</tr>
<tr>
<td>1. Analyze how the federal and state constitutions, statutes and case law effect educational processes</td>
<td>Report</td>
<td>Educational Leader Constituent Council (ELCC) Standard: 5, &amp; 6</td>
<td>Leadership</td>
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<tr>
<td>2. Identify federal and state political platforms and mandates that influence community educational processes and policies</td>
<td>Large group discussion and written summary</td>
<td>ELCC Standard: 6</td>
<td>Leadership</td>
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<td></td>
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<td>SAA Standard: 8</td>
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<tr>
<td>3. Demonstrate management of school operations, from</td>
<td>Presentation</td>
<td>ELCC Standard: 4, 5, &amp; 6</td>
<td>Leadership</td>
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issues definition, to advocacy in legal, moral and ethical issues | SAA Standard: 1

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<td>4.</td>
<td>Examine the Alaskan legal cases recent and pending and impact on schools</td>
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<td>5.</td>
<td>Demonstrate knowledge of the impact of socio-cultural, economic, community influences and local politics on education and school practice</td>
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<td>6.</td>
<td>Analyze personal beliefs and practices related to equity/inclusion issues among diverse ethnic groups</td>
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<td>7.</td>
<td>Integrate ethics with value judgments in school situations</td>
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IV. Course Level Justification

This course requires admission into the graduate school and completion of the prerequisite course in educational leadership. The nature of discussion and integration of knowledge with school situations will require rigorous analysis and synthesis of Alaskan politics and law with personal decision-making through an ethical construct.

V. Course Outline

1. State and federal constitutions, case law, and statutes effects on public school operations
   1.1 Law and political directives as they apply to school practice and personnel
   1.2 Policy directives based on political and legal decisions
   1.3 Statutes and court cases that impact public education

2. Federal and state mandates that influence public school processes
   2.1 Safe, efficient, and effective learning environment
   2.2 Impact of federally funded programs on economics and equity in public schools
   2.3 Compliance implications with educational law, regulations and policies
3. Management challenges defining issues and advocacy
   3.1 Examination of socio-cultural issues influencing student and staff behavior
   3.2 Identification of policy and law in reinforcing cultural awareness built upon ethical assumptions and belief
   3.3 Articulation of personal beliefs and practices

4. Operation of public schools
   4.1 Alaskan historical political influences on public school law
   4.2 National, state, and local demographic, and political factors that impact the operation of public schools and local funding support
   4.3 Legal impact of funding for public and private schools

5. Recent Alaska legal cases that impact public schools
   5.1 Educational structures and procedures for providing service to students that comply with federal and state guidelines
   5.2 Educational expansion to serve the many needs of society

6. Professional practices in operating public schools
   6.1 Cultural awareness
   6.2 Collaboration
   6.3 Communication

7. Community influences on educational practice
   7.1 Socio-cultural and economic conditions
   7.2 Local political powers effects on school practice

8. Personal beliefs and practices
   8.1 Ethical value judgments applied to school practices

VI. Suggested Text(s)


VII. Bibliography


*Classic text*
Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

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<td>P/NP</td>
</tr>
<tr>
<td>NG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11. Implementation Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>From: Fall/2014</td>
</tr>
<tr>
<td>To: 9/9999</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12. Cross Listed with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stacked with</td>
</tr>
<tr>
<td>Cross-Listed Coordination Signature</td>
</tr>
</tbody>
</table>

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Initiator Name (typed): Robyn Rehmann  Initiator Signed Initials: _________  Date:________________

13b. Coordination Email

submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

Date: 1/30/2014

13c. Coordination with Library Liaison

Date: 1/30/2014

14. General Education Requirement

Mark appropriate box:

- Oral Communication
- Written Communication
- Quantitative Skills
- Humanities
- Fine Arts
- Social Sciences
- Natural Sciences
- Integrative Capstone

15. Course Description (suggested length 20 to 50 words)

Examines the school principal's role in the supervision and evaluation of educators. Analyzes research-based strategies to improve instruction and student learning within a culture of trust. Develops an in-depth knowledge of the evaluation process and how it interfaces with supervision. Emphasizes compliance with State of Alaska regulations for educator evaluation.

16a. Course Prerequisite(s) (list prefix and number or test code and score)

EDL A610

16b. Co-requisite(s) (concurrent enrollment required)

16c. Automatic Restriction(s)

- College
- Major
- Class
- Level

16d. Registration Restriction(s) (non-codable)

Graduate Status and admission to COE

17. Mark if course has fees

18. Mark if course is a selected topic course

19. Justification for Action

New class added in EDL MEd and graduate certificate programs to develop skills and expertise in supervision and evaluation.

Initiator (faculty only)  Date

Approved
Disapproved
Dean/Director of School/College
Date

Initiator (TYPE NAME)

- Approved
- Disapproved
- Approved
- Disapproved
- Approved
- Disapproved
- Approved
- Disapproved
I. Date Initiated: 11/25/2013

II. Information for the Course Action Request

   College/School: College of Education
   Department: Educational Leadership
   Subject: EDL
   Course Number: A651
   Title: Educator Supervision and Evaluation
   Credits: 3 credits
   Grading Basis: Graded A-F
   Implementation Date: Fall, 2014
   Course Description: Examines the school principal's role in the supervision and evaluation of educators. Analyzes research-based strategies to improve instruction and student learning within a culture of trust. Develops an in-depth knowledge of the evaluation process and how it interfaces with supervision. Emphasizes compliance with State of Alaska regulations for educator evaluation.
   Course Prerequisite(s): EDL A610
   Test Score(s): N/A
   Corequisite(s): N/A
   Registration Restrictions: Admission to College of Education, Graduate Status
   Course Fee: No
   Justification: This graduate-level course is intended as a required course for certified teachers in pursuit of a graduate certificate or Master’s degree in EDL and as an elective for graduate programs.
### III. Instructional Goals, Student Learning Outcomes, and Assessment Procedures

#### A. Instructional Goals

The instructor will:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Examine the leadership traits to develop a culture of trust with a focus on communication skills</td>
</tr>
<tr>
<td>2.</td>
<td>Analyze educator supervision models that support best practice</td>
</tr>
<tr>
<td>3.</td>
<td>Develop instructional observation and feedback skills to influence educator’s practice</td>
</tr>
<tr>
<td>4.</td>
<td>Discuss and analyze the State of Alaska regulations for educator evaluation, past and present</td>
</tr>
<tr>
<td>5.</td>
<td>Examine various educator evaluation tools with application to the school setting</td>
</tr>
<tr>
<td>6.</td>
<td>Analyze constructs of educator practice according to Alaska State Standards for Teachers and Alaska Cultural Standards for Educators</td>
</tr>
</tbody>
</table>

#### B. Student Learning Outcomes/Assessment Procedures

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Procedures</th>
<th>Standards</th>
<th>Core Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of the course, the student will be able to do the following:</td>
<td>This outcome will be assessed by one or more of the following:</td>
<td>This outcome will be the following state and/or national standard:</td>
<td>This outcome addresses the following core value:</td>
</tr>
<tr>
<td>1. Evaluate the leadership traits necessary to develop a culture of trust conducive to improving educator practice</td>
<td>Discussion, essay, and case studies</td>
<td>Alaska State Administrator Standards (AK): 1 Educational Constituents Council (ELCC): 2, 3</td>
<td>Leadership</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Collaboration</td>
</tr>
<tr>
<td>2. Analyze supervision models to support classroom instruction</td>
<td>Essay</td>
<td>AK: 2, 3 ELCC: 2</td>
<td>Leadership</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Intellectual Vitality</td>
</tr>
<tr>
<td>3. Demonstrate instructional observation skills</td>
<td>Demonstration, or essay</td>
<td>AK: 2 ELCC: 3, 4</td>
<td>Collaboration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Leadership</td>
</tr>
<tr>
<td>4. Synthesize evaluation systems as applied to the local district level and state requirements within a culturally responsive context</td>
<td>Essay</td>
<td>AK: 4, 8 ELCC: 2, 5, 6 Alaska Cultural Standards for Educators</td>
<td>Intellectual Vitality</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Collaboration</td>
</tr>
<tr>
<td>5. Demonstrate competency with multiple evaluation tools</td>
<td>Evaluation protocols</td>
<td>AK: 1, 2, 3 ELCC: 2</td>
<td>Leadership</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Intellectual Vitality</td>
</tr>
</tbody>
</table>
IV. **Course Level Justification**

This course requires admission to graduate school and completion of a prerequisite course in educational leadership. Students will be required to gather and analyze raw data from class observations and draw independent conclusions then calibrate the data and findings.

V. **Course Outline**

1. Creating a culture of change and instructional improvement  
   1.1 Development of trust and distributed leadership  
   1.2 Leader communication skills to enhance performance  
   1.3 Development of collective language to focus on effective instructional practice

2. Supervision models  
   2.1 Clinical supervision: history, theory and practice  
   2.2 Supervision skills and tools  
   2.3 Supervision resulting in instructional improvement

3. Alaska State educator evaluation process  
   3.1 Culture of trust and collaboration  
   3.2 Educator and cultural standards  
   3.3 Growth model

4. Educator evaluation models and tools  
   4.1 Danielson’s Framework for Teaching  
   4.2 Marzano’s Art and Science of Teaching Framework  
   4.3 Center for Educational Leadership-Five Dimensions of Teaching and Learning  
   4.4 Other models designed and approved by State of Alaska

VI. **Suggested Text(s)**


VII. **Bibliography**


TO: Governance Committees
FROM: Randy Magen, Associate Dean College of Health
DATE: December 23, 2013
SUBJ: Creation of College of Health Prefix (COHI)

The Issues
A proposed course was approved through department (Health Sciences, Human Services, Justice Center, Social Work and Psychology) and College curriculum committees (both College of Health and College of Arts and Sciences). This course was not only cross-listed between the five departments and two colleges, it was also stacked.

