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

Ex-Officio Members
- Susan Kalina
- Lora Volden
- Scheduling and Publications

II. Approval of the Agenda (pg. 1-4)

III. Approval of Meeting Summary (pg. 5-9)

IV. Administrative Report
   A. Vice Provost for Undergraduate Academic Affairs Susan Kalina
   B. University Registrar Lora Volden

V. Chair’s Report
   A. UAB Chair- Francisco Miranda
   B. GERC

VI. Old Business

VII. New Business

VIII. Program/Course Action Request- Second Readings
   Add HUMS A415 Advanced Human Services System (3 cr)(3+0)(pg. 10-14)
   Chg HUMS A461 Crisis Intervention (3 cr)(3+0)(pg. 15-18)

IX. Program/Course Action Request- First Readings
   Chg HUMS A495A Human Services Practicum III (3 cr)(1+9)(pg. 19-24)
   Chg HUMS A496 Human Services Capstone (GER)(3 cr)(3+0)(pg. 25-29)
   Add Minor, Human Services (pg. 30-32)
   Chg Bachelor of Human Services (pg. 33-37)
   Chg Associate of Applied Science, Nursing (pg. 38-45)
   Add Prefix, COHI (pg. 46-48)
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X. Informational Items and Adjournment

| Chg | ENGL A259 | Short Format: Introduction to Creative Writing (1 cr)(1+0) (pg. 390) |
| Chg | ENGL A260 | Introduction to Creative Writing (3 cr)(3+0) (pg. 391) |
| Chg | ENGL A352 | Writers’ Workshop: Poetry (3 cr)(3+0) (pg. 392) |
| Chg | ENGL A362 | Writers’ Workshop: Fiction (3 cr)(3+0) (pg. 393) |
| Chg | ENGL A372 | Writers’ Workshop: Nonfiction (3 cr)(3+0) (pg. 394-395) |
| Chg | ENGL A382 | Writers’ Workshop: Drama and Screenwriting (3 cr)(3+0) (pg. 396) |
| Chg | ENGL A452 | Advanced Writers’ Workshop: Poetry (3 cr)(3+0) (pg. 397-398) |
| Chg | ENGL A462 | Advanced Writers’ Workshop: Fiction (3 cr)(3+0) (pg. 399) |
| Chg | ENGL A472 | Advanced Writers’ Workshop: Nonfiction (3 cr)(3+0) (pg. 400-401) |
| Chg | ENGL A482 | Advanced Writers’ Workshop: Drama and Screenwriting (3 cr)(3+0) (pg. 402) |
I. Roll
(x) Alberta Harder (FS)
(x) Soren Orley (FS)
(x) Francisco Miranda (CAS, Chair)
(x) Barbara Harville (CAS)
(x) Mari Ippolito (CAS)
(x) Len Smiley (CAS)
(x) Dave Fitzgerald (CBPP)
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(x) Cheryl Smith (CTC)
e) Utpal Dutta (SOE)
e) Kevin Keating (LIB)

Ex-Officio Members
(x) Susan Kalina
(x) Lora Volden
(x) Scheduling and Publications

II. Approval of the Agenda (pg. 1-4)
Cheryl Smith was approved as the new CTC representative by the Faculty Senate
Approved as amended

III. Approval of Meeting Summary (pg. 5-6)
Approved

IV. Administrative Report
A. Vice Provost for Undergraduate Academic Affairs Susan Kalina
Direct programs making changes to the SLOs to Susan
Remind programs to complete a 4 year course sequencing document

B. University Registrar Lora Volden
No report

V. Chair’s Report
A. UAB Chair- Francisco Miranda
No report

B. GERC
All GEOL and PHYS courses were approved with minor edits

VI. Old Business

VII. New Business
A. Academic Policies regarding Occupational Endorsement Certificates (OEC) (pg. 7-8)
   Motion: The UAB endorses the policy regarding OECs.
   Unanimously Approved

B. Priority Registration Exception for University Honors College (pg. 9-11)
   Motion: The UAB moves to table the discussion.
   Not approved
   Motion: The UAB moves to extend the current priority registration for the Honors College for the Fall 2014 semester.
   11 in Favor
   1 Opposed
   1 Abstain
   Approved
VIII. Program/Course Action Request- Second Readings

Chg ENGL A490 Topics in English Studies (3 cr)(3+0)(pg. 12-16)
Approved for second reading

Chg Minor, English (pg. 17)
Approved for second reading

Chg BA, English (pg. 18-30)
Approved for second reading

Chg GEOL A111 Physical Geology (3 cr)(3+0)(pg. 31-34)
Approved for second reading

Add GEOL A111L Physical Geology Laboratory (1 cr)(0+3)(Pg. 35-38)
Approved for second reading

Add GEOL A121 Applied Physical Geology (4 cr)(3+3)(pg. 39-42)
Approved for second reading

Chg GEOL A221 Historical Geology (4 cr)(3+3)(pg. 43-47)
Approved for second reading

Chg GEOL A456 Geoarchaeology (Stacked with GEOL A656)(3 cr)(3+0)(pg. 48-56)
Approved for second reading

Chg PHYS A123L Basic Physics I Laboratory (GER)(1 cr)(0+3)(pg. 57-60)
11 in favor
2 opposed
Approved for second reading

Chg PHYS A124L Basic Physics II Laboratory (GER)(1 cr)(0+3)(pg. 61-64)
Approved for second reading

Chg PHYS A211 General Physics I (GER)(3 cr)(3+0)(pg. 65-69)
Approved for second reading

Chg PHYS A211L General Physics I Laboratory (GER)(1 cr)(0+3)(pg. 70-73)
Approved for second reading

Chg PHYS A212 General Physics II (GER)(3 cr)(3+0)(pg. 74-78)
Approved for second reading

Chg PHYS A212L General Physics II Laboratory (GER)(1 cr)(0+3)(pg. 79-82)
Approved for second reading

IX. Program/Course Action Request- First Readings

Add Prefix, COHI (pg. 83-85)
Postponed

Chg HUMS A321 Diversity Issues in Human Services Practice (3 cr)(3+0)(pg. 86-90)
Waived for first reading, approved for second

Chg HUMS A322 Service Coordination in Human Services Practice (3 cr)(3+0)(pg. 91-94)
Waived for first reading, approved for second
Chg  HUMS A333   Alternative Dispute Resolution (3 cr)(3+0)(pg. 95-99)
Waived for first reading, approved for second

Chg  HUMS A334   Family Mediation (3 cr)(3+0)(pg. 100-105)
Waived for first reading, approved for second

Chg  HUMS A350   Men and Masculinity (3 cr)(3+0)(pg. 106-109)
Waived for first reading, approved for second

Add  HUMS A351   Career Development for Human Services Professionals (3 cr)(3+0)(pg. 110-113)
Waived for first reading, approved for second

Add  HUMS A352   Human Services Administration (3 cr)(3+0)(pg. 114-117)
Waived for first reading, approved for second

Chg  HUMS A412   Ethical Issues in Human Services Practice (3 cr)(3+0)(pg. 118-122)
Waived for first reading, approved for second

Chg  HUMS A414   Advanced Case Management for Human Services (3 cr)(3+0)(pg. 123-126)
Waived for first reading, approved for second

Add  HUMS A415   Advanced Human Services System (3 cr)(3+0)(pg. 127-131)
Accepted for first reading

Chg  HUMS A416   Substance Abuse and the Older Adult (3 cr)(3+0)(pg. 132-135)
Waived for first reading, approved for second

Chg  HUMS A417   Substance Abuse Counseling for Human Services Professionals (3 cr)(3+0)(pg. 136-140)
Waived for first reading, approved for second

Add  HUMS A435   Individual and Group Facilitation (3 cr)(3+0)(pg. 141-144)
Waived for first reading, approved for second

Chg  HUMS A461   Crisis Intervention (3 cr)(3+0)(pg. 145-148)
Accepted for first reading

Chg  HUMS A495A  Human Services Practicum III (3 cr)(1+9)(pg. 149-154)

Chg  HUMS A496   Human Services Capstone (GER)(3 cr)(3+0)(pg. 155-159)

Add  Minor, Human Services (pg. 160-162)

Chg  Bachelor of Human Services (pg. 163-167)

Chg  Bachelor of Business Administration, Management (pg. 168-173)

Chg  Associate of Applied Science, Nursing (pg. 174-181)

Del  GEO A137   Principles of Mapping (3 cr)(2+2)(pg. 182-183)

Chg  GEO A146   Geomatics Computations I (3 cr)(3+0)(pg. 184-188)

Chg  GEO A155   Introduction to Surveying (3 cr)(2+3)(pg. 189-193)

Add  GEO A156   Fundamentals of Surveying (3 cr)(2+3)(pg. 194-197)

Chg  GEO A157   Computer-Aided Drafting for Surveyors (3 cr)(2+2)(pg. 198-202)
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**X. Informational Items and Adjournment**
### Course Action Request

**University of Alaska Anchorage**

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

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<th>1b. Division</th>
<th>1c. Department</th>
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6. **Complete Course Title**

Advanced Human Services Systems

**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  or  [ ] Change  or  [ ] Delete

   **If a change, mark appropriate boxes:**

   - [ ] Prefix
   - [ ] Credits
   - [ ] Title
   - [ ] Grading Basis
   - [ ] Cross-Listed/Stacked
   - [ ] Course Description
   - [ ] Course Prerequisites
   - [ ] Test Score Prerequisites
   - [ ] Co-requisites
   - [ ] Other Restrictions
     - [ ] Class
     - [ ] Level
     - [ ] College
     - [ ] Major
     - [ ] Other
     (please specify)

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

10. **Grading Basis**

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

11. **Implementation Date**

   - Semester/year: Fall/2014  To: /9999

12.  [ ] Cross Listed with  N/A

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>
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<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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   **Initiator Name (typed):** Lynn Paterna  
   **Initiator Signed Initials:** ______________________  
   **Date:** __________

13b. **Coordination Email**

   Date: 9/30/13
   submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. **Coordination with Library Liaison**

   Date: 9/30/13

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 the influence of governmental legislation, public policy, and funding sources upon human services agencies. Using a systems approach, the course examines historical and contemporary systems influencing service delivery.

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

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

   N/A

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

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

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

   Admitted to the Bachelor of Human Services Degree

17.  [ ] Mark if course has fees

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

19. **Justification for Action**

   Updating curriculum to meet the revised Council for Standards in Human Service Education standards.

   ___________________________________________________________  ____________  
   **Initiator (faculty only) Name:** Lynn Paterna  
   **Initiator Signed Initials:** ______________________  
   **Date:** __________

   **Dean/Director of School/College**

   [ ] Approved  [ ] Disapproved  
   **Date:** __________

   **Undergraduate/Graduate Academic**

   [ ] Approved  [ ] Disapproved  
   **Date:** __________

   **Board Chair**

   [ ] Approved  [ ] Disapproved  
   **Date:** __________

   **Provost or Designee**

   [ ] Approved  [ ] Disapproved  
   **Date:** __________
I. Date of Initiation

II. Curriculum Action Request

A. College        College of Health
B. Course Subject Human Services
C. Course Number HUMS A415
D. Number of Credits 3.0
E. Contact Hours 3+0
F. Course Program Bachelors Degree in Humans Services
G. Course Title Advanced Human Services Systems
H. Grading Basis A-F
I. Implementation Date Fall, 2014
J. Cross-listed/Stacked N/A
K. Course Description Examines the influence of governmental legislation, public policy, and funding sources upon human services agencies. Using a systems approach, the course examines historical and contemporary systems influencing service delivery.

L. Course Prerequisites N/A
M. Test Scores N/A
N. Course Co-Requisite N/A
O. Other Restrictions Major
P. Registration Restrictions Admitted to the Bachelor of Human Services Degree
Q. Course Fees N/A

III. Instructional Goals and Student Learning Outcomes

A. The instructor will:
   1. Examine with students, systems and organizational theories as they relate to human services delivery.
   2. Present financial systems that affect human services systems.
   3. Identify theoretical systemic problems in human services.
   4. Provide information about current systemic problems facing human services delivery.
   5. Define agents of change that improve or hinder human services delivery.
   6. Present the crisis in the human services delivery systems.
   7. Discuss parallel processes in trauma-organized systems.

B. Upon completion of this course, the student will be able to:

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<th>Assessment Measures</th>
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<td>2. Demonstrate how financial systems affect human services systems.</td>
<td>Class discussion Exam</td>
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<td>3. Analyze theoretical systemic problems in human services.</td>
<td>Case analysis Class discussion</td>
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### Student Learning Outcomes and Assessment Measures

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<td>5. Examine agents of change that improve or hinder human services delivery.</td>
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<td>6. Analyze the crisis in human services delivery systems.</td>
<td>Class discussion</td>
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<td>7. Analyze parallel processes in trauma-organized systems.</td>
<td>Class Discussion</td>
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### IV. Course Level Justification
The course builds upon previous course work received in an accredited associate degree program and requires familiarity with the concepts, methods, and vocabulary of the human services discipline.