Upon reaching the governance office, Lora Volden contacted the initiators and informed them that such a course was “unsustainable” due to limitations in Banner and the scheduling program used by the Registrar’s office. A further issue was, from the Registrar’s experience, many units at some point stop coordinating the scheduling of cross-listed courses, which adds to the difficulties. The Banner issue is that the system can only handle two equivalent courses (think of this as a course cross-listed with two departments). The scheduling program requires that the number of seats for each discipline be entered as well as a capacity for each discipline. When the seats are filled for one discipline, students who attempt to register under that discipline are locked out even though seats may be unfilled from other disciplines. Furthermore, the massively cross-listed and stacked course would require 10 class scheduling forms, as a result the Registrar’s office would not be able to use the automated class scheduling program. Lora added that her inquiries with colleagues at other universities suggests that many colleges are moving away from cross-listing and stacked courses, partly because of the confusion it creates for students.

A meeting was held to understand the issue of “unsustainability” and to craft a solution. Attending the meeting were Susan Kalina, Lora Volden, David Yesner and Randy Magen.

Solutions
Two possible solutions were discussed. Both involve the creation of a new course prefix. The first would be "owned" by the Office of Academic Affairs and courses within the prefix would be "owned" by Colleges or possibly departments (units). The general sentiment at the meeting was that while this could be workable for one or two courses, it was not a long-term solution, particularly if the College of Health is moving toward more interprofessional courses. Courses "owned" by different Colleges or departments (units) under the same prefix would likely lead to confusion on the part of students.

A more promising solution is reflected in the attached Prefix Action Request (PAR) to create a College of Health prefix, COHI. This solution is preferred because it would be clearer for students and logical in terms of the purpose of the courses (interprofessional). Since the College has the ability to allocate tuition dollars to units, this solution also allows tuition dollars to flow back to units providing instructors or perhaps based on the student’s major. In follow up email with Erin Holmes, Associate
Vice Provost in charge of Institutional Research, it appears that Student Credit Hour production could also be allocated to units based on student major or perhaps instructor department.

An issue with both solutions is that a course with the College of Health prefix would not appear as an elective within the student's major. That is, many departments require students to take X number of electives within the major (within the prefix). A temporary solution to this problem is a one-year blanket petition covering the specific course to allow it to be counted as an elective within the major. A longer-term solution will be to make changes to catalog copy. Another advantage of the College of Health prefix is that a catalog change could be for the entire prefix, as opposed to one course. These catalog changes will be forthcoming.

The final piece of work will be to create a Memorandum of Understanding between the units involved in the course so that issues related to instructor workload, student credit hour production, tuition, are made explicit.
Program/Prefix Action Request  
University of Alaska Anchorage  
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>1b. Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH College of Health</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Complete Program Title/Prefix</th>
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</thead>
<tbody>
<tr>
<td>College of Health Inter-professional/ COHI</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>3. Type of Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose one from the appropriate drop down menu:</td>
</tr>
<tr>
<td>Undergraduate: or Graduate:</td>
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<tr>
<td>Other: specify type in box 2</td>
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<tr>
<td>Other: specify type in box 2</td>
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This program is a Gainful Employment Program:  
☐ Yes or ☒ No

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<th>PREFIX</th>
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<td>☐ Add</td>
<td>☒ Add</td>
</tr>
<tr>
<td>☐ Change</td>
<td>☐ Change</td>
</tr>
<tr>
<td>☐ Delete</td>
<td>☐ Inactivate</td>
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<th>5. Implementation Date (semester/year)</th>
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<tbody>
<tr>
<td>From: Fall/2014</td>
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<tr>
<td>To: 9999</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6a. Coordination with Affected Units</th>
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<tbody>
<tr>
<td>Department, School, or College:</td>
</tr>
<tr>
<td>College of Health</td>
</tr>
<tr>
<td>Initiator Name (typed): Randy Magen</td>
</tr>
<tr>
<td>Initiator Signed Initials:</td>
</tr>
<tr>
<td>Date:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6b. Coordination Email submitted to Faculty Listserv (<a href="mailto:uaa-faculty@lists.uaa.alaska.edu">uaa-faculty@lists.uaa.alaska.edu</a>)</th>
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<tbody>
<tr>
<td>Date: 12/23/2013</td>
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<table>
<thead>
<tr>
<th>6c. Coordination with Library Liaison</th>
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</thead>
<tbody>
<tr>
<td>Date: 12/23/2013</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Title and Program Description - Please attach the following:</th>
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<tbody>
<tr>
<td>☒ Cover Memo</td>
</tr>
<tr>
<td>☒ Catalog Copy in Word using the track changes function</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. Justification for Action</th>
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</thead>
<tbody>
<tr>
<td>This prefix will house interprofessional courses offered by units within the College of Health. The alternative approach, cross listing a course across multiple departments is not sustainable due to limitations in Banner and the scheduling program used by the Registrar's office.</td>
</tr>
</tbody>
</table>

Initiator (faculty only)  
Date  
Initiator (TYPE NAME)  
Date

<table>
<thead>
<tr>
<th>Approved</th>
<th>Disapproved</th>
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<tbody>
<tr>
<td>Dean/Director of School/College</td>
<td>Date</td>
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<th>Disapproved</th>
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<tbody>
<tr>
<td>Undergraduate/Graduate Academic Board Chair</td>
<td>Date</td>
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</table>

<table>
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<th>Disapproved</th>
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<tbody>
<tr>
<td>Provost or Designee</td>
<td>Date</td>
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</tbody>
</table>
### Course Action Request

**University of Alaska Anchorage**

**Proposal to Initiate, Add, Change, or Delete a Course**

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>1b. Division</th>
<th>1c. Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS CAS</td>
<td>AHUM Division of Humanities</td>
<td>English</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Course Prefix</th>
<th>3. Course Number</th>
<th>4. Previous Course Prefix &amp; Number</th>
<th>5a. Credits/CEUs</th>
<th>5b. Contact Hours (Lecture + Lab)</th>
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</thead>
<tbody>
<tr>
<td>ENGL</td>
<td>A695</td>
<td>N/A</td>
<td>1-6</td>
<td>(0+3-18)</td>
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</table>

6. Complete Course Title

**Advanced Internship in English**

Abbreviated Title for Transcript (30 character)

7. Type of Course

- [x] Academic
- [ ] Preparatory/Development
- [ ] Non-credit
- [ ] CEU
- [ ] Professional Development

8. Type of Action:

- [x] Add
- [ ] Change
- [ ] Delete

If a change, mark appropriate boxes:

- [ ] Prefix
- [ ] Credits
- [ ] Title
- [ ] Grading Basis
- [ ] Course Description
- [ ] Test Score Prerequisites
- [ ] Co-requisites
- [ ] Contact Hours
- [ ] Repeat Status
- [ ] Cross-Listed/Stacked
- [ ] Course Prerequisites
- [ ] Registration Restrictions
- [ ] General Education Requirement
- [ ] Class
- [ ] Level
- [ ] College
- [ ] Major
- [ ] Other
- [ ] (please specify)

9. Repeat Status

- [ ] Yes
- [ ] No

# of Repeats: 5

Max Credits: 6

10. Grading Basis

- [ ] A-F
- [ ] P/NP
- [ ] NG

11. Implementation Date

- [ ] semester/year

From: Fall/2014
To: 9999/9999

12. Cross Listed with

- [ ] Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs:

List any programs or college requirements that require this course.

Please type into fields provided above. If more than three entries, submit a separate table. A template is available at [www.uaa.alaska.edu/governance](http://www.uaa.alaska.edu/governance).

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<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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<tr>
<td>1. English MA</td>
<td>11/22/13</td>
<td>Daniel Kline</td>
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<td>3.</td>
<td></td>
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</table>

Initiator Name (typed): Jennifer Stone

Initiator Signed Initials: __________

Date: __________

13b. Coordination Email

submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

Date: 11/22/13

13c. Coordination with Library Liaison

Date: 11/22/13

14. General Education Requirement

Mark appropriate box:

- [ ] Oral Communication
- [ ] Written Communication
- [ ] Quantitative Skills
- [ ] Humanities
- [ ] Fine Arts
- [ ] Social Sciences
- [ ] Natural Sciences
- [ ] Integrative Capstone

15. Course Description

(suggested length 20 to 50 words)

Advanced internship in English-related professional context. Special Note: May be repeated for up to six credits with change in setting and/or responsibilities.

16a. Course Prerequisite(s) (list prefix and number or test code and score)

N/A

16b. Co-requisite(s) (concurrent enrollment required)

N/A

16c. Automatic Restriction(s)

- [ ] College
- [ ] Major
- [ ] Class
- [x] Level

16d. Registration Restriction(s) (non-codable)

Graduate standing and instructor permission

17. Mark if course has fees

N/A

18. Mark if course is a selected topic course

N/A

19. Justification for Action

This class will allow English graduate students to gain practical research, teaching, or administrative experience in professional settings.