### V. Topical Course Outline
1.0 Safety: General Campus Safety

2.0 Knowledge and Theories about Organizations
   2.1 Defining organizations
   2.2 Organizational theories and conceptual frameworks

3.0 Human Services Organizational Settings, Goals, and Environmental Contexts
   3.1 Mission statements, goals, and objectives
   3.2 Environmental context of human services organizations
   3.3 Impact of social and economic forces of human services organizations

4.0 Organizational Structure and Dynamics
   4.1 Organizational culture
   4.2 Organizational structure
   4.3 Interpersonal communication in human services organizations
   4.4 The human services worker as an employee: Supervision in organizational settings
   4.5 Power and politics in human services organizations

5.0 Human Behavior, Management, and Empowerment in Organizations
   5.1 Importance of management
   5.2 Problems frequently encountered by and in human services organizations
   5.3 Newer approaches to management and worker empowerment

6.0 Communities in the Macro Social Environment: Theories and Concepts
   6.1 Defining communities
   6.2 Social systems and human ecology theories within the conceptual framework of communities
   6.3 Non-geographical communities
   6.4 Geographical communities

7.0 Systems in Crisis
   7.1 System degradation
   7.2 The impact of biological reductionism
7.3 Managed care and ethical conflicts
7.4 Privatization rules
7.5 Mental models for U.S. capitalism
7.6 Systems as a machine or a living organism
7.7 Six stages of crisis management

8.0 Biopsychosocial Model and General Systems Theory
  8.1 Deinstitutionalization and deregulation
  8.2 Economic and human burden on the system
  8.3 Managed care and inadequate payment with economic challenges
  8.4 Trans-institutionalization and inappropriate care

9.0 Unrelenting Systems Stress
  9.1 Kinds of stress
  9.2 Workplace stress: Definitions, scope, and costs
  9.3 Workload and job complexity
  9.4 Inadequate training and career development
  9.5 Regulation, paperwork, and corporate compliance
  9.6 Professional values, ethical conflicts, and burnout
  9.7 Violence in the human services workplace

10.0 Parallel Processes and Trauma-Organized Systems
  10.1 Organizations as complex, adaptive, emergent systems
  10.2 Group stress responses
  10.3 Social defense systems
  10.4 The impact of chronic stress and collective trauma
  10.5 Vicarious trauma, secondary traumatic stress, compassion fatigue and burnout

11.0 Restoring Sanctuary: Organizations as Living, Complex Adaptive Social Systems
  11.3 Commitment to restoring sanctuary
  11.4 Restoring Safety, Emotional Management, Adaptation to Loss and Future Development

VI. Suggested Text

VII. Bibliography and Resources


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

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<th>3. Course Number</th>
<th>4. Previous Course Prefix &amp; Number</th>
<th>5a. Credits/CEUs</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMS</td>
<td>A461</td>
<td>N/A</td>
<td>3.0</td>
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</table>

<table>
<thead>
<tr>
<th>5b. Contact Hours</th>
<th>6. Complete Course Title</th>
<th>7. Type of Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Lecture + Lab)</td>
<td>Crisis Intervention</td>
<td>☐ Academic ☐ Preparatory/Development</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Type of Course</th>
<th>8. Type of Action</th>
<th>9. Repeat Status No</th>
<th>10. Grading Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Add ☐ Change ☐ Delete</td>
<td>☐ Prefix ☐ Credits ☐ Title ☐ Grading Basis ☐ Course Description ☐ Test Score Prerequisites ☐ Other Restrictions ☐ Other Update CCG (please specify)</td>
<td>☐ No ☐ # of Repeats ☐ Max Credits</td>
<td>☐ A-F ☐ P/NP ☐ NG</td>
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</table>

<table>
<thead>
<tr>
<th>10. Grading Basis</th>
<th>11. Implementation Date</th>
</tr>
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<tbody>
<tr>
<td>☐ A-F ☐ P/NP ☐ NG</td>
<td>From: Fall/2014 To: /9999</td>
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<table>
<thead>
<tr>
<th>12. Cross Listed with N/A</th>
<th>13a. Impacted Courses or Programs: List any programs or college requirements that require this course.</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Cross Listed with N/A</td>
<td>Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at <a href="http://www.uaa.alaska.edu/governance">www.uaa.alaska.edu/governance</a>.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>13b. Coordination Email</th>
<th>13c. Coordination with Library Liaison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 4/08/2013</td>
<td>Date: 4/28/2013</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14. General Education Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark appropriate box: ☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities</td>
</tr>
<tr>
<td>☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15. Course Description (suggested length 20 to 50 words)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presents essential crisis intervention techniques focused on a systematic approach to effective crisis management. The course is organized into five categories: crisis causality, identification, intervention, treatment strategies, and follow-up.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>16a. Course Prerequisite(s) (list prefix and number or test code and score)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMS A324 with a minimum grade of C.</td>
</tr>
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</table>

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

<table>
<thead>
<tr>
<th>16c. Other Restriction(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ College ☐ Major ☐ Class ☐ Level</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>16d. Registration Restriction(s) (non-codable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitted to the Bachelor of Human Services Degree or in preparation for the Minor in Human Services.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>17. Mark if course has fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>18. Mark if course is a selected topic course</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>19. Justification for Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Updating curriculum to prepare for the upcoming Council for Standards in Human Service Education Reaccreditation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20. initiator (faculty only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jo Ann Bartley</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>21. Initiator Signed Initials:</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>____________________________</td>
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</tr>
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</table>

<table>
<thead>
<tr>
<th>22. Initiator (TYPE NAME)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>23. Approved Disapproved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dean/Director of School/College</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>24. Undergraduate/Graduate Academic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved Disapproved</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>25. Approved Disapproved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board Chair</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>26. Approved Disapproved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provost or Designee</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>27. Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>________</td>
</tr>
</tbody>
</table>

---

For a change, mark appropriate boxes:

- Prefix
- Credits
- Title
- Grading Basis
- Course Description
- Course Prerequisites
- Test Score Prerequisites
- Other Restrictions
- Other Update CCG (please specify)

Abbr. Title for Transcript (30 character)

Crisis Intervention

Abbreviated Title for Transcript (30 character)

Laura Kelley
Chair/Coordinator Contacted
4/08/2013
Initiator Name (typed): Jo Ann Bartley
Initiator Signed Initials: ________________________ Date: __________

Course Description (suggested length 20 to 50 words)

Prepares essential crisis intervention techniques focused on a systematic approach to effective crisis management. The course is organized into five categories: crisis causality, identification, intervention, treatment strategies, and follow-up.

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

9. Repeat Status No

   - ☐ No
   - ☐ No ☐ # of Repeats ☐ Max Credits

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

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

12. Cross Listed with N/A
   - ☐ Cross Listed with N/A

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).

13b. Coordination Email
   - Date: 4/08/2013
   - submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
   - Date: 4/28/2013

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)

   Presents essential crisis intervention techniques focused on a systematic approach to effective crisis management. The course is organized into five categories: crisis causality, identification, intervention, treatment strategies, and follow-up.

16a. Course Prerequisite(s)
   - (list prefix and number or test code and score)
   - HUMS A324 with a 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)
   - Admitted to the Bachelor of Human Services Degree or in preparation for the Minor in Human Services.

17. Mark if course has fees
   - ☐

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

19. Justification for Action
   - Updating curriculum to prepare for the upcoming Council for Standards in Human Service Education Reaccreditation.
University of Alaska Anchorage  
College of Health  
Course Content Guide

I. Date of Initiation  
Fall, 2013

II. Curriculum Action Request  
A. College  
College of Health  
B. Course Subject  
Human Services  
C. Course Number  
HUMS A461  
D. Number of Credits  
3  
E. Contact Hours  
3+0  
F. Course Program  
Bachelors Degree in Human Services  
G. Course Title  
Crisis Intervention  
H. Grading Basis  
A-F  
I. Implementation Date  
Fall 2014  
J. Cross-listed/Stacked  
N/A  
K. Course Description  
Presents essential crisis intervention techniques focused on a systematic approach to effective crisis management. The course is organized into five categories: crisis causality, identification, intervention, treatment strategies, and follow-up.

L. Course Prerequisites  
HUMS A324 with a minimum grade of C.  
M. Test Scores  
N/A  
N. Course Co-Requisite  
N/A  
O. Other Restrictions  
Major  
P. Registration Restrictions  
Admitted to the Bachelor of Human Services Degree or in preparation for the Minor in Human Services.  
Q. Course Fees  
N/A

III. Instructional Goals and Student Learning Outcomes  
A. The instructor will:  
1. Present the stages of the crisis intervention model.  
2. Distinguish crisis intervention categories to include trauma assessment.  
3. Explain and demonstrate the steps in crisis intervention counseling.  
4. Distinguish crisis intervention strategies utilizing crisis intervention counseling skills.  
5. Analyze and demonstrate how to identify at risk clients.  
6. Identify community resources for crisis support.

B. Upon completion of this course, the student will be able to:  

<table>
<thead>
<tr>
<th>Student Learning Outcomes and Assessment Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student Learning Outcomes</strong></td>
</tr>
<tr>
<td><strong>Assessment Measures</strong></td>
</tr>
<tr>
<td>1. Examine crisis intervention categories including trauma.</td>
</tr>
<tr>
<td>2. Analyze and demonstrate the steps in a crisis intervention model.</td>
</tr>
<tr>
<td>3. Demonstrate proficiency in using brief crisis intervention counseling skills.</td>
</tr>
</tbody>
</table>
### Student Learning Outcomes and Assessment Measures

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Examine the steps and stages of a crisis model and differentiate which types of intervention are appropriate.</td>
<td>Class discussion, small group activities, written assignments and exams</td>
</tr>
<tr>
<td>5. Demonstrate the factors that contribute to becoming a client who may be considered to be at risk.</td>
<td>Case analysis, small group activity, completing assessment screening tools</td>
</tr>
<tr>
<td>6. Identify crisis intervention community resources.</td>
<td>Assignments class discussion to locate, summarize and present what crisis services are available in the community</td>
</tr>
</tbody>
</table>

### IV. Course Level Justification:

The techniques taught in this course require the ability to analyze, synthesize, compare and contrast, develop, elaborate, and apply the culmination of prior course materials to solving complex problems to identify crisis situations; to assess the severity of a situation, to provide stabilization to the crisis participants and to utilize community resources to make referrals for services.

### V. Topical Course Outline

1.0 Approaching Crisis Intervention
   1.1 Brief history of crisis intervention
   1.2 Definitions of crisis
   1.3 Behavioral emergencies
   1.4 Characteristics of crisis
   1.5 Theories of crisis and intervention
   1.6 Crisis intervention models
   1.7 Characteristics of effective crisis workers

2.0 Culturally Effective Helping
   2.1 Multicultural perspectives in crisis intervention
   2.2 Shortcomings of a multiculturalist approach
   2.3 Positive aspects of an effective multicultural counselor
   2.4 Support systems

3.0 Intervention and Assessment Models
   3.1 Model of crisis intervention
   3.2 Assessing the severity of the crisis
   3.3 Tools for assessing crisis

4.0 Skills for Basic Crisis Intervention
   4.1 Tools of the trade
   4.2 Crisis case handling
   4.3 Confidentiality
   4.4 Working with difficult clients
   4.5 Trauma informed care

5.0 Crisis Categories and Strategies
   5.1 Post traumatic stress disorder
   5.2 Suicide
   5.3 Sexual assault/ domestic violence
5.4 Substance abuse  
5.5 Grief and loss

6.0 Disaster Response  
6.1 Psychological first aid  
6.2 Focusing on the worker  
6.3 Burnout/vicarious traumatization/compassion fatigue  
6.4 Resources available  
6.5 Referral strategies

VI. Suggested Texts:

VII. Bibliography and Resources
Course Action Request  
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College  
CH College of Health  

1b. Division  
ADHS Div of Human Svcs Health Sci  

1c. Department  
Human Services  

2. Course Prefix  
HUMS  

3. Course Number  
A495A  

4. Previous Course Prefix & Number  

5a. Credits/CEUs  
3.0  

5b. Contact Hours  
(Lecture + Lab)  
(1+9)  

6. Complete Course Title  
Human Services Practicum III  
Human Services Practicum III  
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  ☐ Contact Hours  ☐ Repeat Status  
☐ Title  ☐ Registration Restrictions  
☐ Grading Basis  ☐ Date of Coordination  
☐ Cross-Listed/Stacked  ☐ Chair/Coordinator Contacted  
☐ Course Description  ☐ Test Score Prerequisites  
☐ Course Prerequisites  ☐ Co-requisites  
☐ Other Restrictions  ☐ General Education Requirement  
☐ Class Level  ☐ Mark if course has fees  
☐ College Major  ☐ Mark if course is a selected topic course  
☐ Other Update CCG (please specify)  

9. Repeat Status No  # of Repeats  Max Credits  

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

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

12. ☐ Cross Listed with N/A  
☐ Stacked with N/A  
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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</thead>
<tbody>
<tr>
<td>1. Bachelors degree in Human Services</td>
<td>9/30/13</td>
<td>Laura Kelley</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initiator Name (typed): Jo Ann Bartley  Initiator Signed Initials: _________ Date: __________ 

13b. Coordination Email  
Date: 9/3013  
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)  

13c. Coordination with Library Liaison  
Date: 9/30/13  

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)  
Placement in an agency provides students with advancing levels of responsibility in direct client services and/or specialized activities/projects while increasing their professional development. Weekly concurrent classroom seminars required. Students are required to complete 125 agency placement hours.  

16a. Course Prerequisite(s) (list prefix and number or test code and score)  
HUMS A295B with a grade of C or better  

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

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

16d. Registration Restriction(s) (non-codable)  
Admitted to the Bachelor of Human Services degree with Senior standing  

17. ☒ Mark if course has fees  

18. ☐ Mark if course is a selected topic course  

19. Justification for Action  
Updating curriculum to meet the revised Council for Standards in Human Service Education standards.  

Initiator (faculty only)  
Jo Ann Bartley  
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  

Approved  Disapproved  
Department Chair  Date  

Approved  Disapproved  
College/School Curriculum Committee Chair  Date  

Approved  Disapproved  
Authorized Signee  Date  

19
I. Date of Initiation
   Fall, 2013

II. Curriculum Action Request
   A. College: College of Health
   B. Course Subject: Human Services
   C. Course Number: HUMS A495A
   D. Number of Credits: 3.0
   E. Contact Hours: (1+9)
   F. Course Program: Bachelors Degree in Human Services
   G. Course Title: Human Services Practicum III
   H. Grading Basis: A-F
   I. Implementation Date: Spring, 2014
   J. Cross-listed/Stacked: N/A
   K. Course Description: Placement in an agency provides students with advancing levels of responsibility in direct client services and/or specialized activities/projects while increasing their professional development. Weekly concurrent classroom seminars required. Students are required to complete 125 agency placement hours.
   L. Course Prerequisites: HUMS A295B with a grade C or better
   M. Test Scores: N/A
   N. Course Co-Requisite: N/A
   O. Other Restrictions: Major
   P. Registration Restrictions: Admitted to the Bachelor of Human Services degree with Senior standing
   Q. Course Fees: Yes

III. Instructional Goals and Student Learning Outcomes
   A. The instructor will:
      1. Provide the student with an opportunity to integrate the knowledge and skills gained in the classroom and build on prior practicum experiences to facilitate more comprehensive service delivery.
      2. Examine the various service delivery methods and resources in the community.
      3. Provide support for the engagement of the student in meaningful client interaction in order to enhance the student’s ability to:
         a. Evaluate client strengths/challenges.
         b. Design appropriate treatment plans.
      4. Explore the application of ethical standards of human services in the work place.
      5. Link through classroom and placement activities the student’s competency in working with diverse populations.
      6. Distinguish the array of career options available in the field of human services.
      7. Provide guidance regarding the student’s competence in applying case management knowledge and skills.
      8. Examine the application of counseling skills to the target populations served by the placement agency.
      9. Identify the procedures necessary to facilitate effective case management including the impact that trauma has had on many clients seeking services.
B. Upon completion of this course, the student will be able to:

### Student Learning Outcomes and Assessment Measures

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Analyze the multiple roles of human services workers as they relate to service provision.</td>
<td>Written assignments</td>
</tr>
<tr>
<td></td>
<td>Class discussion</td>
</tr>
<tr>
<td></td>
<td>Journal assignments</td>
</tr>
<tr>
<td>2. Determine access to community resources and service delivery methods.</td>
<td>Written assignments</td>
</tr>
<tr>
<td></td>
<td>Class discussion</td>
</tr>
<tr>
<td>3. Demonstrate competence in:</td>
<td>Class discussion</td>
</tr>
<tr>
<td>a. Evaluating client strength/challenges</td>
<td>Journal assignments</td>
</tr>
<tr>
<td>b. Designing appropriate treatment/interventions plans</td>
<td></td>
</tr>
<tr>
<td>c. Maintaining professional boundaries</td>
<td></td>
</tr>
<tr>
<td>4. Demonstrate the ethical standards of the human services field into field work practices.</td>
<td>Journal assignments</td>
</tr>
<tr>
<td></td>
<td>Small group activities</td>
</tr>
<tr>
<td>5. Identify culturally competent interventions to work with diverse populations.</td>
<td>Written assignments</td>
</tr>
<tr>
<td></td>
<td>Class discussion</td>
</tr>
<tr>
<td>6. Explore the available range of career options in the human services field.</td>
<td>Presentations</td>
</tr>
<tr>
<td></td>
<td>Class discussion</td>
</tr>
<tr>
<td>7. Determine client needs and apply appropriate case management interventions with an awareness of trauma informed care.</td>
<td>Presentations</td>
</tr>
<tr>
<td></td>
<td>Class discussion</td>
</tr>
<tr>
<td>8. Demonstrate professional development, knowledge and skills of the human services professional within the practicum context.</td>
<td>Written assignments</td>
</tr>
<tr>
<td></td>
<td>Class discussion</td>
</tr>
<tr>
<td></td>
<td>Journal assignments</td>
</tr>
<tr>
<td></td>
<td>Presentations</td>
</tr>
</tbody>
</table>

IV. Course Level Justification

This course is a core requirement for a Bachelor of Human Services degree and is designed to provide meaningful supervised field experience. The course requires that students demonstrate a higher level of thinking skills and the ability to apply course materials to solve complex problems.

V. Topical Course Outline

1.0 Safety: General Campus Safety

2.0 The Lay of the Land
   2.1 Welcome to Internship/Practicum Placement
   2.2 Personal development from the practicum experience
   2.3 Professional development
   2.4 Civic development

3.0 Framing the Experience: The Developmental Stages of a Practicum Placement
   3.1 Examining the developmental stage model
   3.2 Connecting the stages and civic development
   3.3 Engaged learning
   3.4 Experiential learning
   3.5 Self-understanding

4.0 Internship Essentials: Tools for Staying Engaged
4.1 Attitudes and values
4.2 Skills
4.3 Personal resources
4.4 Knowledge
4.5 Empowerment

5.0 Starting With You: Understanding of Yourself
5.1 Dealing with difference
5.2 Recognizing reaction patterns

6.0 Experiencing the “What Ifs”: The Anticipation Stage
6.1 Becoming a more engaged learner
6.2 Making the commitment
6.3 Working through the trials and tribulations of anticipation

7.0 Internship Essentials: The Learning Contract and Supervision
7.1 The learning agreement contract
7.2 Getting the most from supervision
7.3 Communicating questions and concerns with supervisors

8.0 Getting To Know the Clients: Managing Value Differences
8.1 Recognizing the traps, assumptions and stereotypes of client profiles
8.2 Accepting the client
8.3 Being accepted by the client
8.4 Specific client issues
8.5 Personal safety of the professional

9.0 Moving Ahead: The Exploration Stage
9.1 Focusing on growth and development
9.2 Remaining engaged
9.3 Slipping and sliding while exploring

10.0 Internship Essentials: Advanced Tools for Staying Engaged and Moving Forward
10.1 Sources of power
10.2 Sources of support
10.3 Framing and reframing
10.4 Taking responsibility
10.5 A meta-model for breaking through barriers: eight steps to creating change

11.0 Navigating the Internship Site
11.1 Background information
11.2 Organizational structure
11.3 Organizational politics
11.4 Organizations as cultures
11.5 External environment

12.0 Finding the Best of the Community
12.1 Community context and the civic professional
12.2 Community structure
12.3 A community inventory
13.0 The Competence Stage
   13.1 Facing the tasks
   13.2 Raising the bar
   13.3 Feeling success
   13.4 Preparing for a profession

14.0 Professional, Ethical, and Legal Issues
   14.1 Internship issues
   14.2 Professional issues: Responsibilities and relationships
   14.3 Ethical issues: Principles and decisions
   14.4 Legal issues: Laws and interpretations
   14.5 Grappling with dilemmas
   14.6 Managing a professional crisis

15.0 The Culmination Stage
   15.1 Wrap up documentation for student records
   15.2 Closure with supervisors
   15.3 Closure with clients

VI. Suggested Texts

VII. Bibliography and Resources


## Course Action Request

**University of Alaska Anchorage**

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

### 1a. School or College

CH College of Health

### 1b. Division

ADHS Div of Human Svs  Health Sci

### 1c. Department

Human Services

### 2. Course Prefix

HUMS

### 3. Course Number

A496

### 4. Previous Course Prefix & Number

A495B

### 5a. Credits/CEUs

3.0

### 5b. Contact Hours

(3+0)

### 6. Complete Course Title

Human Services Capstone

### Abbreviated Title for Transcript (30 character)

### 7. Type of Course

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

### 8. Type of Action:

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

**If a change, mark appropriate boxes:**

- [ ] Prefix
- [x] Course Number
- [x] Credits
- [ ] Title
- [ ] Grading Basis
- [x] Contact Hours
- [x] Repeat Status
- [ ] Cross-Listed/Stacked
- [ ] Course Prerequisites
- [ ] Test Score Prerequisites
- [ ] Other Restrictions
- [ ] Class
- [ ] Level
- [ ] Major
- [ ] General Education Requirement
- [ ] 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: Fall/2014**

**To: /9999**

### 12. Cross Listed with

- [ ] N/A

### 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>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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<tbody>
<tr>
<td>1. Bachelors degree in Human Services</td>
<td>9/30/13</td>
<td>Laura Kelley</td>
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<td>2.</td>
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<td>3.</td>
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</table>

**Initiator Name (typed): Jo Ann Bartley**

**Initiator Signed Initials:** __________________

**Date:** __________________

**13b. Coordination Email**

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

**Date:** 9/30/13

**13c. Coordination with Library Liaison**

**Date:** 9/30/13

**14. General Education Requirement**

**Mark appropriate box:**

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

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

Examines and builds upon material required in HUMS A495A and GER courses. The course provides a theoretical framework linking grant writing and research development skills such as literature search and review, exploration of research techniques, and scholarly writing skills necessary to complete and present the Capstone project.

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

(HUMS A420 and HUMS A495A) with a grade C or better

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

N/A

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

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

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

Admitted to the Bachelor of Human Services degree with Senior standing

**17. Mark if course has fees**

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

**19. Justification for Action**

Updating curriculum to meet the revised Council for Standards in Human Service Education standards.

**Initiator (faculty only)**

Jo Ann Bartley

**Initiator (TYPE NAME)**

Approved

Disapproved

**Date**

**Dean/Director of School/College**

Approved

Disapproved

**Date**

**Undergraduate/Graduate Academic Board Chair**

Approved

Disapproved

**Date**

**Provost or Designee**

Approved

Disapproved

**Date**

**25**
I. Date of Initiation
   Fall, 2013

II. Curriculum Action Request
   A. College
      College of Health
   B. Course Subject
      Human Services
   C. Course Number
      HUMS A496
   D. Number of Credits
      3.0
   E. Contact Hours
      (3+0)
   F. Course Program
      Bachelors Degree in Human Services
   G. Course Title
      Human Services Capstone
   H. Grading Basis
      A-F
   I. Implementation Date
      Fall, 2014
   J. Cross-listed/Stacked
      N/A
   K. Course Description
      Examines and builds upon material required in HUMS A495A and GER courses. The course provides a theoretical framework linking grant writing and research development skills such as literature search and review, exploration of research techniques, and scholarly writing skills necessary to complete and present the Capstone project.

   L. Course Prerequisites
      (HUMS A420 and HUMS A495A) with a grade C or better
   M. Test Scores
      N/A
   N. Course Co-Requisite
      N/A
   O. Other Restrictions
      Major, Class
   P. Registration Restrictions
      Admitted to the Bachelor of Human Services degree with Senior standing
   Q. Course Fees
      N/A

III. Instructional Goals and Student Learning Outcomes
   A. The instructor will:
      1. Distinguish the differences of historical, literacy, statistical, and qualitative techniques used to produce research.
      2. Present research concepts to include importance of outcome data and it’s generalization to human services agencies and system delivery.
      3. Discuss the application of ethical standards and information literacy of human services in research.
      4. Examine the intricacies of grant development including logic models, compliance reporting, implementation of outcome data, funding procurement, and maintenance including effective oral and written communication throughout the process.
      5. Link the importance of grant writing skills/research development to work in the human services field in the 21st century.
      6. Provide students an opportunity and support to integrate the knowledge, skills gained in classroom, practicum experiences, and to evaluate research in the human services field for the development of the student’s own research project.
B. Upon completion of this course, the student will be able to:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Measures</th>
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</thead>
<tbody>
<tr>
<td>1. Contrast the different types of research methodologies such as historical, literacy,</td>
<td>Written assignments</td>
</tr>
<tr>
<td>statistical, and qualitative techniques used in research construction.</td>
<td>Class discussion</td>
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<tr>
<td></td>
<td>Quizzes</td>
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<tr>
<td>2. Demonstrate knowledge integration of concepts pertaining to the purpose of research</td>
<td>Class discussion</td>
</tr>
<tr>
<td>to include implementation of outcome data and how it can improve service delivery</td>
<td>Quizzes</td>
</tr>
<tr>
<td>within agencies.</td>
<td></td>
</tr>
<tr>
<td>3. Apply the ethical standards and information literacy of research in the human services</td>
<td>Class discussion</td>
</tr>
<tr>
<td>field to a research project.</td>
<td>Individual project</td>
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<tr>
<td>4. Discuss the phases of grant development including logic models, compliance, reporting</td>
<td>Small group activities</td>
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<tr>
<td>to grantor, implementation of outcome data and maintenance of funding.</td>
<td>Class discussion</td>
</tr>
<tr>
<td></td>
<td>Quizzes</td>
</tr>
<tr>
<td>5. Identify how grant writing skills increase employability for job seekers in the field</td>
<td>Class discussion</td>
</tr>
<tr>
<td>of human services.</td>
<td>Small group activities</td>
</tr>
<tr>
<td>6. Demonstrate the ability to think, read and write critically by completing research</td>
<td>Completion of a written proposal and</td>
</tr>
<tr>
<td>related tasks e.g. hypothesis design, literature review, analyze outcomes and produce</td>
<td>bibliography.</td>
</tr>
<tr>
<td>a written report of research project.</td>
<td>Final written paper/project and</td>
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<td></td>
<td>presentation</td>
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</tbody>
</table>

IV. Course Level Justification

Provides background and information of research and grant development and writing as it relates to human service agencies. The course requires the ability to analyze and synthesize and apply new information to previous information from courses completed in the AAS and BHS programs along with the required GERs. This course provides a mechanism for students to develop, elaborate, and apply course materials to analyzing complex problems.

V. Topical Course Outline

1.0 Safety: General Campus Safety

2.0 Research in the Human Services
   2.1 Goals of research
   2.2 Applications of research
   2.3 Parallels and linkages between research and practice

3.0 The Logic of Social Research
   3.1 Sources of knowledge
   3.2 Theories in research and practice
   3.3 Concepts and hypotheses
   3.4 Perspectives on science
   3.5 Cause-and-effect relationships
4.0 Ethical Issues in Social Research
   4.1 The minority experience: The need for ethical standards
   4.2 Ethical issues
   4.3 Codes of ethics
   4.4 Scientific misconduct and fraud

5.0 Issues in Problem Formation
   5.1 Selecting a research problem
   5.2 Refining the problem
   5.3 Literature review
   5.4 Feasibility of a research project
   5.5 Utilization of research

6.0 Fundamentals of Measurement
   6.1 Ways of measuring
   6.2 Evaluating measures
   6.3 Sampling and surveys
   6.4 Focus groups

7.0 Evaluation
   7.1 Steps in writing up the project
   7.2 Analyzing the project
   7.3 Presentation of hypothesis and data
   7.4 Utilization of research

8.0 Grant Proposals for Agency Funding
   8.1 The grant-funding sources
   8.2 Grant proposal planning
   8.3 Clarifying an agency’s mission
   8.4 Components of the grant proposal
   8.5 Components of a logic model
   8.6 Demonstrating outcomes
   8.7 Quarterly report writing

VI. Suggested Texts

VII. Bibliography and Resources


To:   UAB Curriculum Committee

From:  Laura Kelley, Chair Human Services Department, College of Health

Re:   Human Services Minor

The UAA Human Services Department is submitting the attached materials for a proposed Human Services Minor. The minor is consistent with the University of Alaska Academic Plan (2011), UAA Strategic Plan (2011) and the State of Alaska Career and Technical Education Plan (2010). The minor utilizes existing Human Services coursework focused upon basic human helping skill sets essential not only to the field of Human Services, but also to the following occupational clusters: healthcare, education, direct service delivery, business and justice related occupations.

The proposed minor also addresses the needs of UAA degree programs requiring the completion of a minor as a condition of graduation as well as the significant number of nursing, pre-nursing and other health related degree seeking students currently enrolled in Human Services courses as electives.

Summary of Human Services Minor

Human Services Minor:  Students majoring in another subject who wish to minor in Human Services must complete six courses from the following list. A total of 18 credits is required for the minor, six of which must be upper division. Consultation with an advisor in the Human Services Department is highly recommended.

HUMS 101, 223, 224, and 324 were revised and approved by UAB on 10/22/12 as part of the AAS degree revision process. The remaining courses in the proposed minor: HUMS 321, 322, 333, and 461 have been revised by the department but have not processed through the curricular process and should be reviewed at this time.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HUMS 101</td>
<td>Introduction to Human Services</td>
<td>3</td>
</tr>
<tr>
<td>HUMS 223</td>
<td>Introduction to Paraprofessional Counseling I</td>
<td>3</td>
</tr>
<tr>
<td>HUMS 224</td>
<td>Conflict and Collaborative Systems</td>
<td>3</td>
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<tr>
<td>HUMS 324</td>
<td>Introduction to Paraprofessional Counseling II</td>
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<tr>
<td>HUMS 321</td>
<td>Diversity Issues in Human Services Practice</td>
<td>3</td>
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<tr>
<td>HUMS 322</td>
<td>Service Coordination in Human Services Practice</td>
<td>3</td>
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<td>HUMS 333</td>
<td>Alternative Dispute Resolution</td>
<td>3</td>
</tr>
<tr>
<td>HUMS 461</td>
<td>Crisis Intervention</td>
<td>3</td>
</tr>
</tbody>
</table>
1a. School or College  
CH College of Health

1b. Department  
Human Services

2. Complete Program Title/Prefix  
Human Services Minor

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

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:  School of Social Work, Justice Center, School of Nursing, School of Allied Health, Mat-Su College, Kenai Peninsula College, Kachemak Bay Campus

   Initiator Name (typed):  Laura W. Kelley  
   Initiator Signed Initials: _________
   Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu)  
Date: 7/8/2013

6c. Coordination with Library Liaison  
Date: 4/17/2013

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 proposed action addresses the following educational needs: 1) serves students enrolled in baccalaureate degree programs requiring the completion of a minor as a graduation requirement, 2) provides the significant number of degree seeking students currently enrolled in Human Services courses as electives the option of earning a minor, and 3) provides skill development essential to a broad range of occupational clusters.