Initiator (faculty only)

Jennifer Stone

Initiator Signed Initials: __________

Date: __________

Approved

Disapproved

Dean/Director of School/College

Date

Approved

Disapproved

Undergraduate/Graduate Academic

Date

Approved

Disapproved

Board Chair

Date

Approved

Provost or Designee

Date
I. **Initiation Date:** November 22, 2013

II. **Course Information**

   A. College: College of Arts and Sciences
   B. Course Prefix: ENGL
   C. Course Number: A695
   D. Number of Credits: 1-6
   E. Contact Time: 3-18 lab hours
   F. Course Title: Advanced Internship in English
   G. Grading Basis: A-F
   H. Implementation Date: Fall 2014
   I. Cross-listed/stacked: N/A
   J. Course Description:
      Advanced internship in English-related professional context. Special Note: May be repeated for up to six credits with change in setting and/or responsibilities.
   K. Course Prerequisites: N/A
   L. Course Co-requisites: N/A
   M. Other Restrictions: N/A
   N. Registration Restrictions: Graduate standing and instructor permission
   O. Status of Course: Can be used toward MA in English
   P. Lab Fees: No
   Q. Coordination: English, UAA Faculty Listserv
III. Instructional Goals, Student Outcomes, and Assessment Methods

<table>
<thead>
<tr>
<th>Instructional Goals</th>
<th>Student Learning Outcomes</th>
<th>Assessment Methods</th>
</tr>
</thead>
</table>
| Provide the student with opportunities to apply advanced disciplinary skills to specific audiences and workplaces. | Demonstrate professionalism and responsibility in a specific work context. | • Evaluation by field mentor  
• Log book  
• Portfolio |
| Provide student with opportunities to engage in advanced, discipline-specific professional contexts. | Engage in advanced, discipline-specific context (for example: planning a conference, assisting with faculty research, assisting with teaching a course, etc.). | • Evaluation by field mentor  
• Log book  
• Portfolio |
| Engage student in critical reflection about their experiences in a professional setting. | Develop a reflective approach to their experiences in a professional setting. | • Reflection journal  
• Midterm and final summary |

*Types of assessment will vary at the instructor’s discretion

IV. Course Level Justification

The goal of this internship is to provide the opportunity for advanced professionalization and work experience for graduate students.

V. Course Activities

Course activities will vary by internship placement, but will always include a contract and a confidentiality agreement. Contracts will include expectations and goals for the student; contracts must be approved by both the faculty liaison who oversees English internships and the field mentor who supervises the student in the internship setting.

Internship placements might include assisting with teaching undergraduates, organizing an academic conference, assisting with research, providing technical writing support for local organizations, providing leadership in the Digital Composition Studio, or other advanced professional activities. Positions as clerical assistants or graders are specifically excluded.

Students will complete relevant training and certification (e.g. FERPA, IRB, etc.). Throughout the internship, the student will maintain a log book of activities, a journal, and will develop a portfolio. The student will also submit a midterm and final summary of activities.
VI. Bibliography


# Course Action Request
## University of Alaska Anchorage
### Proposal to Initiate, Add, Change, or Delete a Course

**1a. School or College**
AS CAS

**1b. Division**
AMSC Division of Math Science

**1c. Department**
Physics and Astronomy

**2. Course Prefix**
PHYS

**3. Course Number**
A603

**4. Previous Course Prefix & Number**
N/A

**5a. Credits/CEUs**
4

**5b. Contact Hours**
(4+0)

**6. Complete Course Title**
Advanced Quantum Mechanics

**Abbreviated Title for Transcript (30 character)**
Advanced Quantum Mechanics

**7. Type of Course**
- [ ] Academic
- [ ] Preparatory/Development
- [ ] Non-credit
- [ ] CEU
- [ ] Professional Development

**8. Type of Action:**
- [x] Add
- [ ] Change
- [ ] Delete

**9. Repeat Status No**

**# of Repeats**

**Max Credits**

**10. Grading Basis**
- [x] A-F
- [ ] P/NP
- [ ] NG

**11. Implementation Date**
From: Fa/2014
To: 9999

**12. Cross Listed with**
- [ ] PHYS A403

**13a. Impacted Courses or Programs:**
List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at [www.uaa.alaska.edu/governance](http://www.uaa.alaska.edu/governance).

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<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
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<tr>
<td>3.</td>
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<td></td>
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</table>

**Initiator Name (typed):** Katherine Rawlins

**Initiator Signed Initials:** __________  Date: __________________

**13b. Coordination Email**
Date: 11/26/13
submitted to Faculty Listserv: [uaa-faculty@lists.uaa.alaska.edu](mailto:uaa-faculty@lists.uaa.alaska.edu)

**13c. Coordination with Library Liaison**
Date: 12/2/13

**14. General Education Requirement**

**Mark appropriate box:**
- [ ] Oral Communication
- [ ] Written Communication
- [ ] Quantitative Skills
- [ ] Humanities
- [ ] Fine Arts
- [ ] Social Sciences
- [ ] Natural Sciences
- [ ] Integrative Capstone

**15. Course Description (suggested length 20 to 50 words)**
Fundamentals of quantum mechanics, including applications to the hydrogen atom, particle spin, and perturbation theory.

**16a. Course Prerequisite(s) (list prefix and number or test code and score)**
[PHYS A303 with minimum grade of C or CHEM A332 with minimum grade of C], and MATH A314 with minimum grade of C

**16b. Co-requisite(s) (concurrent enrollment required)**
N/A

**16c. Other Restriction(s)**
- [ ] College
- [ ] Major
- [ ] Class
- [ ] Level

**16d. Registration Restriction(s) (non-codable)**
Graduate standing, and approval of faculty advisor

**17. Mark if course has fees**

**18. Mark if course is a selected topic course**

**19. Justification for Action**
Adding a stacked version of this course, so as to be available for Interdisciplinary Masters students

**Initiator (faculty only)**
Katherine Rawlins

**Initiator Signed Initials:** __________  Date: __________________

**Approved**

**Disapproved**

**Dean/Director of School/College**
Date

**19. Justification for Action**
Adding a stacked version of this course, so as to be available for Interdisciplinary Masters students

**Initiator (faculty only)**
Katherine Rawlins

**Initiator Signed Initials:** __________  Date: __________________

**Approved**

**Disapproved**

**Undergraduate/Graduate Academic Board Chair**
Date

**Approved**

**Disapproved**

**Provost or Designee**
Date

---

85
I. Date of Initiation
   November 20, 2013

II. Course Information
   A. College: CAS
   B. Department: Physics & Astronomy
   C. Course Subject: PHYS
   D. Course Number: A603
   E. Number of Credits/CEU: 4.0
   F. Number of Contact Hours: 4+0
   G. Course Title: Advanced Quantum Mechanics
   H. Grading Basis: A-F
   I. Course Description:
      Fundamentals of quantum mechanics, including applications to the hydrogen atom, particle spin, and perturbation theory.
   J. Course Prerequisite:
      PHYS A303 with minimum grade of C or CHEM A332 with minimum grade of C, and MATH A314 with minimum grade of C
   K. Implementation Date: Fall 2014
   L. Stacked with: PHYS A403
   M. Registration Restrictions: Graduate standing, and approval of faculty advisor

III. Course Activities
   Standard lecture class. Mainly lectures by instructor

IV. Evaluation
   Evaluation will be at the option of the instructor, but can include regular homework, quizzes, and in-class exams. Graduate students in this class will also complete oral or written presentations going into additional depth or on additional topics.

V. Course Level Justification
   This course builds upon the principles of classical physics (which should be familiar to graduate students), and requires advanced mathematical skills.

VI. Outline
   A. Linear algebra and classical physics review
      1. Inner products
      2. Unitary and Hermitian matrices
      3. Eigenvalues and eigenvectors
      4. Hamiltonians
   B. The Schrodinger Equation
      1. Free particle
      2. Particle in a box
C. The harmonic oscillator
   1. Raising/lowering operators

D. Rotation in three dimensions
   1. Angular momentum
   2. Spherical harmonics
   3. The hydrogen atom

E. Identical particles
   1. Spin
   2. Fermions and bosons

F. Approximation methods
   1. WKB method
   2. Time-independent perturbation theory

VII. Instructional Goals and Student Learning Outcomes
A. Instructional Goals: The instructor will:
   1. The Schrodinger Equation and how to solve it for several example systems, such as a particle in a box, harmonic oscillator, and the hydrogen atom.
   2. The nature of particle spin, and how it relates to degeneracy of identical particles.
   3. How to derive approximate solutions to quantum mechanical problems using perturbation methods.

B. Student Learning Outcomes.

*The student will demonstrate:*
- The ability to use linear algebra to solve eigenvector/eigenvalue problems in quantum mechanics.
- Mastery of use of the Schrodinger equation and how to solve it for problems such as a particle in a box, the harmonic oscillator, and the hydrogen atom.
- Full comprehension of the concept of spin angular momentum, and how it relates to identical particles.
- Demonstrate familiarity with current work in the field represented by journals and other current literature, and/or carry out a research project.

*Assessment Procedures*
- Objective tests
- Objective tests
- Objective tests
- Oral or written presentations

VIII Suggested Texts (at option of instructor)
*Introduction to Quantum Mechanics, 2nd ed.*, D. J. Griffiths, Benjamin Cummings (2004).

IX. Bibliography and Resources
*The Feynman Lectures on Physics Vol. 1-3*, R. P. Feynman, R.B. Leighton, and M. Sands,
Addison Wesley (1977, and other special editions and boxed sets 1989 and 2011).
## Course Action Request

**University of Alaska Anchorage**

**Proposal to Initiate, Add, Change, or Delete a Course**

### 1a. School or College

AS CAS

### 1b. Division

AMSC Division of Math Science

### 1c. Department

Physics and Astronomy

### 2. Course Prefix

PHYS

### 3. Course Number

A403

### 4. Previous Course Prefix & Number

N/A

### 5a. Credits/CEUs

4

### 5b. Contact Hours (Lecture + Lab)

(4+0)

### 6. Complete Course Title

Quantum Mechanics

### 7. Type of Course

- [X] Academic
- [ ] Preparatory/Development
- [ ] Non-credit
- [ ] CEU
- [ ] Professional Development

### 8. Type of Action:

- [X] Add
- [ ] Change
- [ ] Delete

**If a change, mark appropriate boxes:**
- Prefix
- Credits
- Title
- Grading Basis
- Course Description
- Other Restrictions
- Contact Hours
- Repeat Status
- Cross-Listed/Stacked
- Course Prerequisites
- Other update CCG (please specify)

### 9. Repeat Status No  

# of Repeats

Max Credits

### 10. Grading Basis

- [X] A-F
- [ ] P/NP
- [ ] NG

### 11. Implementation Date

- From: Fa/2014
- To: /9999

### 12. Cross Listed with

- [ ] PHYS A603

Cross-Listed Coordination

### 13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

If more than three entries, submit a separate table. A template is available at [www.uaa.alaska.edu/governance](http://www.uaa.alaska.edu/governance).