Initiator (faculty only)  
Laura W. Kelley  
Initiator (TYPE NAME)

Approved  Disapproved
Dean/Director of School/College  Date

Approved  Disapproved
Undergraduate/Graduate Academic  Date
Board Chair

Approved  Disapproved
Provost or Designee  Date

Approved  Disapproved
Department Chair  Date

Approved  Disapproved
College/School Curriculum Committee Chair  Date

31
Minor, Human Services

Students majoring in another subject who wish to minor in Human Services must complete six courses from the following list. A total of 18 credits is required for the minor, six of which must be upper division. Consultation with an advisor in the Human Service Department is highly recommended.

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<td>Diversity Issues in Human Services Practice</td>
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<td>HUMS A333</td>
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<td>HUMS A461</td>
<td>Crisis Intervention</td>
<td>3</td>
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</table>

FACULTY

Jo Ann Bartley, Assistant Professor, jbartley@uaa.alaska.edu
Laura Kelley, Professor, lwkelley@uaa.alaska.edu
Lynn Paterna, Assistant Professor, lspaterna@uaa.alaska.edu
Ira Rosnel, Associate Professor, irosnel@uaa.alaska.edu
Memo

To: UAB Curriculum Committee

From: Laura W. Kelley, Chair Human Services Department

Re: Proposed revisions to BHS in Human Services

In keeping with the missions of both UAA and the COH, the intent of the Human Services BHS Degree Program is to prepare human services professionals through a competency-based, community-oriented academic program blending knowledge, scholarship and applied experiences.

Both the AAS and BHS Human Services degree programs were reaccredited by the Council for Standards in Human Services Education in 2008, and a full reaccreditation is presently scheduled for 2014. Recent developments in both the Human Services profession and accreditation standards require revisions to the existing BHS curriculum. The Human Services Department submits the attached course revisions and curricular changes to address professional and accreditation modifications made in the last five years to include: national testing and certification of human services practitioners and identification of human services as a distinct profession within the social service area.

**SUMMARY OF REVISIONS:**

**Major Change #1:** The revised curriculum replaces the previous six credit emphasis area requirement with a six credit selective requirement. Students may choose selectives from a choice of five courses: HUMS A333, HUMS A334, HUMS A350, HUMS A416 and HUMS A351 which is a new course included in this submission.

**Major Change #2:** The following courses will be removed as required courses but retained in the course catalog.
- HUMS A424
- HUMS A434

**Major Change #3:** The revised curriculum adds four additional required courses: HUMS A352, HUMS A415, HUMS A420, HUMS A435.

**Major Change #4:** The following courses were revised for the Human Services minor: HUMS A321, HUMS A322, HUMS A333, and HUMS A461.

**Major Change #5:** The following courses have been revised: HUMS A412, HUMS A417, and HUMS A495A.
<table>
<thead>
<tr>
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<th>2. Complete Program Title/Prefix</th>
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<tr>
<td>Bachelor of Human Services</td>
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<th>3. Type of Program</th>
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<td>Initiator Signed Initials:</td>
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<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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<th>8. Justification for Action</th>
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<tr>
<td>Updating curriculum to meet the revised Council for Standards in Human Service Education standards</td>
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<tbody>
<tr>
<td>Laura Kelley</td>
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<th>College/School Curriculum Committee Chair</th>
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Bachelor of Human Services

Program Student Learning Outcomes
Students graduating with a Bachelor of Human Services will:

• Demonstrate knowledge, skills and ethical values integral to the field of Human Services.
• Possess advanced skill sets necessary to provide direct and indirect client services in a community-based Human Services professional setting.
• Apply research and program evaluation techniques appropriate to the field of Human Services.

Admission Requirements
Complete the Requirements for Admission to Baccalaureate Degree programs in Chapter 7. Students must complete an Associate of Applied Science, Human Services degree from an accredited institution recognized by UAA. See the Human Services website at www.ualaska.edu/hums or the Human Services Student Handbook for the Bachelor of Human Services admission process.

Graduation Requirements
Students must complete the following graduation requirements:

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

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

C. Major Requirements
1. Complete the following Bachelor of Human Services core requirements:*  
   - HUMS A321 Diversity Issues in Human Services Practice 3
   - HUMS A322 Service Coordination in Human Services Practice 3
   - HUMS A352 Human Services Administration 3
   - HUMS A412 Ethical Issues in Human Services Practice 3
   - HUMS A414 Advanced Case Management for Human Services Professionals 3
   - HUMS A415 Advanced Human Services Systems 3
   - HUMS A417 Substance Abuse Counseling for Human Services Professionals 3
   - HUMS A420 Introduction to Program Evaluation 3
   - HUMS A435 Individual and Group Facilitation 3
   - HUMS A461 Crisis Intervention 3
   - HUMS A495A Human Services Practicum III 3
   - HUMS A496 Human Services Capstone 3
   * Note: Cannot be used as selectives.

2. Complete 6 credits from the following list of selectives. 6
   - HUMS A333 Alternative Dispute Resolution (3)
   - HUMS A334 Family Mediation (3)
   - HUMS A350 Men and Masculinity (3)
   - HUMS A351 Career Development for Human Services Professionals (3)
   - HUMS A416 Substance Abuse and the Older Adult (3)

3. A total of 121 credits is required for the degree, of which 42 credits must be upper division.
**Bachelor of Human Services**

**Program Student Learning Outcomes**

Students graduating with a Bachelor of Human Services will:

- Possess an understanding of knowledge, skills and values integral to the field of Human Services.
- Demonstrate knowledge, skills and ethical values integral to the field of Human Services.
- Possess advanced skill sets necessary to provide direct and indirect client services in a community-based Human Services/Professional setting.
- Receive satisfactory program services to include: academic advising, course offerings, practicum experiences and appropriate faculty and staff support. Apply research and program evaluation techniques appropriate to the field of Human Services.

**Admission Requirements**

Complete the Requirements for Admission to Baccalaureate Degree programs in Chapter 7. Students must complete an Associate of Applied Science, Human Services degree from an accredited institution recognized by UAA. See the Human Services website at www.uaa.alaska.edu/hums or the Human Services Student Handbook for the Bachelor of Human Services admission process.

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Students must complete the following graduation requirements:

A. **General University Requirements**

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

B. **General Education Requirements**

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

C. **Major Requirements**

   1. Complete the following Bachelor of Human Services core requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMS A321</td>
<td>Diversity Issues in Human Services Practice</td>
<td>3</td>
</tr>
<tr>
<td>HUMS A322</td>
<td>Service Coordination in Human Services Practice</td>
<td>3</td>
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<tr>
<td>HUMS A332</td>
<td>Human Services Administration</td>
<td>3</td>
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<tr>
<td>HUMS A353</td>
<td>Alternative Dispute Resolution</td>
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</tr>
<tr>
<td>HUMS A412</td>
<td>Ethical Issues in Human Services Practice</td>
<td>3</td>
</tr>
<tr>
<td>HUMS A414</td>
<td>Rural Treatment Strategies Advanced Case Management for Human Services Professionals</td>
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</tr>
<tr>
<td>HUMS A415</td>
<td>Advanced Human Services Systems</td>
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</tr>
<tr>
<td>HUMS A417</td>
<td>Substance Abuse Counseling for Human Services Professionals</td>
<td>3</td>
</tr>
<tr>
<td>HUMS A420</td>
<td>Introduction to Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>HUMS A436</td>
<td>Individual and Group Facilitation</td>
<td>3</td>
</tr>
<tr>
<td>HUMS A438</td>
<td>Advanced Counseling for Human Services Professionals</td>
<td>3</td>
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<td>HUMS A439</td>
<td>Group Facilitation for Human Services Professionals</td>
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<td>HUMS A461</td>
<td>Crisis Intervention</td>
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</tr>
<tr>
<td>HUMS A495A</td>
<td>Human Services Practicum III</td>
<td>3</td>
</tr>
<tr>
<td>HUMS A496</td>
<td>Human Services Practicum IV/Capstone</td>
<td>3</td>
</tr>
</tbody>
</table>

* Note: Cannot be used in emphasis areas or selectives.

2. Complete an additional 6 credits (to total 12 credits) from the AAS Major Requirements Emphasis Areas. Complete 6 credits from the following list of selectives:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMS A433</td>
<td>Alternative Dispute Resolution</td>
<td>3</td>
</tr>
</tbody>
</table>

**Note:** Each Human Service degree (Associate of Applied Science and Bachelor of Human Services) requires a 6-credit emphasis area. BHS students may complete 6 credits from a different emphasis area or an additional 6 credits from the emphasis area used for the AAS.
HUMS A334  Family Mediation (3)
HUMS A350  Men and Masculinity (3)
HUMS A351  Career Development for Human Services Professionals (3)
HUMS A416  Substance Abuse and the Older Adult (3)

3. A total of 120 credits is required for the degree, of which 42 credits must be upper division.
To: College of Health Curriculum Committee

From: Kathleen Stephenson

Associate Professor, Chair of Associate of Applied Science, Nursing Program

RE: Change in Program Prerequisites for the Associate of Applied Science, Nursing

The Associate of Applied Science, Nursing Program is changing the mathematics prerequisite for entry into the program from elementary high school algebra or MATH 055 to intermediate high school algebra or MATH 105. This requirement may be waived with appropriate scores on SAT, ACT, or UAA approved placement tests such as the Accuplacer Test. This change is necessary to ensure that students entering the nursing program have adequate computational skill for safe medication calculation and administration.
1a. School or College
   CH College of Health

1b. Department
   Nursing

2. Complete Program Title/Prefix
   Associate of Applied Science, Nursing

3. Type of Program
   Choose one from the appropriate drop down menu:
   Undergraduate:  or  Graduate:  
   Associate of Applied Science  CHOOSE ONE

   This program is a Gainful Employment Program:  ☐ Yes  or  ☑ No

4. Type of Action:
   PROGRAM
   ☑ Change

   PREFIX
   ☐ Add
   ☑ Change
   ☐ Delete
   ☐ Inactivate

5. Implementation Date (semester/year)
   From:  January/2015  To:  999/9999

6a. Coordination with Affected Units
   Department, School, or College:  AMSC
   Initiator Name (typed):  Kathleen Stephenson
   Initiator Signed Initials:  _________
   Date:  __________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu)
   Date:  March 8, 2013

6c. Coordination with Library Liaison
   Date:  March 8, 2013

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

8. Justification for Action
   Changes math prerequisite from Elementary Algebra or "Math 005" to Intermediate Algebra or "Math 105."
   This level math is necessary for successful completion of the program and for professional practice. This
   requirement may be waived with an appropriate score on the SAT, ACT or UAA approved placement test such
   as the Accuplacer.

   ☑ Approved  ☐ Disapproved  Dean/Director of School/College  Date
   Initiator (faculty only)  Date
   Initiator (TYPE NAME)
   ☑ Approved  ☐ Disapproved  Undergraduate/Graduate Academic Board Chair  Date
   ☑ Approved  ☐ Disapproved  Undergraduate/Graduate Academic  Date
   ☐ Approved  □ Disapproved  Provost or Designee  Date
   □ Approved  □ Disapproved  Provost or Designee  Date
   □ Approved  □ Disapproved  Provost or Designee  Date
   □ Approved  □ Disapproved  Provost or Designee  Date
   □ Approved  □ Disapproved  Provost or Designee  Date
**Associate of Applied Science, Nursing**

Graduates of the Associate of Applied Science Nursing program are prepared to use the nursing process to provide effective nursing services to individuals receiving care in inpatient settings and in structured outpatient settings. The academic program provides students with a closely related mix of theory and clinical practice; students gain experience in hospitals, nursing homes, clinics, and community agencies.

**Program Student Learning Outcomes**

Students graduating with an Associate of Applied Science in Nursing will be able to:

- Utilize critical thinking skills to assess and diagnose nursing needs and to prioritize, plan, implement, and evaluate care for patients and their families in institutional and community based settings.
- Effectively communicate verbally, in writing, and electronically with health team members, patients, and their families.
- Plan, implement, and evaluate care that is safe, evidence-based, caring, and developmentally and culturally sensitive within ethical, legal, and professional standards.
- Coordinate care of small groups of patients in collaboration with other members of the health care team.
- Develop a plan for lifelong learning and continuing professional development.

**Admission Requirements**

Students may complete the Associate of Applied Science Nursing program in two academic years (four semesters); admission to the clinical sequence is determined by a ranking process, admission is selective, and admission requirements must be completed prior to February 1 (see items 1-6 below). Students are encouraged to submit an application to the university by August to ensure complete processing of application and transcript evaluation by February 1. Students are encouraged to complete corequisite courses while waiting for admission to the clinical sequence.

In order to have a student file ranked for possible admission to the nursing sequence, the following items must be completed no later than February 1:

1. UAA Certificate of Admission from the Office of Admissions, including transcripts from both high school/GED and college, with transcript evaluations (if any). Documentation from transcripts must show successful completion of the following courses with a minimum grade of C: intermediate algebra, biology with laboratory, and chemistry with laboratory. Courses may have been taken at the high school or college level. Equivalent college-level courses in lieu of high school classes are: MATH A105, BIOL A102 and BIOL A103, and CHEM A055.
2. School of Nursing Application and Confidential Required Information Form sent to the coordinator of student affairs, School of Nursing.
3. Three letters of reference sent to the coordinator of student affairs, School of Nursing.
4. Upon completion of items 1-4, student has an interview with a member of the AAS Admissions Committee.
5. Take the National League for Nursing Pre-admission Exam (PAX-RN) through Advising and Testing. Call (907) 786-4500 for specific dates and to sign up.
6. Upon completion of items 1-6, student’s file is ranked based on a point system.

Please contact the department for further details. Students are contacted in March with the results.

Once admitted to associate degree clinical nursing courses, students are required to provide the following before beginning clinical coursework:

1. Evidence of:
   a. Immunity to rubella and rubeola, confirmed by titer;
   b. Immunity to hepatitis A and hepatitis B, confirmed by titer (first-semester clinical students may be in the process of completing the immunization series; for those students, documentation of immunity by titer is required prior to entry into second-year courses);
   c. Immunity to chicken pox documented by history, titer or current immunization;
   d. Diphtheria/tetanus vaccination within the past 10 years (with booster required at the time of expiration);
e. Freedom from active tuberculosis, documented annually by negative PPD skin test or by health examination by a nurse
practitioner, physician, or physician’s assistant;
f. Documentation of HIV testing annually (results not required).

2. Current Health Provider Certification in Cardiopulmonary Resuscitation for infants, children, and adults. First year students
will have until the third week of the semester to complete this certification, which then must be kept current until graduation.

3. Professional liability insurance in the amount of $1 million/$3 million; insurance must be maintained throughout the duration
of the student’s enrollment in clinical nursing courses. Specific information regarding acceptable professional liability
insurance policies may be obtained directly from the program.