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Initiator Name (typed): Katherine Rawlins

Initiator Signed Initials: ___________________ Date: __________

### 13b. Coordination Email

Date: 11/26/13

submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

### 13c. Coordination with Library Liaison

Date: 12/2/13

### 14. General Education Requirement

Mark appropriate box:
- [ ] Oral Communication
- [ ] Written Communication
- [ ] Quantitative Skills
- [ ] Humanities
- [ ] Fine Arts
- [ ] Social Sciences
- [ ] Natural Sciences
- [ ] Integrative Capstone

### 15. Course Description (suggested length 20 to 50 words)

Fundamentals of quantum mechanics, including applications to the hydrogen atom, particle spin, and perturbation theory.

### 16a. Course Prerequisite(s) (list prefix and number or test code and score)

[PHYS A303 with minimum grade of C or CHEM A332 with minimum grade of C], and MATH A314 with minimum grade of C

### 16b. Co-requisite(s) (concurrent enrollment required)

N/A

### 16c. Other Restriction(s)

- [ ] College
- [ ] Major
- [ ] Class
- [ ] Level

### 16d. Registration Restriction(s) (non-codable)

N/A

### 17. Mark if course has fees

- [ ]

### 18. Mark if course is a selected topic course

- [ ]

### 19. Justification for Action

Adding a stacked version of this course, and increase credits/contact hours to reflect workload and level of rigor necessary to achieve outcomes

Initiator (faculty only) ___________________ Date: __________

Initiator (TYPE NAME)

Approved

Disapproved

Dean/Director of School/College

Date

Approved

Disapproved

Undergraduate/Graduate Academic

Board Chair

Date

Approved

Disapproved

Provost or Designee

Date
13a. Impacted Courses or Programs

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<td>Natural Sciences, BS</td>
<td>129</td>
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<td>Physics Chair, Pantaleone</td>
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| Impacted Courses       | 390             | 10/15/2013          | Chem Chair, Holmberg        |
University of Alaska Anchorage  
Course Content Guide  
PHYS 403 Quantum Mechanics

I. Date of Initiation
   November 20, 2013

II. Course Information
   A. College: CAS
   B. Department: Physics & Astronomy
   C. Course Subject: PHYS
   D. Course Number: A403
   E. Number of Credits/CEU: 4.0
   F. Number of Contact Hours: 4+0
   G. Course Title: Quantum Mechanics
   H. Grading Basis: A-F
   I. Course Description: Fundamentals of quantum mechanics, including applications to the hydrogen atom, particle spin, and perturbation theory.
   J. Course Prerequisite: [PHYS A303 with minimum grade of C or CHEM A332 with minimum grade of C], and MATH A314 with minimum grade of C
   K. Implementation Date: Fall 2014
   L. Stacked with: PHYS A603

III. Course Activities
   Standard lecture class. Mainly lectures by instructor

IV. Evaluation
   Evaluation will be at the option of the instructor, but can include regular homework, quizzes, and in-class exams.

V. Course Level Justification
   This course builds upon the principles of classical physics, and requires advanced mathematical skills.

VI. Outline
   A. Linear algebra and classical physics review
      1. Inner products
      2. Unitary and Hermitian matrices
      3. Eigenvalues and eigenvectors
      4. Hamiltonians

   B. The Schrodinger Equation
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E. Identical particles
   1. Spin
   2. Fermions and bosons

F. Approximation methods
   1. WKB method
   2. Time-independent perturbation theory

VII. Instructional Goals and Student Learning Outcomes
A. Instructional Goals: The instructor will:
   1. The Schrödinger Equation and how to solve it for several example systems, such as a
      particle in a box, harmonic oscillator, and the hydrogen atom.
   2. The nature of particle spin, and how it relates to degeneracy of identical particles.
   3. How to derive approximate solutions to quantum mechanical problems using perturbation
      methods.

B. Student Learning Outcomes.

The student will demonstrate: 

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<th>The student will demonstrate:</th>
<th>Assessment Procedures</th>
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<td>The ability to use linear algebra to solve eigenvector/eigenvalue problems in quantum mechanics.</td>
<td>Objective tests</td>
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<tr>
<td>Mastery of use of the Schrödinger equation and how to solve it for problems such as a particle in a box, harmonic oscillator, and the hydrogen atom.</td>
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<td>Full comprehension of the concept of spin angular momentum, and how it relates to identical particles.</td>
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VIII Suggested Texts (at option of instructor)


IX. Bibliography and Resources

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<th>1c. Department</th>
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<td>AMSC Division of Math Science</td>
<td>Physics and Astronomy</td>
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<td>Advanced Statistical and Thermal Physics</td>
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<th>7. Type of Course</th>
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| 8. Type of Action: | ☒ Add | ☐ Change | ☐ Delete |

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Initiator Name (typed): Katherine Rawlins
Initiator Signed Initials: ______________________ Date: ______________________

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<th>13b. Coordination Email Date: 11/26/13</th>
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submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

| 13c. Coordination with Library Liaison Date: 12/2/13 |

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<th>14. General Education Requirement</th>
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<tr>
<th>15. Course Description (suggested length 20 to 50 words)</th>
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Principles of statistical mechanics and thermodynamics, with applications.

16a. Course Prerequisite(s) (list prefix and number or test code and score) |
PHYS A212 with minimum grade of C or CHEM A331 with minimum grade of C

16b. Co-requisite(s) (concurrent enrollment required) |
N/A

16c. Other Restriction(s) |
College □ Major □ Class □ Level □ Other (please specify) 

16d. Registration Restriction(s) (non-codable) |
Graduate standing, and approval of faculty advisor

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action |
Adding a stacked version of this course, so as to be available for Interdisciplinary Masters students

Initiator (faculty only) Katherine Rawlins  Date: ______________________
Initiator (TYPE NAME) ______________________

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Dean/Director of School/College  Date: ______________________

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Undergraduate/Graduate Academic Board Chair  Date: ______________________

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Provost or Designee  Date: ______________________

93
I. Date of Initiation: November 20, 2013

II. Course Information

A. College: CAS
   Department: Physics and Astronomy
B. Course Subject: PHYS
C. Course Number: A613
D. Number of Credits/CEU: 4.0
E. Number of Contact Hours: 4+0
F. Course Title: Advanced Statistical and Thermal Physics
G. Grading Basis: A-F
H. Course Description: Principles of statistical mechanics and thermodynamics, with applications.
I. Course Prerequisite: PHYS A212 with minimum grade of C or CHEM A331 with minimum grade of C
J. Implementation Date: Fall 2014
K. Stacked with: PHYS A413
L. Registration restrictions: Graduate standing, and approval of faculty advisor

III. Instructional Goals and Student Learning Outcomes

1. Instructional Goals

The goal of statistical mechanics is to predict the macroscopic properties of bodies, most especially their thermodynamics properties, on the basis of their microscopic properties. Today the ideas and methods of this field are being applied to complexity, biology and information theory. In this class the instructor will present:

1. The laws of thermodynamics and simple applications.
2. The ensemble approach to statistical mechanics.
3. How use the machinery of statistical mechanics to solve general problems in this area.

2. Student Learning Outcomes.

Students will come to understand the fundamentals of statistical mechanics.
Upon completion of this course, students will be able to:

<table>
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<th>students will be able to:</th>
<th>assessed according to:</th>
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<tr>
<td>apply the laws of thermodynamics to simple systems.</td>
<td>weekly homework assignments, midterm and final exams</td>
</tr>
<tr>
<td>choose the appropriate ensembles for different systems.</td>
<td>weekly homework assignments, midterm and final exams</td>
</tr>
<tr>
<td>solve standard statistical mechanics problems.</td>
<td>weekly homework assignments, midterm and final exams</td>
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<tr>
<td>demonstrate familiarity with current work in the field represented by journals and other current literature, and/or carry out a research project</td>
<td>oral or written presentations</td>
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IV. Topical Course Outline

1. What is statistical mechanics?
2. Random walks and emergent properties
3. Temperature and equilibrium
4. Phase-space dynamics and ergodicity
5. Entropy
6. Free energies
7. Quantum statistical mechanics
8. Order parameters, broken symmetry and topology
9. Correlations, response, and dissipation
10. Abrupt phase transitions
11. Continuous phase transitions

V. Suggested Text


VI. Bibliography


Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

<table>
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<tr>
<th>1a. School or College</th>
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| 13a. Impacted Courses or Programs: |

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<tr>
<td>Adding a stacked version of this course, and increase credits/contact hours to reflect workload and level of rigor necessary to achieve outcomes, minor change in title</td>
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97
### Impacted Courses or Programs

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<tr>
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<td>104</td>
<td>10/15/2013</td>
<td>Chem Chair, Holmberg</td>
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<tr>
<td>Natural Sciences, BS</td>
<td>129</td>
<td>10/15/2013</td>
<td>Bio Director, Rainey</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Geo Chair, Crossen</td>
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**Natural Science Chairs:**

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<td>CHEM 333L</td>
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I. Date of Initiation: November 20, 2013

II. Course Information

A. College: CAS
   Department: Physics and Astronomy
B. Course Subject: PHYS
C. Course Number: A413
D. Number of Credits/CEU: 4.0
E. Number of Contact Hours: 4+0
F. Course Title: Statistical and Thermal Physics
G. Grading Basis: A-F
H. Course Description: Principles of statistical mechanics and thermodynamics, with applications.
I. Course Prerequisite: PHYS A212 with minimum grade of C or CHEM A331 with minimum grade of C
J. Implementation Date: Fall 2014
K. Stacked with: PHYS A613

III. Instructional Goals and Student Learning Outcomes

1. Instructional Goals

The goal of statistical mechanics is to predict the macroscopic properties of bodies, most especially their thermodynamics properties, on the basis of their microscopic properties. Today the ideas and methods of this field are being applied to complexity, biology and information theory. In this class the instructor will present:

   1. The laws of thermodynamics and simple applications.
   2. The ensemble approach to statistical mechanics.
   3. How to use the machinery of statistical mechanics to solve general problems in this area.