4. Results of a national-level criminal background check.

Students enrolled in clinical courses must provide their own transportation to clinical assignments and will be required to purchase
uniforms and specialized equipment. The school assumes no responsibility for illnesses and injuries experienced by students in
conjunction with their clinical experiences; students who are injured while completing clinical assignments are responsible for all
associated medical costs. It is strongly recommended that students maintain personal medical insurance.

**Academic Progress**

In order to progress within the Associate of Applied Science Nursing program, students must earn a satisfactory grade (C or higher
or P) in all nursing courses. Students who are unable to earn an acceptable grade in a nursing course during their initial enrollment
may attempt to earn a satisfactory grade one additional time on a space-available basis. Students enrolled in one course must be
concurrently enrolled in all courses with that common number (NURS A120 and NURS A120L; NURS A125 and NURS A125L;
NURS A220 and NURS A220L; NURS A222 and NURS A222L; NURS A225 and NURS A225L; NURS A250 and NURS A250L).
The four-semester clinical course sequence, which begins with NURS A120/NURS A120L must be completed within four years.

**General University Requirements**

1. Complete the General University Requirements for Associate of Applied Science Degrees located at the beginning of this
chapter.

2. Complete the Associate of Applied Science General Degree Requirements (15 credits) located at the beginning of this chapter.

**Major Requirements**

1. Complete the following required courses:

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<td>4</td>
</tr>
<tr>
<td>BIOL A240</td>
<td>Introductory Microbiology for Health Sciences</td>
<td>4</td>
</tr>
<tr>
<td>DN A203</td>
<td>Nutrition for Health Sciences</td>
<td>3</td>
</tr>
<tr>
<td>NURS A120</td>
<td>Nursing Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>NURS A120L</td>
<td>Nursing Fundamentals Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>NURS A125</td>
<td>Adult Nursing I</td>
<td>3</td>
</tr>
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<td>4</td>
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<tr>
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<td>Basic Nursing Pharmacology</td>
<td>3</td>
</tr>
<tr>
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<td>Perinatal Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NURS A220L</td>
<td>Perinatal Nursing Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>NURS A221</td>
<td>Advanced Parenteral Therapy Laboratory</td>
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<td>NURS A250L</td>
<td>Psychiatric Nursing Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>NURS A255</td>
<td>Staff Nurse: Legal, Ethical, and</td>
<td></td>
</tr>
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2. A total of 70 credits is required for the degree.
Associate of Applied Science, Nursing

Graduates of the Associate of Applied Science Nursing program are prepared to use the nursing process to provide effective nursing services to individuals receiving care in inpatient settings and in structured outpatient settings. The academic program provides students with a closely related mix of theory and clinical practice; students gain experience in hospitals, nursing homes, clinics, and community agencies.

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<td>Lifespan Development</td>
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</tr>
<tr>
<td></td>
<td>Social Science chosen from General Education List</td>
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</tbody>
</table>

2. A total of 70 credits is required for the degree.
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.
1a. School or College
CH College of Health

1b. Department

2. Complete Program Title/Prefix
College of Health/ COHI

3. Type of Program
Choose one from the appropriate drop down menu: Undergraduate: or Graduate:
Other: specify type in box 2

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: College of Health
Initiator Name (typed): Randy Magen
Initiator Signed Initials: _________ Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 12/23/2013

6c. Coordination with Library Liaison Date: 12/23/2013

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

8. Justification for Action
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.

Initiator (faculty only) Date
Initiator (TYPE NAME) Date
Dean/Director of School/College Date

Undergraduate/Graduate Academic Board Chair

Provost or Designee Date

College/School Curriculum Committee Chair Date

☑ Approved ☐ Disapproved

☐ Approved ☐ Disapproved

☑ Approved ☛ Disapproved

☑ Approved ☛ Disapproved

☑ Approved ☛ Disapproved
To: Chair, Undergraduate Academic Board, Faculty Senate

From: Term Assistant Professor Terry Fields, CBPP

Subject: Bachelor of Business Administration, Management

Date: January 1, 2014

This memorandum addresses the proposed change to the Bachelor of Business Administration, Management outlined in this Program Action Request (PAR).

The modification discussed in this memorandum is to add a course to the list of program requirements.

Modification:

The catalog copy shows that an existing course, BA A215 Introduction to Property Management, will be added to the list of program requirements for Bachelor of Business Administration, Management majors.

Justification:

This modification is part of a strategic decision by the College of Business and Public Policy to further structure this program with courses that align closely to the skill sets required of today’s managers. The addition of this course to the program requirements is in response to market demands for management majors to be aware of commercial leasing and negotiations, zoning and land use laws, real estate economics, risk management, and property valuation.
**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>
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<tbody>
<tr>
<td>CB CBPP</td>
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<table>
<thead>
<tr>
<th>2. Complete Program Title/PREFIX</th>
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<tbody>
<tr>
<td>Bachelor of Business Administration, Management</td>
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<tr>
<td>Undergraduate: or Graduate:</td>
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<td>Bachelor of Business Administration</td>
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This program is a Gainful Employment Program: □ Yes or □ No

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<tr>
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<tr>
<td>□ Change</td>
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<tr>
<td>□ Inactivate</td>
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<th>5. Implementation Date (semester/year)</th>
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<td>Initiator Signed Initials: ___________</td>
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<td>☒ Catalog Copy in Word using the track changes function</td>
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<th>8. Justification for Action</th>
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<tr>
<td>This modification is part of a strategic decision by the College of Business and Public Policy to further structure this program with courses that align closely to the skill sets required of today's managers. The addition of BA A215 is in response to market demands for management majors to be aware of commercial leasing and negotiations, zoning and land use laws, real estate economics, risk management, and property valuation.</td>
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Management Major

All courses must be completed with a C or better prior to graduating.

1. Management (30 credits)
   a. Complete the following requirements.
      - BA A215 Introduction to Property Management 3
      - BA A361 Human Resource Management 3
      - BA A461 Negotiations and Conflict Management 3
      - BA A481 Applications in Management 3
      - BA A488 Environment of Business 3
      - BA A489 Entrepreneurship and New Business Planning 3
   b. Upper division electives in ACCT, BA, CIS, ECON or LOG 12

2. Management: Property Management and Real Estate Concentration (33 credits)
   a. Complete the following requirements.
      - BA A215 Introduction to Property Management 3
      - BA A225 Leasing in Property Management 3
      - BA A302 Maintenance in Property Management 3
      - BA A303 Property Management Finance 3
      - BA A361 Human Resource Management 3
      - BA A461 Negotiation and Conflict Management 3
      - BA A421 Property Management Capstone 3
      - BA A432 Real Estate Law 3
   b. Complete 9 credits from the following: 9
      - BA A306 Real Estate Principles (3)
      - BA A320 Real Estate Finance (3)
      - BA A395 Property Management Internship (3-6)
      - BA A431 Real Estate Appraisal (3)
      - BA A489 Entrepreneurship and New Business Planning (3)

3. A total of 120 credits is required for the degree, of which a minimum of 45 credits must be upper division.

Marketing Major

1. Complete the following requirements. The following courses must be completed with a C or better prior to graduating:
   - BA A381 Consumer Behavior 3
   - BA A420 Marketing Research 3
   - BA A460 Marketing Management 3
   - BA A480 Social Media Marketing 3
   - BA A375 Statistics for Business and Economics (3) 3
     or
   - ECON A312 Econometrics for Business and Economics (3) 3
     or
   - ECON A429 Business Forecasting (3)

2. Complete an additional 6 credits of upper division electives in ACCT, BA, CIS, ECON, or LOG with a grade of C or better prior to graduating: 6

   Upper division Business electives recommended:
3. A total of 120 credits is required for the degree, of which a minimum of 45 credits must be upper division.
Management Major

All courses must be completed with a C or better prior to graduating.

1. **Management (27-30 credits)**
   a. Complete the following requirements.

   - **BA A215 Introduction to Property Management** 3
   - **BA A361 Human Resource Management** 3
   - **BA A461 Negotiations and Conflict Management** 3
   - **BA A481 Applications in Management** 3
   - **BA A488 Environment of Business** 3
   - **BA A489 Entrepreneurship and New Business Planning** 3

   b. Upper division electives in ACCT, BA, CIS, ECON or LOG 12

2. **Management: Property Management and Real Estate Concentration (33 credits)**
   a. Complete the following requirements.

   - **BA A215 Introduction to Property Management** 3
   - **BA A225 Leasing in Property Management** 3
   - **BA A302 Maintenance in Property Management** 3
   - **BA A303 Property Management Finance** 3
   - **BA A361 Human Resource Management** 3
   - **BA A461 Negotiation and Conflict Management** 3
   - **BA A421 Property Management Capstone** 3
   - **BA A432 Real Estate Law** 3

   b. Complete 9 credits from the following: 9

   - **BA A306 Real Estate Principles** (3)
   - **BA A320 Real Estate Finance** (3)
   - **BA A395 Property Management Internship** (3-6)
   - **BA A431 Real Estate Appraisal** (3)
   - **BA A489 Entrepreneurship and New Business Planning** (3)

3. A total of 120 credits is required for the degree, of which a minimum of 45 credits must be upper division.

Marketing Major

1. Complete the following requirements. The following courses must be completed with a C or better prior to graduating:

   - **BA A381 Consumer Behavior** 3
   - **BA A420 Marketing Research** 3
   - **BA A460 Marketing Management** 3
   - **BA A480 Social Media Marketing** 3
   - **BA A375 Statistics for Business and Economics** (3) 3
   - or
   - **ECON A312 Econometrics for Business and Economics** (3) 3
   - or
   - **ECON A429 Business Forecasting** (3)

2. Complete an additional 6 credits of upper division electives in ACCT, BA, CIS, ECON, or LOG with a grade of C or better prior to graduating: 6

   Upper division Business electives recommended:
3. A total of 120 credits is required for the degree, of which a minimum of 45 credits must be upper division.
**Course Action Request**

**University of Alaska Anchorage**

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

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<th>EN SOENGR</th>
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<tbody>
<tr>
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<tr>
<td>1c. Department</td>
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<td>5b. Contact Hours (Lecture + Lab)</td>
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## Complete Course Title

Principles of Mapping

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
- [ ] Automatic Restrictions
- [ ] Class
- [ ] Level
- [ ] College
- [ ] Major
- [ ] Other

**9. Repeat Status No**

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<th># of Repeats</th>
<th>Max Credits</th>
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### 10. Grading Basis

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

### 11. Implementation Date

**From:** Fall/2014  
**To:** 99/9999

### 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 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>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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<tr>
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<tr>
<td>2.</td>
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<td>3.</td>
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**Initiator Name (typed):** T.B. Quimby  
**Initiator Signed Initials:** __________  
**Date:** __________

### 13b. Coordination Email

Date: 1/13/14  
submitted to Faculty Listserv: [uaa-faculty@lists.uaa.alaska.edu](mailto:uaa-faculty@lists.uaa.alaska.edu)

### 13c. Coordination with Library Liaison

Date: 1/13/14

### 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)


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


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


### 16c. Automatic Restriction(s)

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

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


### 17. Mark if course has fees


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


### 19. Justification for Action

This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

---

**Initiator (faculty only)**  
**Jeff Hollingsworth**

**Initiator (TYPE NAME)**

- [ ] Approved
- [ ] Disapproved

**Date**

**Dean/Director of School/College**

**Date**

- [ ] Approved
- [ ] Disapproved

**Date**

- [ ] Approved
- [ ] Disapproved

**Department Chair**

**Date**

- [ ] Approved
- [ ] Disapproved

**Board Chair**

**Date**

- [ ] Approved
- [ ] Disapproved

**Provost or Designee**

**Date**

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<td>1/13/14</td>
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<tr>
<td>Geomatics AAS</td>
<td>1/13/14</td>
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Course Action Request  
University of Alaska Anchorage  
Proposal to Initiate, Add, Change, or Delete a Course

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<th>1b. Division</th>
<th>1c. Department</th>
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<th>3. Course Number</th>
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<th>7. Type of Course</th>
<th>8. Type of Action: Add or Change or Delete</th>
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<td>Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at <a href="http://www.ualaska.edu/governance">www.ualaska.edu/governance</a>.</td>
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<td>Integrative Capstone</td>
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| 15. Course Description (suggested length 20 to 50 words) |
| Introductions to Geomatic principles and methods of computation related to Cartesian coordinate systems, coordinate geometry, subdivision, and area computations. Computations of circular, spiral and vertical curves. Methods of adjusting Geomatics data, and using a current industry standard hand held calculator. |

| 16a. Course Prerequisite(s): list prefix and number or test code and score |
| [MATH A108 or MATH A109 or any MATH course for which MATH A108 or MATH A109 is in the prerequisite chain] and GEO A156 with minimum grade of C |
| 16b. Co-requisite(s): concurrent enrollment required |
| ENGR A161 |

<p>| 16c. Automatic Restriction(s) |</p>
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| 16d. Registration Restriction(s): non-codable |

| 16e. Mark if course has fees Std CoEng Fee & existing course fee |

| 16f. Mark if course is a selected topic course |

<p>| 17. Justification for Action |
| This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents. |</p>
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</table>
COURSE CONTENT GUIDE

University of Alaska Anchorage, College of Engineering, Geomatics Dept.