2. Student Learning Outcomes

Students will come to understand the fundamentals of statistical mechanics.

Upon completion of this course,

<table>
<thead>
<tr>
<th>students will be able to:</th>
<th>assessed according to:</th>
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<tbody>
<tr>
<td>apply the laws of thermodynamics to simple systems.</td>
<td>weekly homework assignments, midterm and final exams</td>
</tr>
<tr>
<td>choose the appropriate ensembles for</td>
<td>weekly homework assignments, midterm and final exams</td>
</tr>
</tbody>
</table>


different systems.          final exams
solve standard statistical mechanics  weekly homework assignments, midterm and
problems.                     final exams

IV. Topical Course Outline

1. What is statistical mechanics?
2. Random walks and emergent properties
3. Temperature and equilibrium
4. Phase-space dynamics and ergodicity
5. Entropy
6. Free energies
7. Quantum statistical mechanics
8. Order parameters, broken symmetry and topology
9. Correlations, response, and dissipation
10. Abrupt phase transitions
11. Continuous phase transitions

V. Suggested Text


VI. Bibliography


Course Action Request  
University of Alaska Anchorage  
Proposal to Initiate, Add, Change, or Delete a Course

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>1b. Division</th>
<th>1c. Department</th>
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<tbody>
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<td>AMSC Division of Math Science</td>
<td>Physics and Astronomy</td>
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<table>
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<tr>
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<th>3. Course Number</th>
<th>4. Previous Course Prefix &amp; Number</th>
<th>5a. Credits/CEUs</th>
<th>5b. Contact Hours (Lecture + Lab)</th>
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6. Complete Course Title  
Advanced Nonlinear Dynamics and Chaos  
Adv Nonlinear Dynamics & Chaos  
Abbreviated Title for Transcript (30 character)

7. Type of Course  
- [X] Academic  
- [ ] Preparatory/Development  
- [ ] Non-credit  
- [ ] CEU  
- [ ] Professional Development

8. Type of Action:  
- [X] Add  
- [ ] Change  
- [ ] Delete

If a change, mark appropriate boxes:
- Prefx
- Credits
- Title
- Grading Basis
- Course Description
- Test Score Prerequisites
- Other Restrictions
- Other Update CCG (please specify)

9. Repeat Status No  
# of Repeats  
Max Credits

10. Grading Basis  
- [X] A-F  
- [ ] P/NP  
- [ ] NG

11. Implementation Date  
semester/year

From: Fa/2014  
To: 9999

12. [X] Cross Listed with  
BIOL/CHEM A656

Stacked with  
BIOL/CHEM/PHYS A456  
Cross-Listed

Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.  
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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Initiator Name (typed): Katherine Rawlins  
Initiator Signed Initials: _________  Date:________________

13b. Coordination Email  
Date: 11/26/13  
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison  
Date: 12/2/13

14. General Education Requirement  
Mark appropriate box:
- Oral Communication  
- Written Communication  
- Quantitative Skills  
- Humanities  
- Fine Arts  
- Social Sciences  
- Natural Sciences  
- Integrative Capstone

15. Course Description (suggested length 20 to 50 words)  
An introduction to nonlinear dynamics and chaos. Concrete examples from physics, biology, chemistry, and engineering are used to develop analytical methods and geometric intuition. Topics covered include phase plane analysis, iterated maps, fractals, and strange attractors.

16a. Course Prerequisite(s) (list prefix and number or test code and score)  
MATH A202 with minimum grade of C and [PHYS A124 with minimum grade of C or PHYS A212 with minimum grade of C]

16b. Co-requisite(s) (concurrent enrollment required)  
N/A

16c. Other Restriction(s)  
- [ ] College  
- [ ] Major  
- [ ] Class  
- [X] Level

16d. Registration Restriction(s) (non-codable)  
Graduate standing, and approval of faculty advisor

17. [X] Mark if course has fees

18. [ ] Mark if course is a selected topic course

19. Justification for Action  
Add a stacked version of this course, so as to be available for Interdisciplinary Masters students

Initiator (faculty only)  
Katherine Rawlins  
Initiator (TYPE NAME)

[ ] Approved  
[ ] Disapproved

Dean/Director of School/College  
Date

[ ] Approved  
[ ] Disapproved

Undergraduate/Graduate Academic  
Board Chair  
Date

[ ] Approved  
[ ] Disapproved

Provost or Designee  
Date
Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College  
AS CAS

1b. Division  
AMSC Division of Math Science

1c. Department  
Biological Sciences

2. Course Prefix  
BIOL

3. Course Number  
A656

4. Previous Course Prefix & Number  
N/A

5a. Credits/CEUs  
3

5b. Contact Hours  
(Lecture + Lab)  
(3+0)

6. Complete Course Title  
Advanced Nonlinear Dynamics and Chaos  
Adv Nonlinear Dynamics & Chaos  
Abbreviated Title for Transcript (30 character)

7. Type of Course  
☑ Academic  ☐ Preparatory/Development  ☐ Non-credit  ☐ CEU  ☐ Professional Development

8. Type of Action:  
☑ Add  ☐ Change  ☐ Delete

If a change, mark appropriate boxes:

- Prefix
- Credits
- Title
- Grading Basis
- Cross-Listed/Stacked
- Course Description
- Course Prerequisites
- Text Score Prerequisites
- Co-requisites
- Other Restrictions
- Class
- Level
- College
- Major
- General Education Requirement
- Repeat Status
- Registration Restrictions
- Other Update CCG (please specify)

9. Repeat Status No  
# of Repeats  
Max Credits

10. Grading Basis  
☑ A-F  ☐ P/NP  ☐ NG

11. Implementation Date  
Semester/Year  
From:  Fa/2014  To:  /9999

12. ☑ Cross Listed with  
CHEM/PYS A656  
Stacked with  
BIOL/CHEM/PYS A456  
Cross-Listed

Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

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Initiator Signed Initials: _________  Date:________________

13b. Coordination Email  
Date: 11/26/13  
submitted to Faculty Listserv: (uas-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison  
Date: 12/2/13

14. General Education Requirement  
Mark appropriate box:

- Oral Communication
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Add a stacked version of this course, so as to be available for Interdisciplinary Masters students

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Undergraduate/Graduate Academic  
Date

☐ Approved  ☐ Disapproved  
Board Chair  
Date

☐ Approved  ☐ Disapproved  
Provost or Designee  
Date

Department Chair  
Date

College/School Curriculum Committee Chair  
Date
# Proposal to Initiate, Add, Change, or Delete a Course

### 1a. School or College
AS CAS

### 1b. Division
AMSC Division of Math Science

### 1c. Department
Chemistry

### 2. Course Prefix
CHEM

### 3. Course Number
A656

### 4. Previous Course Prefix & Number
N/A

### 5a. Credits/CEUs
3

### 5b. Contact Hours
(Lecture + Lab) (3+0)

### 6. Complete Course Title
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### Abbreviated Title for Transcript (30 character)
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### 7. Type of Course
☐ Academic  ☐ Preparatory/Development  ☐ Non-credit  ☐ CEU  ☐ Professional Development

### 8. Type of Action:
☒ Add  ☐ Change  ☐ Delete

### 9. Repeat Status No  # of Repeats  Max Credits

### 10. Grading Basis
☒ A-F  ☐ P/NP  ☐ NG

### 11. Implementation Date
From: Fa/2014  To: /9999

### 12. Cross Listed with
☒ BIOL/PHYS A656

### 13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

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Date: 11/26/13  submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

### 13c. Coordination with Library Liaison
Date: 12/2/13

### 14. General Education Requirement

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### 16b. Co-requisite(s) (concurrent enrollment required)
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### 16c. Other Restriction(s)
☐ College  ☐ Major  ☐ Class  ☒ Level

### 16d. Registration Restriction(s) (non-codable)
Graduate standing, and approval of faculty advisor

### 17. ☒ Mark if course has fees

### 18. ☐ Mark if course is a selected topic course

### 19. Justification for Action
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University of Alaska Anchorage
Course Content Guide
BIOL/CHEM/PHYS A656 Advanced Nonlinear Dynamics and Chaos

I. Date of Initiation: November 20, 2013

II. Course Information
A. College: CAS
B. Departments: Biology, Chemistry, and Physics/Astronomy
C. Course Subject: BIOL/CHEM/PHYS
D. Course Number: A656
E. Number of Credits/CEU: 3.0
F. Number of Contact Hours: 3+0
G. Course Title: Advanced Nonlinear Dynamics and Chaos
H. Grading Basis: A-F
I. Course Description:
An introduction to nonlinear dynamics and chaos. Concrete examples from physics, biology, chemistry and engineering are used to develop analytical methods and geometric intuition. Topics covered include phase plane analysis, iterated maps, fractals and strange attractors.

J. Course Prerequisite:
MATH A202 with minimum grade of C and [PHYS A124 with minimum grade of C or PHYS A212 with minimum grade of C]

K. Registration Restrictions:
Graduate standing, and approval of faculty advisor

L. Course Attributes:
UAA GER Integrative Capstone

M. Implementation Date:
Fall 2014

N. Stacked with:
BIOL/CHEM/PHYS A456

III. Instructional Goals and Student Learning Outcomes

1. Instructional Goals

The topics usually discussed in science and engineering classes are linear systems, however most real world problems are nonlinear. The analysis of nonlinear dynamical systems is presently one of the most active areas of research. In large part this is because the ongoing improvements in computer power constantly open up new areas where computer analysis may be applied.

The instructor will present:
1. Models of nonlinear systems in a wide range of fields: physics, biology, chemistry, engineering, and economics.
2. Techniques for analyzing these models; especially graphical and numerical methods.
2. Student Learning Outcomes & Assessment Methods

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<th>The student will...</th>
<th>... as measured by:</th>
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<tr>
<td>Create mathematical models of complex dynamical systems.</td>
<td>Homework, tests, and take-home projects</td>
</tr>
<tr>
<td>Determine the long term behavior of nonlinear dynamical models.</td>
<td>Homework, tests, and take-home projects</td>
</tr>
<tr>
<td>Use computers to find the attractors in physical data from actual nonlinear systems.</td>
<td>Homework, tests, and take-home projects</td>
</tr>
<tr>
<td>Demonstrate familiarity with current work in the field represented by journals and other current literature, and/or carry out a research project.</td>
<td>Oral or written presentations</td>
</tr>
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</table>

IV. Guidelines for Evaluation

Course grade is A-F. The grade will be based on how well the student masters the subject material. This will be evaluated through weekly homework assignments, lab reports, midterm and final exams. Graduate students in this class will also complete oral or written presentations going into additional depth or on additional topics.

V. Topical Course Outline

1. Overview of Dynamical Systems
2. 1-D Flows in Phase Space
   - Bifurcations
     -- Lab Activity: Cooling
3. Flow in a Circular Phase Space
4. 2-D Linear Dynamics
   -- Lab: Damped Oscillations
5. 2-D Nonlinear Dynamics.
   -- Lab: Synchronization
6. Limit Cycles
7. Quasiperiodicity
   -- Lab: Quasiperiodicity
8. Lorenz Equations
9. 1-D Maps
   -- Lab: Diode Circuits
10. Fractals
11. Strange Attractors
VI. Suggested Text


VII. Bibliography


**Course Action Request**

University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

<table>
<thead>
<tr>
<th>1a. School or College</th>
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<td>Physics and Astronomy</td>
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<th>4. Previous Course Prefix &amp; Number</th>
<th>5a. Credits/CEUs</th>
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<th>5b. Contact Hours (Lecture + Lab)</th>
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6. Complete Course Title
Nonlinear Dynamics and Chaos

7. Type of Course
- Academic
- Preparatory/Development
- Non-credit
- CEU
- Professional Development

8. Type of Action:
- Add
- Change
- Delete

If a change, mark appropriate boxes:
- Prefix
- Credits
- Course Number
- Title
- Grade Basis
- Contact Hours
- Repeat Status
- Cross-Listed/Stacked
- Course Description
- Course Prerequisites
- Text Score Prerequisites
- Co-requisites
- Other Restrictions
- Class
- Level
- College
- Major
- General Education Requirement
- Other Update CCG (please specify)

9. Repeat Status No
- # of Repeats
- Max Credits

10. Grading Basis
- A-F
- P/NP
- NG

11. Implementation Date
- semester/year
  - From: Fa/2014
  - To: 9999

12. Cross Listed with
  - BIOL/CHEM A456
  - Cross-Listed
  - Stacked with BIOL/CHEM/PHYS A656

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

13b. Coordination Email

13c. Coordination with Library Liaison

14. General Education Requirement

15. Course Description (suggested length 20 to 50 words)
An introduction to nonlinear dynamics and chaos. Concrete examples from physics, biology, chemistry, and engineering are used to develop analytical methods and geometric intuition. Topics covered include phase plane analysis, iterated maps, fractals, and strange attractors.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
- MATH A202 with minimum grade of C
- [PHYS A124 with minimum grade of C or PHYS A212 with minimum grade of C]

16b. Co-requisite(s) (concurrent enrollment required)
- N/A

16c. Other Restriction(s)
- College
- Major
- Class
- Level

16d. Registration Restriction(s) (non-codable)
- Completion of GER Tier 1 (basic college-level skills) courses and junior standing

17. Mark if course has fees

18. Mark if course is a selected topic course

19. Justification for Action
Add a stacked version of this course, and update CCG.

Initiator Name (typed): Katherine Rawlins
Initiator Signed Initials: _________
Initiator Date:________________

Coordination Email: uaa-faculty@lists.uaa.alaska.edu

Initiator (faculty only)

Katherine Rawlins
Initiator (TYPE NAME)

Approved by Dean/Director of School/College
Date

Approved by Undergraduate/Graduate Academic Board Chair
Date

Approved by Provost or Designee
Date

Department Chair
Date

College/School Curriculum Committee Chair
Date
### BIOL/CHEM/PHYS 456

13a. Impacted Courses or Programs

<table>
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<th>Catalog Page(s) Imp:</th>
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<td>Geo Chair, Crossen</td>
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<td>Chem Chair, Holmberg</td>
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<td>Physics Chair, Pantaleone</td>
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**Natural Science Chairs:**

- Bio Director, Rainey
- Geo Chair, Crossen
- Chem Chair, Holmberg
- Physics Chair, Pantaleone

**Impacted Courses**

none
### Course Action Request

**University of Alaska Anchorage**

**Proposal to Initiate, Add, Change, or Delete a Course**

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<table>
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<tr>
<th>1a. School or College</th>
<th>1b. Division</th>
<th>1c. Department</th>
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<tbody>
<tr>
<td>AS CAS</td>
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<th>5a. Credits/CEUs</th>
<th>5b. Contact Hours (Lecture + Lab)</th>
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<th>6. Complete Course Title</th>
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<tr>
<td>Nonlinear Dynamics and Chaos</td>
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<thead>
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<td>CHEM/PHYS A456</td>
<td>List any programs or college requirements that require this course.</td>
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<td>Oral Communication</td>
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<td>Quantitative Skills</td>
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<td></td>
<td>Integrative Capstone</td>
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<th>16b. Co-requisite(s) (concurent enrollment required)</th>
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<tbody>
<tr>
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<th>18. Mark if course is a selected topic course</th>
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| 19. Justification for Action | Add a stacked version of this course, and update CCG. |

---

**Initiator Name (typed): Katherine Rawlins**

**Initiator Signed Initials:** _________  **Date:** __________

---

**Initiator (faculty only) Katherine Rawlins**

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**Initiator (TYPE NAME) Date**

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**Dean/Director of School/College**

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**Date**

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**Provost or Designee**

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**Date**

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**Department Chair**

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**College/School Curriculum Committee Chair**

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**Date**
Course Action Request  
University of Alaska Anchorage  
Proposal to Initiate, Add, Change, or Delete a Course

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6. Complete Course Title  
Nonlinear Dynamics and Chaos  
Abbreviated Title for Transcript (30 character)

7. Type of Course  
[ ] Academic  [ ] Preparatory/Development  [ ] Non-credit  [ ] CEU  [ ] Professional Development

8. Type of Action:  
[ ] Add  [ ] Change  [ ] Delete

If a change, mark appropriate boxes:

- [ ] Prefix
- [ ] Credits
- [ ] Title
- [ ] Grading Basis
- [ ] Course Description
- [ ] Test Score Prerequisites
- [ ] Other Restrictions
  - [ ] Class
  - [ ] Level
  - [ ] College
  - [ ] Major
- [ ] Other Update CCG (please specify)

9. Repeat Status No  
# of Repeats  
Max Credits

10. Grading Basis  
[ ] A-F  [ ] P/NP  [ ] NG

11. Implementation Date  
semester/year  
From:  Fa/2014  
To:  /9999

12. Cross Listed with  
BIOL/PHYS A456

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.  
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

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<th>Chair/Coordinator Contacted</th>
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Initiator Name (typed): Katherine Rawlins  
Initiator Signed Initials: __________  Date: __________

13b. Coordination Email  
Date: 11/26/13  
sent to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison  
Date: 12/2/13

14. General Education Requirement  
Mark appropriate box:

- [ ] Oral Communication
- [ ] Written Communication
- [ ] Quantitative Skills
- [ ] Humanities
- [ ] Fine Arts
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15. Course Description  
(suggested length 20 to 50 words)

An introduction to nonlinear dynamics and chaos. Concrete examples from physics, biology, chemistry, and engineering are used to develop analytical methods and geometric intuition. Topics covered include phase plane analysis, iterated maps, fractals, and strange attractors.

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- [ ] Major
- [ ] Class
- [ ] Level

16d. Registration Restriction(s) (non-codable)
Completion of GER Tier 1 (basic college-level skills) courses and junior standing

17. [ ] Mark if course has fees

18. [ ] Mark if course is a selected topic course

19. Justification for Action

Add a stacked version of this course, and update CCG.

Initiator (faculty only)  
Katherine Rawlins  
Initiator (TYPE NAME)  
Date

[ ] Approved  [ ] Disapproved  
Department Chair  
Date

[ ] Approved  [ ] Disapproved  
College/School Curriculum Committee Chair  
Date

[ ] Approved  [ ] Disapproved  
Dean/Director of School/College  
Date

[ ] Approved  [ ] Disapproved  
Undergraduate/Graduate Academic Board Chair  
Date

[ ] Approved  [ ] Disapproved  
Provost or Designee  
Date
University of Alaska Anchorage
Course Content Guide
BIOL/CHEM/PHYS A456 Nonlinear Dynamics and Chaos

I. Date of Initiation: November 20, 2013

II. Course Information
A. College: CAS
   Departments: Biology, Chemistry, and Physics/Astronomy
B. Course Subject: BIOL/CHEM/PHYS
C. Course Number: A456
D. Number of Credits/CEU: 3.0
E. Number of Contact Hours: 3+0
F. Course Title: Nonlinear Dynamics and Chaos
G. Grading Basis: A-F
H. Course Description:
   An introduction to nonlinear dynamics and chaos. Concrete examples from physics, biology, chemistry and engineering are used to develop analytical methods and geometric intuition. Topics covered include phase plane analysis, iterated maps, fractals and strange attractors.
I. Course Prerequisite:
   MATH A202 with minimum grade of C and [PHYS A124 with minimum grade of C or PHYS A212 with minimum grade of C]
J. Registration Restrictions:
   Completion of GER Tier 1 (basic college-level skills) courses and junior standing.
K. Course Attributes: UAA GER Integrative Capstone
L. Implementation Date: Fall 2014
M. Stacked with: BIOL/CHEM/PHYS A656
N. Fees: Yes

III. Instructional Goals and Student Learning Outcomes

1. Instructional Goals

   The topics usually discussed in science and engineering classes are linear systems, however most real world problems are nonlinear. The analysis of nonlinear dynamical systems is presently one of the most active areas of research. In large part this is because the ongoing improvements in computer power constantly open up new areas where computer analysis may be applied.