I. Date Initiated: December 4, 2013  Date Revised: January 10, 2014

II. Course Information
a. College: EN
b. Course prefix: GEO
c. Course number: A146
d. Number of credits and contact hours: 3.0 (3+0)
e. Course title: Geomatics Computations I
f. Grading Basis: A-F
g. Implementation date: Fall 2014
h. Cross listing: None
i. Stacking: None
j. Course Description: Introduction to Geomatics principles and methods of computation related to Cartesian coordinate systems, coordinate geometry, subdivision, and area computations. Computations of circular, spiral and vertical curves. Methods of adjusting Geomatics data, and using a current industry standard hand held calculator.
k. Course attributes: None
l. Course registration prerequisites/restrictions:
   • Co-requisite: ENGR A161
   • Prerequisites: [[MATH A108 or MATH A109 or any MATH course for which MATH A108 or MATH A109 is in the prerequisite chain] and GEO A156] with a minimum grade of C.
m. Course fees: Yes, standard CoEng and an existing course fee

III. Course Level Justification
Introduces basic knowledge and skills needed for further study in Geomatics.

IV. Instructional Goals and Student Learning Outcomes:

A. Instructional Goals:
The instructor will:
1. Explain line intersection computations
2. Explain Geomatics adjustments
3. Explain area partitioning computations
4. Explain circular, vertical and spiral curve computations
B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
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<tr>
<td>Upon successful completion of this course a student will be able to:</td>
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<tr>
<td>A. Demonstrate the ability to conduct line intersection computations</td>
<td>Assignments, Exams, Project</td>
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<tr>
<td>B. Demonstrate skill in Geomatics adjustments</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>C. Demonstrate the ability to conduct area partitioning computations</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>D. Demonstrate the ability to conduct circular, vertical and spiral curve computations</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>E. Recognize the concepts and functions of a current industry standard hand held calculator</td>
<td>Assignments, Exams, Project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Coordinate Geometry
   1.1. Line intersections
       1.1.1. Bearing/bearing
       1.1.2. Bearing/distance
       1.1.3. Distance/distance
   1.2. 3 point resection

2. Partitioning of Land
   2.1. From a given point
   2.2. From a given direction

3. Curves
   3.1. Horizontal curves
   3.2. Vertical curves
   3.3. Spiral curves

4. Methods of Data Adjustment

5. Introduction to the Industry Standard Hand Held Calculator
   5.1. Hierarchy
   5.2. Built-in functions
   5.3. Computations
VI. Suggested Text and Bibliography

A. Suggested Text:


B. 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>EN SOENGR</th>
<th>1b. Division</th>
<th>choose one</th>
<th>1c. Department</th>
<th>Geomatics</th>
</tr>
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<tbody>
<tr>
<td>2. Course Prefix</td>
<td>GEO</td>
<td>3. Course Number</td>
<td>A155</td>
<td>4. Previous Course Prefix &amp; Number</td>
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<tr>
<td>5a. Credits/CEUs</td>
<td>3</td>
<td>5b. Contact Hours</td>
<td>(Lecture + Lab)</td>
<td>(2+3)</td>
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### 6. Complete Course Title

Introduction to Surveying
Intro to Surveying

Abbreviated Title for Transcript (30 character)

<table>
<thead>
<tr>
<th>Initiator Name (typed):</th>
<th>T. B. Quimby</th>
<th>Initiator Signed Initials:</th>
<th>Date:</th>
</tr>
</thead>
</table>

### 7. Type of Course

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

### 8. Type of Action:

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

If a change, mark appropriate boxes:

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

### 9. Repeat Status No

<table>
<thead>
<tr>
<th># of Repeats</th>
<th>Max Credits</th>
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</table>

### 10. Grading Basis

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

### 11. Implementation Date

From: Fall/2014 To: 99/9999

### 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 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>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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<tbody>
<tr>
<td>1. AAS, Geomatics</td>
<td>N/A</td>
<td>T. B. Quimby</td>
</tr>
<tr>
<td>2. BS, Geomatics</td>
<td>N/A</td>
<td>T. B. Quimby</td>
</tr>
<tr>
<td>3. BS, Civil Engineering</td>
<td>1/13/14</td>
<td>O. Abaza</td>
</tr>
</tbody>
</table>

Initiator Name (typed): T. B. Quimby Initiator Signed Initials: Date: 

### 13b. Coordination Email

Date: 1/13/14 submitted to Faculty Listserv: [uaa-faculty@lists.uaa.alaska.edu](mailto:uaa-faculty@lists.uaa.alaska.edu)

### 13c. Coordination with Library Liaison

Date: 1/13/14

### 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)

Orientation and introduction to field surveying theory and techniques for non-Geomatics majors. Subject areas include distance measurement, leveling, angular measurements, basic traversing, measurement adjustments, fundamentals of mapping, use and care of surveying instruments.

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

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

[MATH A108 or MATH A109 or any math course for which MATH A108 or MATH A109 is in the prerequisite chain] with minimum grade of C

### 16c. Automatic Restriction(s)

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

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

### 17. Mark if course has fees Std CoEng Fee and existing course fee

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

### 19. Justification for Action

This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only)

Jeff Hollingsworth

Initiator (TYPE NAME)
### Course Being Changed:

<table>
<thead>
<tr>
<th>Course Being Changed:</th>
<th>GEO A155</th>
<th>Introduction to Surveying (formerly Fundamentals of Surveying)</th>
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### Impact Program or Course

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<th>Chair/Coordinator Contacted</th>
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<td>Civil Engineering, BS</td>
<td>1/13/14</td>
<td>Osama Abaza</td>
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<tr>
<td>Geomatics BS</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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<tr>
<td>Geomatics AAS</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
</tr>
<tr>
<td>GEO A158</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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<td>GEO A256</td>
<td>1/13/14</td>
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<td>GEO A266</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
</tr>
<tr>
<td>GEO A267</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
</tr>
</tbody>
</table>
COURSE CONTENT GUIDE

University of Alaska Anchorage, College of Engineering, Geomatics Dept.

I. Date Initiated: December 4, 2013  Date Revised: January 10, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GEO
   c. Course number: A155
   d. Number of credits and contact hours: 3.0 (2+3)
   e. Course title: Introduction to Surveying
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Orientation and introduction to field surveying theory and techniques for non-Geomatics majors. Subject areas include distance measurement, leveling, angular measurements, basic traversing, measurement adjustments, fundamentals of mapping, use and care of surveying instruments.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Corequisite: [MATH A108 or MATH A109 or any math course for which MATH A108 or MATH A109 is in the prerequisite chain] with a minimum grade of C.
   m. Course fees: Yes, standard CoEng and a course fee

III. Course Level Justification

Introduces basic knowledge and skills in the field of Geomatics.

IV. Instructional Goals and Student Learning Outcomes:

A. Instructional Goals.

The instructor will:
   1. Explain and demonstrate how to set up and measure with conventional survey instruments
   2. Explain how to perform elementary geomatics computations
   3. Explain how surveying interacts to engineering related disciplines
B. **Student Learning Outcomes & Assessment**

<table>
<thead>
<tr>
<th><strong>Student Learning Outcomes</strong></th>
<th><strong>Typical Assessment Methods</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Set up and measure with basic survey instruments</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>B. Conduct elementary geomatics computations</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>C. Present their findings in written and oral format</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>D. Demonstrate an understanding of how surveying interacts with engineering related disciplines</td>
<td>Assignments, Exams, Project</td>
</tr>
</tbody>
</table>

V. **Typical Course Outline**

1. General Campus Safety / Emergency Evacuation
2. Note Keeping
3. Differential Leveling
4. Distance Measurement
5. Angular Measurement
6. Basic Traversing
7. Elementary Geomatic Computations
8. Basic Mapping Fundamentals

VI. **Suggested Text and Bibliography**

**A. Suggested Text:**


**B. Bibliography:**

## Course Action Request

**University of Alaska Anchorage**

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

### 1. School or College
- **EN SOENGR**

### 2. Course Prefix
- **GEO**

### 3. Course Number
- **A156**

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

### 5. Credits/CEUs
- **3**

### 6. Complete Course Title
- **Fundamentals of Surveying**

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

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

### 9. Repeat Status No
- **A-F**
- P/NP
- **NG**

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

### 11. Implementation Date
- From: Fall/2014
- To: 99/9999

### 12. Cross Listed with
- Stacked with

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

### 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 Geomatics and survey measurement theory and techniques for Geomatics majors. Subject areas include taping, tape corrections, leveling, angle measurements, traversing, traverse adjustments, contouring, fundamentals of mapping, and proper use and care of surveying instruments.

### 16. Course Prerequisite(s)
- **List prefix and number or test code and score**

### 17. Course Fee
- **Mark if course has fees Std CoEng Fee and course fee**

### 18. Justification for Action
- This course is being added as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

### Initiator Name (typed): T.B. Quimby

### Date:
- **1/13/14**

### 19. Justification for Action
- This course is being added as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.
I. Date Initiated: December 4, 2013  Date Revised: January 10, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GEO
   c. Course number: A156
   d. Number of credits and contact hours: 3.0 (2+3)
   e. Course title: Fundamentals of Surveying
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Fundamentals of Geomatics and survey measurement theory and techniques for Geomatics majors. Subject areas include taping, tape corrections, leveling, angle measurements, traversing, traverse adjustments, contouring, fundamentals of mapping, and proper use and care of surveying instruments.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Corequisite: [MATH A108 or MATH A109 or any math course for which MATH A108 or MATH A109 is in the prerequisite chain] with a minimum grade of C.
   m. Course fees: Yes, standard CoEng fee and a course fee

III. Course Level Justification

   Introduces basic knowledge and skills needed for further study in Geomatics.

IV. Instructional Goals and Student Learning Outcomes:

   A. Instructional Goals.
      The instructor will:
      1. Explain and demonstrate how to set up and measure with conventional survey instruments
      2. Explain how to perform geomatics computations
B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Set up and measure with survey instruments</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>B. Conduct elementary geomatics computations</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>C. Present their findings in written and oral format</td>
<td>Assignments, Exams, Project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. General Campus Safety / Emergency Evacuation
   1.1. Vehicle traffic hazards during Geomatics measurements
   1.2. Proper use and disposal of rechargeable batteries
   1.3. Electrical hazards during Geomatics measurements
   1.4. Field safety
   1.5. Survey equipment safety
   1.6. Computer concerns and ergonomics
   1.7. Moose and Bear safety

2. Note Keeping
   2.1. Importance of note keeping
   2.2. Proper procedure for note keeping
   2.3. Note keeping format and contents
   2.4. Field book sketches

3. Differential Leveling
   3.1. Note keeping for leveling operations
   3.2. Basic use of leveling equipment
   3.3. Trig leveling
   3.4. Precise leveling
   3.5. Profile leveling
   3.6. Peg test
   3.7. Errors in leveling
   3.8. Adjustment methods
   3.9. Procedures for performing various leveling tasks

4. Angular Measurement
   4.1. Basic use of theodolites
   4.2. Basic use of total stations
   4.3. Errors in angle measurement
4.4. Testing of theodolites
4.5. Testing of total stations
4.6. Procedures for accomplishing various tasks with theodolites and total stations

5. Distance Measurement
   5.1. Basic use of measurement tapes
   5.2. Electronic distance measurement and theory
   5.3. Distant measurement corrections

6. Traversing
   6.1. Traversing techniques
   6.2. Horizon closures
   6.3. Direct and indirect angles
   6.4. Note keeping for traverses
   6.5. Traversing with total stations
   6.6. Traverse adjustments

7. Geomatics Computations
   7.1. Decimal degree/degrees-minutes-seconds conversions
   7.2. Azimuth/bearing conversions
   7.3. Taping corrections
   7.4. EDM slope to horizontal distance reduction
   7.5. Magnetic compass computations
   7.6. Area computations
      7.6.1. DMS’s
      7.6.2. Coordinates

VI. Suggested Text and Bibliography

A. Suggested Text:


B. 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>
<tr>
<td>EN SOENGR</td>
<td></td>
<td>Geomatics</td>
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<table>
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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</th>
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<tbody>
<tr>
<td>GEO</td>
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<td>(Lecture + Lab) (2+2)</td>
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### 6. Complete Course Title

Computer-Aided Drafting for Surveyors

CAD for Surveyors

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
- Automatic Restrictions
- Class
- Level
- College
- Major
- Other (please specify)

### 9. Repeat Status No

<table>
<thead>
<tr>
<th># of Repeats</th>
<th>Max Credits</th>
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<tbody>
<tr>
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### 10. Grading Basis

- A-F
- P/NC
- NG

### 11. Implementation Date

<table>
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<tr>
<th>semester/year</th>
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<tbody>
<tr>
<td>From: Fall/2014</td>
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<tr>
<td>To: 99/9999</td>
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</tbody>
</table>

### 12. Cross Listed with

- Stacked

Cross-Listed Coordination Signature

### 13. 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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initiator Name (typed): T. B. Quimby

Initiator Signed Initials: _________ Date: _________

### 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)

Introduction to the knowledge and skills necessary to create maps and plats using computer aided drafting. Topics of study include basic drafting principles, drawing set up and scale, drawing commands, digital terrain modeling and mapping standards and accuracies.

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

GEO A156 with minimum grade of C

16b. Co-requisite(s) (non-codable)

GEO A156 with minimum grade of C

16c. Automatic Restriction(s)

- College
- Major
- Class
- Level

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

- Mark if course has fees Std CoEng Fee and existing course fee

18. Mark if course is a selected topic course

### 19. Justification for Action

This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and meet the needs of the program’s constituents.

Initiator (faculty only)

Jeff Hollingsworth

Initiator (TYPE NAME)

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<th>Disapproved</th>
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Approved by:

Dean/Director of School/College

Undergraduate/Graduate Academic

Board Chair

Provost or Designee

71
## Course Being Changed:

**GEO A157**

Computer Aided Drafting for Surveyors (formerly Analytical and Digital Cartography)

<table>
<thead>
<tr>
<th>Impacted Program or Course</th>
<th>Date of Notification</th>
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<td>1/13/14</td>
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<td>Bart Quimby</td>
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</table>
COURSE CONTENT GUIDE

University of Alaska Anchorage, College of Engineering, Geomatics Dept.

I. Date Initiated: December 4, 2013  Date Revised: January 10, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GEO
   c. Course number: A157
   d. Number of credits and contact hours: 3.0 (2+2)
   e. Course title: Computer-Aided Drafting for Surveyors
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Introduction to the knowledge and skills necessary to create maps and plats using computer aided drafting. Topics of study include basic drafting principles, drawing set-up and scale, drawing commands, digital terrain modeling and mapping standards and accuracies.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions: Prerequisite: GEO A156 with a minimum grade of C.
   m. Course fees: Yes, standard CoEng and a course fee

III. Course Level Justification

Introduces basic knowledge and skills needed for further study in Geomatics.

IV. Instructional Goals and Student Learning Outcomes:

A. Instructional Goals.
   The instructor will explain how to:
   1. Create and manage drawings using industry standard CAD software and standards
   2. Edit & create styles and settings; create, import, analyze, and manipulate points
   3. Import and edit electronic data collection files; create point groups; create description keys
   4. Draw lines and curves; label points, annotate features, lines and curves; subdivide land
   5. Create, edit and analyze terrain models; generate volumes between terrain models
6. Create horizontal alignments; create existing and design profiles and cross sections

B. Student Learning Outcomes & Assessment

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Create and manage drawings using industry standard CAD software and standards.</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>B. Edit and create styles and settings; create, import, analyze, and manipulate points.</td>
<td>Assignments, Exams, Project</td>
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<tr>
<td>C. Import and edit electronic data collection files, create point groups, and create description keys.</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>D. Draw lines and curves, label points, annotate features, lines and curves, and subdivide land.</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>E. Create, edit and analyze terrain models and generate volumes between terrain models.</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>F. Create horizontal alignments, create existing and design profiles, and cross sections.</td>
<td>Assignments, Exams, Project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Basics of Computer Aided Drafting

2. Computer Mapping Commands
   2.1. Concepts and definitions
   2.2. Mapping commands
   2.3. Display controls
   2.4. Dimensioning
   2.5. Notes
   2.6. Layers

3. Proper File Management and Project Setup

4. Surveying Drafting using National CAD Standards

5. Importing Survey Points
6. Creating and Analyzing Surfaces
7. Creating Subdivision Lots and Parcels
8. Alignment Creation
9. Profile and Cross-section Creation
10. Creating Corridors
11. Earthwork Volume from Digital Models
12. Import Aerial Imagery from Google Earth
13. Plotting Techniques
   13.1. Printer/plotter
   13.2. Plot styles
14. Survey Projects

VI. Suggested Text and Bibliography

A. Suggested Text:


B. 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>EN SOENGR</td>
<td></td>
<td>Geomatics</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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<tbody>
<tr>
<td>GEO</td>
<td>A158</td>
<td>N/A</td>
<td>1</td>
<td>(0+2)</td>
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</table>

### Complete Course Title

**Geomatics Computer Fundamentals**
**Geo Computer Fundamentals**

### 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
- [ ] Automatic Restrictions
- [ ] Contact Hours
- [ ] Repeat Status
- [ ] Cross-Listed/Stacked
- [ ] Registration Restrictions
- [ ] General Education Requirement
- [ ] Class
- [ ] Level
- [ ] College
- [ ] Major
- [ ] Other

### 9. Repeat Status No

- [ ] # of Repeats
- [ ] Max Credits

### 10. Grading Basis

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

### 11. Implementation Date

- Semester/year: Fall/2014 To: 99/9999

### 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 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>
<tr>
<td>1. AAS, Geomatics</td>
<td>N/A</td>
<td>T.B. Quimby</td>
</tr>
<tr>
<td>2. BS, Geomatics</td>
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<td>T.B. Quimby</td>
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<td>3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: _______ Date:

### 13b. Coordination Email

Date: 1/13/14
submitted to Faculty Listserv: [uaa-faculty@lists.uaa.alaska.edu](mailto:uaa-faculty@lists.uaa.alaska.edu)

### 13c. Coordination with Library Liaison

Date: 1/13/14

### 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)

**Course Description**

This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only)
**Jeff Hollingsworth**
Initiator (TYPE NAME) [ ] Approved [ ] Disapproved

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: __________________
**Course Action Request**

**University of Alaska Anchorage**

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<tr>
<td>3. Course Number</td>
<td>A246</td>
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<th>3</th>
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<tbody>
<tr>
<td>5b. Contact Hours</td>
<td>(Lecture + Lab) (3+0)</td>
</tr>
</tbody>
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---

**6. Complete Course Title**

Geomatics Computations II

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
- Automatic Restrictions
- Class
- Level
- Course Number
- Contact Hours
- Repeat Status
- Cross-Listed/Stacked
- Course Prerequisites
- Co-requisites
- Registration Restrictions
- General Education Requirement
- Other

---

**9. Repeat Status No**

- [ ] No

**# of Repeats**

- [ ] # of Repeats

**Max Credits**

- [ ] Max Credits

**10. Grading Basis**

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

**11. Implementation Date**

- Semester/year

**From:** Fall/2014

**To:** 99/9999

---

**12. Cross Listed with**

- [ ] Cross Listed
- [ ] Stacked

Cross-Listed Coordination Signature

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**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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**Initiator Name (typed):** T.B. Quimby

**Initiator Signed Initials:**

- [ ]

**Date:**

---

**13b. Coordination Email**

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

**13c. Coordination with Library Liaison**

Date: 1/13/14

---

**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)**

The course is a continuation of Geomatics Computations I. Principles and methods of Geomatics computations, coordinate transformations, spherical coordinate systems as applied to spherical astronomy and an introduction to the mathematical techniques used in Geographic Information Systems (GIS).

---

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

- GEO A146 and [MATH A201 or MATH A272 or any MATH course for which MATH A201 or MATH A272 is in the prerequisite chain] with minimum grade of C.

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

---

**16c. Automatic Restriction(s)**

- College
- Major
- Class
- Level

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

---

**17. Mark if course has fees Std CoEng Fee & new course fee**

- [x]

---

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

- [ ]

---

**19. Justification for Action**

This course is being added as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.
<table>
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<th>Date</th>
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<tbody>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jeff Hollingsworth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiator (TYPE NAME)</td>
<td></td>
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</tr>
<tr>
<td>Department Chair</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>College/School Curriculum Committee Chair</td>
<td></td>
<td></td>
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<td>Dean/Director of School/College</td>
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<tr>
<td>Provost or Designee</td>
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</tbody>
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I. Date Initiated: December 4, 2013  Date Revised: January 10, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GEO
   c. Course number: A246
   d. Number of credits and contact hours: 3.0 (3+0)
   e. Course title: Geomatics Computations II
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: The course is a continuation of Geomatics Computations I. Principles and methods of Geomatics computations, coordinate transformations, spherical coordinate systems as applied to spherical astronomy and an introduction to the mathematical techniques used in Geographic Information Systems (GIS).
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisites: [GEO A146 and [MATH A201 or MATH A272 or any MATH course for which MATH A201 or MATH A272 is in the prerequisite chain]] with minimum grade of C.
   m. Course fees: Yes, standard CoEng and a course fee

III. Course Level Justification
   This course builds on the concepts introduced in the prerequisite courses.

IV. Instructional Goals and Student Learning Outcomes:
   A. Instructional Goals:
      The instructor will:
      1. Explain mathematical techniques used in GIS, Remote Sensing and Geomatics
      2. Illustrate the use of matrix algebra in photogrammetry and other Geomatics applications
      3. Illustrate the use of differential and integral calculus in error propagation in Geomatics
      4. Explain how to perform coordinates transformations. Illustrate the use of spherical coordinate systems in geodetic astronomy
B. **Student Learning Outcomes & Assessment:**

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Recognize and interpret mathematical techniques used in GIS, remote sensing, and Geomatics</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>B. Demonstrate the use of matrix algebra in photogrammetry and other Geomatics applications.</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>C. Demonstrate the use of differential and integral calculus in error propagation in Geomatics.</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>D. Perform coordinate transformations</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>E. Demonstrate the use of spherical coordinate systems in geodetic astronomy</td>
<td>Assignments, Exams, Project</td>
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V. **Typical Course Outline**

1. **Characteristics of Geographic Information**
   1.1. Geographic information and data
   1.2. Categories of data
   1.3. Spatial referencing
   1.4. Lines and shapes

2. **Review and Application of Numbers And Numerical Analysis**
   2.1. The use of numbers in Geomatics
   2.2. The binary system: Image processing and data storage in remote sensing
   2.3. Square roots: Root Mean Square Error (RMSE)
   2.4. Indices and logarithms: aid in distance calculations
   2.5. Applied numerical analysis

3. **Review and Application of Algebra-Treating Numbers as Symbols**
   3.1. The Theorem of Pythagoras: distance calculation on the plane
   3.2. The equations for intersecting lines: Application in GIS geoprocessing tools
   3.3. Points in polygons for line smoothing in GIS
   3.4. The equation for a plane: use for orientation of an image in photogrammetry
   3.5. Further algebraic equations: Application in GIS geoprocessing tools
   3.6. Functions and graphs usage in GIS analysis
3.7. Interpolating intermediate values of Geomatics measurements: surface reconstruction

4. Review and Application of The Geometry Of Common Shapes
   4.1. Triangles and TIN models
   4.2. Polygons: GIS geoprocessing
   4.3. The sphere and the ellipse for geodetic computations

5. Review and Application of Plane And Spherical Trigonometry
   5.1. Basic plane trigonometric functions used in Geomatics
   5.2. Bearings and distances
   5.3. Spherical trigonometry

6. Review and Application of Differential And Integral Calculus
   6.1. Differentiating trigonometric functions: Error propagation
   6.2. Polynomial functions in Geomatics and GIS
   6.3. Integration in geodetic surveying

7. Review and Application of Matrices, Determinants And Vectors
   7.1. Basic matrix operations for spatial adjustments and photogrammetry
   7.2. Rotations and translations

8. Review and Application of Curves And Surfaces
   8.1. Parametric forms for geodesy
   8.2. The ellipse in geodesy
   8.3. Radius of curvature in geodesy
   8.4. Fitting curves to points in photogrammetry
   8.5. The Bezier curve for contour smoothing in GIS

9. Concepts of Coordinate Transformations and Projections
   9.1. Homogeneous coordinates: two dimensional and three dimensional transformations
   9.2. Affine
   9.3. Four Parameter
   9.4. Concepts of transformations in projections
VI. Suggested Text and Bibliography

A. Suggested Text:


B. Bibliography:

## Course Action Request

### University of Alaska Anchorage

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

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<tr>
<td>GEO</td>
<td>A248</td>
<td>N/A</td>
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<td>(Lecture + Lab) (2+2)</td>
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</table>

6. **Complete Course Title**

Digital Terrain Cartography

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

7. **Type of Course**

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

8. **Type of Action:**

- [ ] Add
- [ ] Change
- [x] 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: 99/9999

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 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).

13b. **Coordination Email**

Date: 1/13/14

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

13c. **Coordination with Library Liaison**

Date: 1/13/14

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)*

16a. **Course Prerequisite(s)**

(list prefix and number or test code and score)

16b. **Co-requisite(s)**

(concurrent enrollment required)

16c. **Automatic Restriction(s)**

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

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

(non-codable)

17. **Mark if course has fees**

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

19. **Justification for Action**

This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

---

**Initiator Name (typed): T.B. Quimby**

Initiator Signed Initials: __________

Date: __________

---

**Initiator (faculty only): Jeff Hollingsworth**

Initiator (TYPE NAME)

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<td>Geomatics BS</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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<tr>
<td>Geomatics AAS</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
</tr>
<tr>
<td>GEO A355</td>
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### University of Alaska Anchorage

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

### 1a. School or College

**EN SOENGR**

### 1b. Division

choose one

### 1c. Department

Geomatics

### 2. Course Prefix

GEO

### 3. Course Number

A256

### 4. Previous Course Prefix & Number

N/A

### 5a. Credits/CEUs

3

### 5b. Contact Hours

(Lecture + Lab) (2+3)

### 6. Complete Course Title

Engineering Surveying

Engr Surveying

Abbreviated Title for Transcript (30 character)

### 7. Type of Course

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

### 8. Type of Action:

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

**If a change, mark appropriate boxes:**

- [x] Prefix
- [ ] Credits
- [x] Contact Hours
- [x] Course Number
- [x] Repeat Status
- [x] Title
- [x] Cross-Listed/Stacked
- [ ] Grading Basis
- [ ] Co-requisites
- [ ] Test Score Prerequisites
- [ ] Registration Restrictions
- [ ] Course Prerequisites
- [ ] General Education Requirement
- [ ] Automatic Restrictions
- [ ] Cross-Listed Coordination Signature

### 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:** 99/9999

### 12. Cross Listed

- [ ] with

### 13a. Impacted Courses or Programs:

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

### 15. Course Description

(suggested length 20 to 50 words)

Theory and application of engineering surveying, including design and implementation of horizontal and vertical control, route surveys, horizontal and vertical curves, control surveys, quantity surveys, and mining surveys. Application of the theory of errors, error budgets, error simulation and calibration.

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

GEO A266 with a minimum grade of C.

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

GEO A265

### 16c. Automatic Restriction(s)

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

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

### 17. Mark if course has fees

- [ ] Std CoEng Fee and existing course fee

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

### 19. Justification for Action

This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

### Initiator (faculty only)

Jeff Hollingsworth

### Initiator Signed Initials:

Date:

---

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

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

**Approved**  
Undergraduate/Graduate Academic  
Date

**Disapproved**  
Board Chair  
Date

**Approved**  
Provost or Designee  
Date

**Disapproved**  
Provost or Designee  
Date

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85
### Box 13a

<table>
<thead>
<tr>
<th><strong>Course Being Changed:</strong></th>
<th>GEO A256</th>
<th><strong>Engineering Surveying (formerly Municipal and Civil Geomatics)</strong></th>
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<tr>
<td>GEO A490</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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</table>
I. Date Initiated: December 4, 2013  Date Revised: January 10, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GEO
   c. Course number: A256
   d. Number of credits and contact hours: 3.0 (2+3)
   e. Course title: Engineering Surveying
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Theory and application of engineering surveying, including design and implementation of horizontal and vertical control, route surveys, horizontal and vertical curves, control surveys, quantity surveys, and mining surveys. Application of the theory of errors, error budgets, error simulation and calibration.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisite: GEO A266 with a minimum grade of C
      Corequisite: GEO A265
   m. Course fees: Yes, standard CoEng and a course fee

III. Course Level Justification

   This is a third course in surveying Geomatics, which builds on earlier Geomatics and Math courses.

IV. Instructional Goals and Student Learning Outcomes:

   A. Instructional Goals.
      The instructor will:
      1. Explain the fundamentals of providing control for engineering surveying.
      2. Explain the theory of errors, error budgets, error simulation and calibration.
      3. Demonstrate designing, computing and laying out a variety of horizontal and vertical curves.
      4. Explain how to design and undertake surveys for volume and area determination.
      5. Explain the fundamentals of mining surveys.
6. Explain the fundamentals of route surveys.

B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Recognize the fundamentals of control for engineering surveying.</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>B. Demonstrate use of the theory of errors, error budgets, error simulation, and</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>calibration.</td>
<td></td>
</tr>
<tr>
<td>C. Design, compute, and lay out a variety of horizontal and vertical curves</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>D. Design and perform a survey for volume and area determination.</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>E. Recognize the fundamentals of mining surveys.</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>F. Recognize the fundamentals of utility, construction, and route surveys.</td>
<td>Assignments, Exams, Project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Survey Control
   1.1. Horizontal and vertical control
   1.2. Control methods for engineering surveys
   1.3. Quality and reliability of control
   1.4. Errors and their propagation
   1.5. Calibration of Survey Instruments and devices

2. Curves
   2.1. Horizontal curves
   2.2. Transition curves / spirals
   2.3. Vertical curves
   2.4. Design and staking positions

3. Quantity Surveys
   3.1. Area determination and calculation
   3.2. Volume determination and calculation
   3.3. Cuts and fills
   3.4. Laser and Global Navigation Satellite System (GNSS) controlled construction
4. Utility and Construction Surveys
   4.1. Road surveys
   4.2. Utility surveys
   4.3. Line and grade
   4.4. Building construction surveys
   4.5. As-built surveys

5. Mining Surveying
   5.1. Terminology and methods
   5.2. Azimuth and location transfer
   5.3. Borehole measurements
   5.4. Surveys for geophysical exploration

VI. Suggested Text and Bibliography

A. Suggested Text:


B. Bibliography:


1a. School or College
EN SOENG

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GEO

3. Course Number
A265

4. Previous Course Prefix & Number
GEO A365

5a. Credits/CEUs
3

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

6. Complete Course Title
Spatial Data Adjustments I
Spatial Data Adj I
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 Description
- Test Score Prerequisites
- Automatic Restrictions
- Other
- Course Number
- Contact Hours
- Repeat Status
- Cross-Listed/Stacked
- Course Prerequisites
- Registration Restrictions
- General Education Requirement
- Class
- Level
- College
- Major

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

10. Grading Basis
☒ A-F
☐ P/NP
☐ NG

11. Implementation Date
From: Fall/2014
To: 99/9999

12. ☐ Cross Listed with
☐ Stacked with

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>
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<th>Chair/Coordinator Contacted</th>
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<td>1. BS, Geomatics</td>
<td>N/A</td>
<td>T.B. Quimby</td>
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<td>2. GEO A460</td>
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<td>3. GIS A468</td>
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Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: __________ Date: __________

13b. Coordination Email
Date: 1/13/14
submitted to Faculty Listerve: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
Date: 1/13/14

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)
Fundamental concepts of statistical error analysis with applications to surveying measurements. Fundamental properties of data sets including measures of central tendency and measures of data variation are covered. Sampling distribution theory, statistical confidence intervals and testing, propagation of variance. Introduction to least squares adjustment.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
(GEO A246 and STAT A253) with a minimum grade of C.