   The instructor will present:
   1. Models of nonlinear systems in a wide range of fields: physics, biology, chemistry, engineering, and economics.
2. Techniques for analyzing these models; especially graphical and numerical methods.

2. Student Learning Outcomes & Assessment Methods

<table>
<thead>
<tr>
<th>The student will…</th>
<th>… as measured by:</th>
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<tbody>
<tr>
<td>Create mathematical models of complex dynamical systems.</td>
<td>Homework, tests, and take-home projects</td>
</tr>
<tr>
<td>Determine the long term behavior of nonlinear dynamical models.</td>
<td>Homework, tests, and take-home projects</td>
</tr>
<tr>
<td>Use computers to find the attractors in physical data from actual nonlinear systems.</td>
<td>Homework, tests, and take-home projects</td>
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</tbody>
</table>

IV. Guidelines for Evaluation

Course grade is A-F. The grade will be based on how well the student masters the subject material. This will be evaluated through weekly homework assignments, lab reports, midterm and final exams.

V. Topical Course Outline

1. Overview of Dynamical Systems
2. 1-D Flows in Phase Space
   - Bifurcations
     -- Lab Activity: Cooling
3. Flow in a Circular Phase Space
4. 2-D Linear Dynamics
   -- Lab: Damped Oscillations
5. 2-D Nonlinear Dynamics.
   -- Lab: Synchronization
6. Limit Cycles
7. Quasiperiodicity
   -- Lab: Quasiperiodicity
8. Lorenz Equations
9. 1-D Maps
   -- Lab: Diode Circuits
10. Fractals
11. Strange Attractors
    -- Lab: Paper Crumpling
12. Pattern Formation

VI. Suggested Text


**VII. Bibliography**


Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

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<thead>
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<td>Adv Special Topics in Physics</td>
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<tbody>
<tr>
<td>Detailed study of a selected topic in physics at the graduate level. Special Note: may be repeated with change of topic.</td>
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<table>
<thead>
<tr>
<th>30. Initiative Signature</th>
<th>31. Date</th>
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<tbody>
<tr>
<td>Provost or Designee</td>
<td></td>
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</table>
COURSE CONTENT GUIDE

I) Date initiated: 11/20/2013

II) Course Information:

A) College: College of Arts and Sciences
   Department: Physics and Astronomy
B) Course Title: Advanced Special Topics in Physics
C) Course Prefix/Number: PHYS A690
D) Number of credits: 1-4
E) Contact hours: 1.0-4.0 + 0 (lecture + lab)
F) Grading Basis: A-F
G) Course Description: Detailed study of a selected topic in physics at the graduate level. Special Note: may be repeated with change of topic.
H) Status of course relative to degree programs: not required for any program
I) Fees: none
J) Coordination: UAA Faculty Listserv
K) Prerequisite: PHYS A303 with minimum grade of C
L) Registration restrictions: Graduate standing, and approval of faculty advisor
M) Stacked with: PHYS A490

III) Course level justification:

This course will explore a special topic at a graduate level.

IV) Instructional Goal:

To introduce students to an advanced topic not generally taught in other course offerings. Examples of such a topic could include for instance:

- Plasma Physics
- Astrophysics
- Acoustics
- Biophysics
- Nuclear & Particle Physics

The general instructional goal is to present the concepts, principles, mathematical underpinnings, and applications of the particular topic. As an example, a course on "Particle Physics" would have as its goals:

-- Describe interactions of particles with matter, and particle detectors
-- Introduce the families of particles (such as quarks, leptons, mesons, baryons, and gauge bosons)
-- Explore nuclear structure and scattering
-- Introduce conservation laws (for baryon number, lepton number, etc.)
-- Expose students to the concepts of isospin, parity, and charge conjugation
-- Study Quantum Electrodynamics (QED), Weak Interactions, and Quantum Chromodynamics (QCD)

V) Student Learning Outcomes & Assessment Methods

**Varying greatly according to topic.** But examples of outcomes for a course on "Particle Physics" as an example would include:

<table>
<thead>
<tr>
<th>The student will...</th>
<th>... as measured by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be familiar with the properties of particles and the categorization of the &quot;particle zoo&quot;</td>
<td>Homework and in-class tests</td>
</tr>
<tr>
<td>Be able to describe the mechanisms by which particles interact in matter</td>
<td>Homework and in-class tests</td>
</tr>
<tr>
<td>Understand quantum numbers and conservation laws in particle physics</td>
<td>Homework and in-class tests</td>
</tr>
<tr>
<td>Understand the electromagnetic, weak nuclear, and strong nuclear forces</td>
<td>Homework and in-class tests</td>
</tr>
<tr>
<td>Become familiar with current work in the field through journals and other current literature, and/or carry out a research project</td>
<td>Oral or written presentations</td>
</tr>
</tbody>
</table>

VI) Topical course outline:

**Varying according to the topic**, but an example outline for a course on "Particle Physics" might look like:

I. Tools
   1. Accelerators
   2. Passage of radiation through matter
   3. Detectors

II. Particle and Nuclei
   1. The subatomic "zoo"
      1. Fermions and bosons
      2. Leptons
      3. Quarks, mesons, and baryons
      4. Gauge bosons
   2. Atomic structure
      1. Elastic scattering and cross sections
      2. Inelastic scattering
3. Deep inelastic scattering

III. Conservation Laws
1. How symmetries lead to conservation laws
2. Charge, baryon number, lepton number, and muon number
3. Hypercharge and strangeness
4. Angular momentum and spin
5. Isospin

IV. Interactions
1. Electromagnetism
2. The weak nuclear interaction
3. The electroweak theory
4. Hadronic interactions

VII) Suggested text(s):

Varying according to the topic, but some examples may include:

For Nuclear & Particle Physics:

For Plasma Physics:
F. Chen, "Introduction to plasma physics and controlled fusion", Springer, 1st ed. 1995

VIII) Bibliography:

Varying according to the topic, but some examples may include:

For Plasma Physics:
R. J. Goldston, "Introduction to plasma physics", Taylor & Francis, 1st ed. 1995
# Course Action Request

**University of Alaska Anchorage**

Proposal to Initiate, Add, Change, or Delete a Course

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>AS CAS</th>
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<tbody>
<tr>
<td>1b. Division</td>
<td>AMSC Division of Math Science</td>
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<tr>
<td>1c. Department</td>
<td>Physics and Astronomy</td>
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<th>2. Course Prefix</th>
<th>PHYS</th>
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<tbody>
<tr>
<td>3. Course Number</td>
<td>A490</td>
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<tr>
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</tr>
<tr>
<td>5b. Contact Hours</td>
<td>(Lecture + Lab) (1-4+0)</td>
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Complete Course Title

**Special Topics in Physics**

<table>
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| 7. Type of Action: | Add |

**If a change, mark appropriate boxes:**

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<th>Grading Basis</th>
<th>Title</th>
<th>Course Number</th>
<th>Contact Hours</th>
<th>Repeat Status</th>
<th>Course Prerequisites</th>
<th>Co-requisites</th>
<th>Registration Restrictions</th>
<th>General Education Requirement</th>
<th>Co-requisites</th>
<th>Cross-Listed/Stacked</th>
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<td>To: 9999</td>
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| 12. Cross Listed with | Stacked with A690 |

<table>
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<tr>
<th>13a. Impacted Courses or Programs: List any programs or college requirements that require this course.</th>
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Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at [www.uaa.alaska.edu/governance](http://www.uaa.alaska.edu/governance).

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<th>Program/Course</th>
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<th>Chair/Coordinator Contacted</th>
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<thead>
<tr>
<th>13b. Coordination Email</th>
<th>Date: 11/26/13</th>
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<tr>
<td>submitted to Faculty Listserv:</td>
<td><a href="mailto:uaa-faculty@lists.uaa.alaska.edu">uaa-faculty@lists.uaa.alaska.edu</a></td>
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<tr>
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<th>14. General Education Requirement</th>
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<td>Oral Communication</td>
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<td>Integrative Capstone</td>
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<table>
<thead>
<tr>
<th>15. Course Description (suggested length 20 to 50 words)</th>
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</table>

Detailed study of a selected topic in physics. Special Note: may be repeated with change of topic.

<table>
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<tr>
<th>16a. Course Prerequisite(s) (list prefix and number or test code and score)</th>
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<tbody>
<tr>
<td>PHYS A303 with minimum grade of C</td>
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</tbody>
</table>

| 16b. Co-requisite(s) (concurrent enrollment required) | N/A |

<table>
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<tr>
<th>16c. Other Restriction(s)</th>
<th>College Major Class Level</th>
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</tbody>
</table>

| 16d. Registration Restriction(s) (non-codable) | N/A |

<table>
<thead>
<tr>
<th>17. Mark if course has fees</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>18. Mark if course is a selected topic course</th>
<th></th>
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</thead>
</table>

Justification for Action

Adding a course, for flexible option to offer specialized topics in response to student demand

Initiator (faculty only)

**Katherine Rawlins**

Initiator Signed Initials: __________

Date: __________

Approved

Disapproved

Dean/Director of School/College

Date: __________

Approved

Disapproved

Undergraduate/Graduate Academic Board Chair

Date: __________

Approved

Disapproved

Provost or Designee

Date: __________

Approved

Disapproved

Department Chair

Date: __________

Approved

Disapproved

College/School Curriculum Committee Chair

Date: __________

Approved

Disapproved

College/School Curriculum Committee Chair
COURSE CONTENT GUIDE

I) Date initiated: 11/20/2013

II) Course Information:

A) College: College of Arts and Sciences
   Department: Physics and Astronomy
B) Course Title: Special Topics in Physics
C) Course Prefix/Number: PHYS A490
D) Number of credits: 1-4
E) Contact hours: 1.0-4.0 + 0 (lecture + lab)
F) Grading Basis: A-F
G) Course Description: Detailed study of a selected topic in physics. Special Note: may be repeated with change of topic.
H) Status of course relative to degree programs: elective for Physics Minor
I) Fees: none
J) Coordination: UAA Faculty Listserv
K) Prerequisite: PHYS A303 with minimum grade of C
L) Registration restrictions: none
M) Stacked with: PHYS A690

III) Course level justification:

This course will explore a special topic at an advanced level. It requires a 300-level physics course and is intended for upper-division students.

IV) Instructional Goal:

To introduce students to an advanced topic not generally taught in other course offerings. Examples of such a topic could include for instance:

- Plasma Physics
- Astrophysics
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- Biophysics
- Nuclear & Particle Physics

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VII) Suggested text(s):

**Varying according to the topic**, but some examples may include:

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*For Plasma Physics:*
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VIII) Bibliography:

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### Course Action Request

**University of Alaska Anchorage**

Proposal to Initiate, Add, Change, or Delete a Course

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<tr>
<th>2. Course Prefix</th>
<th>3. Course Number</th>
<th>4. Previous Course Prefix &amp; Number</th>
<th>5a. Credits/CEUs</th>
<th>5b. Contact Hours (Lecture + Lab)</th>
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<tbody>
<tr>
<td>PHYS</td>
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<td>(0+3-18)</td>
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<tr>
<th>6. Complete Course Title</th>
<th>Abbreviated Title for Transcript (30 character)</th>
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<td>Graduate Individual Research</td>
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<tr>
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<th>8. Type of Action:</th>
<th>9. Repeat Status Yes</th>
<th>10. Grading Basis</th>
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<td>☑ Academic</td>
<td>☑ Add</td>
<td># of Repeats 5</td>
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<td>Max Credits 30</td>
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<td>Stack with</td>
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<th>13b. Coordination Email</th>
<th>13c. Coordination with Library Liaison</th>
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<td>List any programs or college requirements that require this course. Please type into fields provided in table.</td>
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<td>Date: 12/2/13</td>
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<th>Initiator Name (typed):</th>
<th>Initiator Signed Initials:</th>
<th>Date:</th>
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<tbody>
<tr>
<td>Katherine Rawlins</td>
<td>_________________________</td>
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<th>14. General Education Requirement</th>
<th>15. Course Description (suggested length 20 to 50 words)</th>
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<td>Research projects to be arranged with individual faculty members who will direct the research program</td>
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<td>Oral Communication</td>
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<td>Written Communication</td>
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<th>16a. Course Prerequisite(s)</th>
<th>16b. Co-requisite(s) (concurrent enrollment required)</th>
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<td>(list prefix and number or test code and score)</td>
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<td>Level</td>
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| 17. | 18. |
| Mark if course has fees | Mark if course is a selected topic course |

| 19. Justification for Action | Adding possibility for interdisciplinary masters degree program. |

<table>
<thead>
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<tbody>
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<td>Katherine Rawlins</td>
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**Initiator (TYPE NAME)**

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<tr>
<td>College/School Curriculum Committee Chair</td>
<td>Date</td>
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COURSE CONTENT GUIDE

I) Date initiated: 11/20/2013

II) Course Information:

A) College: College of Arts and Sciences
   Department: Physics and Astronomy
B) Course Title: Graduate Individual Research
C) Course Prefix/Number: PHYS A698
D) Number of credits: 1-6
E) Contact hours: 0 + 3-18 (lecture + lab)
F) Grading Basis: A-F
G) Course Description: Research projects to be arranged with individual faculty members who will direct the research program.
H) Status of course relative to degree programs: not required for any program
I) Fees: none
J) Coordination: UAA Faculty Listserv
K) Prerequisite: N/A
L) Registration restrictions: Graduate standing, and approval of faculty advisor

III) Course level justification:

This course is designed for graduate-level research.

IV) Instructional Goals:

1. To guide a student through completion of a research project.
2. To introduce a student to current physics literature.
3. To allow a student access to modern physics research equipment.
4. To advise a student on how to construct a mathematical model of real world physical phenomena
5. To advise a student on how to communicate their result in written and oral forms.

V) Student Learning Outcomes & Assessment Methods

The student will... ... as measured by:
Design and develop a physics research project Meetings, reports, and observation of instructor
Read current physics literature Meetings, reports, and observation of instructor
Create mathematical models of real-world physical phenomena
Meetings, reports, and observation of instructor
Compose a report based on their work Presentation

VI) Topical course outline:
The course will be a research project conducted under faculty guidance, including the following aspects:
1. Student meets with faculty member to plan a project of mutual interest.
2. A regular meeting schedule is established to track student progress.
3. Student reports to the faculty adviser on their work each week, or as needed.
4. Student produces a final written or oral report at the end of the semester.

VII) Suggested text(s):
(none)

VII) Bibliography:
Physics journals and other literature appropriate to the project, including for instance:
--Physical Review A, B, C, D, E
--Reviews of Modern Physics
--Physics Letters A, B
Proposal to Initiate, Add, Change, or Delete a Course

1. School or College
   AS CAS

2. Division
   AMSC Division of Math Science

3. Department
   Physics and Astronomy

4. Course Prefix
   PHYS

5. Course Number
   A699

6. Previous Course Prefix & Number
   N/A

7. Credits/CEUs
   1-6

8. Contact Hours
   (Lecture + Lab) (0+3-18)

9. Complete Course Title
   Thesis

10. Abbreviated Title for Transcript (30 character)

11. Type of Course
    Academic

12. Type of Action:
    Add

13. If a change, mark appropriate boxes:
    Prefix
    Credits
    Grading Basis
    Title
    Course Description
    Test Score Prerequisites
    Other Restrictions
    Class
    College
    Major

14. Credits
    Contact Hours
    Repeat Status
    Repeat Status
    # of Repeats
    Max Credits

15. Grading Basis
    A-F
    P/NP
    NG

16. Implementation Date
    semester/year
    From: Fa/2014
    To: /9999

17. Cross Listed with
    Stacked with

18. Cross Listed Coordination Signature

19. Type of Action:
    Add
    Change
    Delete

20. If a change, mark appropriate boxes:
    Course Number
    Contact Hours
    Repeat Status
    Cross-Listed/Stacked
    Course Prerequisites
    Co-requisites
    Registration Restrictions
    General Education Requirement

21. General Education Requirement
    Oral Communication
    Written Communication
    Quantitative Skills
    Humanities
    Fine Arts
    Social Sciences
    Natural Sciences
    Integrative Capstone

22. Course Description (suggested length 20 to 50 words)
    Planning, preparation, and completion of a masters level thesis

23. Course Prerequisite(s) (list prefix and number or test code and score)
    N/A

24. Co-requisite(s) (concurrent enrollment required)
    N/A

25. Registration Restriction(s) (non-codable)
    Graduate standing, and approval of faculty advisor

26. Mark if course has fees
    Mark if course is a selected topic course

27. Justification for Action
    Adding possibility for interdisciplinary masters degree program.

Initiator (faculty only)
Katherine Rawlins
Initiator Signed Initials: _________ Date: __________________

Approved
Disapproved
Dean/Director of School/College
Date

Approved
Disapproved
Undergraduate/Graduate Academic
Date

Approved
Disapproved
Board Chair
Date

Approved
Disapproved
Provost or Designee
Date

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COURSE CONTENT GUIDE

I) Date initiated: 11/20/2013

II) Course Information:
   A) College: College of Arts and Sciences
   Department: Physics and Astronomy
   B) Course Title: Thesis
   C) Course Prefix/Number: PHYS A699
   D) Number of credits: 1-6
   E) Contact hours: 0 + 3-18 (lecture + lab)
   F) Grading Basis: A-F
   G) Course Description: Planning, preparation, and completion of a masters' level thesis
   H) Status of course relative to degree programs: not required for any program
   I) Fees: none
   J) Coordination: UAA Faculty Listserv
   K) Prerequisite: N/A
   L) Registration restrictions: Graduate standing, and approval of faculty advisor

III) Course level justification:
   This course is designed for graduate-level research.

IV) Instructional Goals:
   1. To guide a student through completion of a research project, including putting the work into a form appropriate for dissemination to a broad audience.
   2. To plan, organize, and write a masters' thesis

V) Student Learning Outcomes & Assessment Methods

The student will... ... as measured by:
Prepare research work for dissemination to the broader community as a thesis Meetings, reports, and observation of instructor
Write a masters' thesis A masters' thesis

VI) Topical course outline:
   The course will be a research and thesis-writing project conducted under faculty guidance, including the following aspects:
1. Student meets with faculty member to outline and organize a masters’ thesis.
2. A regular meeting schedule is established to track student progress.
3. Student reports to the faculty adviser on their work each week, or as needed.
4. Student produces a masters’ thesis at the end of the semester.

VII) Suggested text(s):

(none)

VIII) Bibliography:
Physics journals and other literature appropriate to the project, including for instance:
--Physical Review A, B, C, D, E
--Reviews of Modern Physics
--Physics Letters A, B
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GER Purge List for the 2014-15 UAA Catalog, 1st Read