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

16c. Automatic Restriction(s)
☐ College
☐ Major
☐ Class
☐ Level

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

17. ☒ Mark if course has fees Std CoEng fee & existing course fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.
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<tr>
<td>Jeff Hollingsworth</td>
<td></td>
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<tr>
<td>Initiator (TYPE NAME)</td>
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<th>Provost or Designee</th>
<th>Date</th>
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<th>Disapproved</th>
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</table>
I. Date Initiated: December 4, 2013  Date Revised: January 10, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GEO
   c. Course number: A265
   d. Number of credits and contact hours: 3.0 (3+0)
   e. Course title: Spatial Data Adjustments I
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Fundamental concepts of statistical error analysis with applications to surveying measurements. Fundamental properties of data sets including measures of central tendency and measures of data variation are covered. Sampling distribution theory, statistical confidence intervals and testing, propagation of variance. Introduction to least squares adjustment.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
   Prerequisites: [GEO A246 and STAT A253] with a minimum grade of C.
   m. Course fees: Yes, standard CoEng and a course fee

III. Course Level Justification

Builds on basic mathematical and statistical skills for Geomatics specific applications.

IV. Instructional Goals and Student Learning Outcomes:

A. Instructional Goals:
   The instructor will explain:
   1. The nature of errors in Geomatics data
   2. How errors propagate through spatial data processes
   3. How to model error propagation and develop an error budget
   4. The fundamentals of least squares adjustment as they apply in the Geomatics disciplines
   5. How to design and develop least squares adjustment for a wide range of Geomatics measurements
   6. How to undertake least squares adjustments for various Geomatics applications
B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be</td>
<td></td>
</tr>
<tr>
<td>able to:</td>
<td></td>
</tr>
<tr>
<td>A. Analyze Geomatics data and provide an error budget for</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>measurements.</td>
<td></td>
</tr>
<tr>
<td>B. Analyze the propagation of errors through sequential</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>processes.</td>
<td></td>
</tr>
<tr>
<td>C. Apply least squares adjustment to a Geomatics application.</td>
<td>Assignments, Exams, Project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Measurements
   1.1. Characteristics of measurements
   1.2. Kinds of measurements
   1.3. Definition of error
   1.4. Sources of errors
   1.5. Types of errors
   1.6. Quality of measurements
   1.7. Presence of errors in surveying observations
   1.8. Redundant observations
   1.9. Importance of adjustments
   1.10. Advantages of least squares

2. Observations and Their Analysis
   2.1. Definitions
   2.2. Methods of analyzing data
   2.3. Measures of central tendency
   2.4. Creating a histogram
   2.5. Common histogram shapes
   2.6. Measures of data variation
   2.7. Alternate method for computing sample variance
   2.8. Derivation of sample variance

3. Random Error Theory
   3.1. Theory of probability
   3.2. Properties of the normal distribution curve
   3.3. Probable errors
   3.4. Uses for percent errors
4. Confidence Intervals
   4.1. Sample versus population
   4.2. Sampling distributions
   4.3. Confidence intervals of population mean, variance and ratio

5. Statistical Testing
   5.1. Hypothesis testing
   5.2. Four parts of statistical testing
   5.3. Errors in statistical testing
   5.4. Type of tests

6. Propagation of Random Errors
   6.1. Analysis of error propagation
      6.1.1.1. General Law of the Propagation of Variances
      6.1.1.2. Special Law of the Propagation of Variances
   6.2. Standard error in a sum
   6.3. Standard error in the mean
   6.4. Error propagation in the formula for a cylindrical tank
   6.5. Horizontal distance
   6.6. Inaccessible point problem

7. Error Propagation in Angle and Distance Observations
   7.1. Direction and angle errors
   7.2. Estimated error in a horizontal angle
   7.3. Estimated angular misclosure in a traverse
   7.4. Estimated error in an EDM distance
   7.5. Use of EDM calibration baselines
   7.6. Errors in astronomically derived azimuths

8. Error Propagation in Traverse Surveys
   8.1. Derivation of error propagation formula
   8.2. Estimated errors in course azimuths
   8.3. Estimated error in traverse closure

9. Error Propagation in Elevation Determination
   9.1. Identification of systematic error sources in differential leveling
   9.2. Analysis of random errors in differential leveling
   9.3. Analysis of collimating errors
   9.4. Earth curvature and refraction
   9.5. Combined effect of systematic errors
   9.6. Analysis of random errors
   9.7. Trigonometric leveling

10. Weights in Observations
    10.1. Weighted mean
    10.2. Relation between weights and standard errors
10.3. Statistics of weighted observations  
10.4. Weights in angle observations  
10.5. Weights in differential leveling

11. Principles of Least Squares  
11.1. Fundamental principle for equal-weight and weighted case  
11.2. Stochastic model  
11.3. Functional model  
11.4. Observation equations  
   11.4.1. Systematic formation  
   11.4.2. Tabular methods  
   11.4.3. Matrix methods  
11.5. Fit of points  
   11.5.1. to a line  
   11.5.2. to a parabola  
11.6. Calibration of EDM  
11.7. Conditional equation;  
11.8. Observation equation with constraint

12. Adjustment of Level Nets  
12.1. Observation equation  
12.2. Unweighted example  
12.3. Weighted example  
12.4. Reference variance and standard deviation

13. Precision of Indirectly Determined Quantities  
13.1. Development of covariance matrix  
13.2. Standard deviations of computed quantities

VI. Suggested Text and Bibliography

A. Suggested Text:


B. Bibliography:

Advanced Surveying
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
- Test Score Prerequisites
- Co-requisites
- Registration Restrictions
- General Education Requirement
- Class
- Level
- College
- Major
- Other (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: 99/9999

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.

Impacted Program/Course | Date of Coordination | Chair/Coordinator Contacted |
------------------------|----------------------|-----------------------------|
1. BS, Geomatics        | N/A                  | T.B. Quimby                 |
2. AAS, Geomatics       | N/A                  | T.B. Quimby                 |
3.                      |                      |                             |

Initiator Name (typed): T.B. Quimby  
Initiator Signed Initials: _________  
Date:________________

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

13c. Coordination with Library Liaison  
Date: 1/13/14

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 survey measurement techniques. Use of conventional survey instrumentation, total stations and data controllers. Acquisition and retrieval of geomatics data from data controllers. Horizontal and vertical traversing and adjustment methods. Basics of Terrestrial LiDAR surveying and topographic surveying projects.

16a. Course Prerequisite(s) (list prefix and number or test code and score)  
[GEO A156 and GEO A157] with a minimum grade of C.

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

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

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

17. Mark if course has fees Std CoEng fee & existing course fee

18. Mark if course is a selected topic course

19. Justification for Action  
This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.
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<th>Date</th>
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</table>
COURSE CONTENT GUIDE

University of Alaska Anchorage, College of Engineering, Geomatics Dept.

I. Date Initiated: December 4, 2013  Date Revised: January 10, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GEO
   c. Course number A266
   d. Number of credits and contact hours: 3.0 (2+3)
   e. Course title: Advanced Surveying
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Advanced survey measurement techniques. Use of conventional survey instrumentation, total stations and data controllers. Acquisition and retrieval of geomatics data from data controllers. Horizontal and vertical traversing and adjustment methods. Basics of Terrestrial LiDAR surveying and topographic surveying projects.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisites: [GEO A156 and GEO A157] with a minimum grade of C.
   m. Course fees: Yes, standard CoEng and a course fee

III. Course Level Justification

   This course builds on the knowledge and skills gained in GEO A156 and GEO A157.

IV. Instructional Goals and Student Learning Outcomes:

   A. Instructional Goals:
      The instructor will:
      1. Demonstrate quickly and effectively setting up a total station instrument
      2. Explain how to use a data collector to collect measurements
      3. Explain how to code attributes in a data collector
      4. Explain downloading the data collector to a computer
      5. Explain how to perform least squares adjustment using computer software
      6. Explain how to process an electronic field file with computer software to achieve an automated process
7. Explain how to create a plan showing topography and site features with computer aided drafting software
8. Explain how to perform a survey using terrestrial LiDAR
9. Explain how to process a terrestrial LiDAR project

B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment methods</th>
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</thead>
<tbody>
<tr>
<td>Upon successful completion of this course students will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Quickly and effectively set up a total station instrument</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>B. Use a data collector to collect measurements and code attributes</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>C. Download the data collector to a computer</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>D. Perform least squares adjustment using computer software</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>E. Process an electronic field file with computer software to achieve an automated process</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>F. Create a plan showing topography and site features with computer aided drafting software</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>G. Use a terrestrial LiDAR scanner to collect data</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>H. Process terrestrial LiDAR data</td>
<td>Assignments, Exams, Project</td>
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V. Typical Course Outline

1. Safety
   1.1. General campus safety / emergency evacuation
   1.2. Vehicle traffic hazards during geomatics measurements
   1.3. Proper use and disposal of rechargeable batteries
   1.4. Electrical hazards during geomatics measurements
   1.5. Field safety
   1.6. Survey equipment safety
   1.7. Computer concerns and ergonomics
   1.8. Moose and bear safety

2. Field Survey Measurements Review
   2.1. Distance measurements
   2.2. Angle measurements
   2.3. Vertical measurements

3. Total Stations
   3.1. Conventional
   3.2. Reflectorless
4. Robotic

5. Field Survey Standards
   5.1. Methodology
   5.2. Alaska requirements

6. Data Controllers
   6.1. Use and functions
   6.2. Coding
   6.3. Data exchange

7. Least Squares Traverse Adjustment Computations using Software

8. Topographic Surveying
   8.1. Establishment horizontal and vertical control
   8.2. Field techniques
   8.3. Automated methods of data acquisition
   8.4. Process an electronic data file
   8.5. Topographic plan creation

9. Basics of Terrestrial LiDAR Surveying
   9.1. Collection
   9.2. Processing

VI. Suggested Text and Bibliography

A. Suggested Text:


B. Bibliography:


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

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<th>1b. Division</th>
<th>1c. Department</th>
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<th>2. Course Prefix</th>
<th>3. Course Number</th>
<th>4. Previous Course Prefix &amp; Number</th>
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<th>5b. Contact Hours (Lecture + Lab)</th>
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6. Complete Course Title
Boundary Law I
Abbreviated Title for Transcript (30 character)

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<th>7. Type of Course</th>
<th>8. Type of Action:</th>
<th>9. Repeat Status No</th>
<th># of Repeats</th>
<th>Max Credits</th>
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<td></td>
<td>Add or Change or Delete</td>
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If a change, mark appropriate boxes:
- Prefix
- Credits
- Title
- Grading Basis
- Course Description
- Test Score Prerequisites
- Automatic Restrictions
- Other

- Course Number
- Contact Hours
- Repeat Status
- Cross-Listed/Stacked
- Course Prerequisites
- Co-requisites
- Registration Restrictions
- General Education Requirement

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

11. Implementation Date
From: Fall/2014
To: 99/9999

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 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>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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<td>T.B. Quimby</td>
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Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: _________
Date: __________________

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

13c. Coordination with Library Liaison
Date: 1/13/14

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 survey measurement techniques. Use of conventional survey instrumentation, total stations and data controllers. Acquisition and retrieval of geomatics data from data controllers. Horizontal and vertical traversing and adjustment methods. Basics of Terrestrial LiDAR surveying and topographic surveying projects.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
[GEO A156 and ENGL A212] with a minimum grade of C.

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

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

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

17. Mark if course has fees Std CoEng fee & existing course fee

18. Mark if course is a selected topic course

19. Justification for Action
This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.
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<td></td>
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</tr>
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<td></td>
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☐ Approved  ☐ Disapproved  ☐ Approved  ☐ Disapproved  ☐ Approved  ☐ Disapproved  ☐ Approved  ☐ Disapproved
## Course Being Changed:

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<th>Date of Notification</th>
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<td>Legal Studies BA</td>
<td>1/13/14</td>
<td>Deb Periman</td>
</tr>
<tr>
<td>Geomatics BS</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
</tr>
<tr>
<td>Geomatics AAS</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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<tr>
<td>GEO A355</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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<tr>
<td>GEO A457</td>
<td>1/13/14</td>
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</tr>
<tr>
<td>GIS A369</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
</tr>
</tbody>
</table>
COURSE CONTENT GUIDE

University of Alaska Anchorage, College of Engineering, Geomatics Dept.

I. Date Initiated: December 4, 2013  Date Revised: January 10, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GEO
   c. Course number: A267
   d. Number of credits and contact hours: 3.0 (3+0)
   e. Course title: Boundary Law I
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Elements of boundary control and legal principles. Course topics include boundary history, ownership, rights, interests, title, transfer, and description of real property, the rectangular system, sequential conveyances, simultaneously created boundaries, and water boundary elements.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisites: [GEO A156 and ENGL A212] with a minimum grade of C.
   m. Course fees: Yes, standard CoEng and a course fee

III. Course Level Justification

   This course builds on the prerequisite courses.

IV. Instructional Goals and Student Learning Outcomes:

   A. Instructional Goals:
      The instructor will explain:
      1. Boundary history, ownership, rights, interests, title, transfer, and description of real property in the US as it applies to the Surveying Profession
      2. The Public Land Survey System
      3. The rules of evidence in locating sequential conveyances
      4. Application of location principles of simultaneously created boundaries, combination descriptions
      5. The significance of riparian and littoral boundaries, including riparian rights, navigability, public water, erosion, accretion, avulsion, reliction and other water boundary elements.
6. The significance of ethics and the judicial function of the Surveying Professional

B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to demonstrate an understanding of:</td>
<td></td>
</tr>
<tr>
<td>A. Boundary history, ownership, rights, interests, title, transfer, and description of real property as it applies to Land Surveying</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>B. The Public Land Survey System</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>C. The rules of evidence in locating sequential conveyances</td>
<td>Assignments, Exams, Project</td>
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<td>D. Application of location principles of simultaneously created boundaries, combination descriptions</td>
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<td>E. The significance of riparian and littoral boundaries, including riparian rights, navigability, public water, erosion, accretion, avulsion, reliction and other water boundary elements.</td>
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<tr>
<td>F. The significance of ethics and the judicial role of the Surveying Professional</td>
<td>Assignments, Exams, Project</td>
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V. Typical Course Outline

1. History of Boundaries
   1.1. Significance
   1.2. Historical development of property surveying
   1.3. Sovereign rights
   1.4. How boundaries are created
   1.5. Common law
   1.6. The difference between right, title, and interest
   1.7. Easements and licenses
   1.8. Servitudes, covenants, restrictions, and liens

2. Boundary Creation
   2.1. Methodologies
2.2. Who may create boundaries  
2.3. Distinction between comers and monuments  
2.4. The sanctity of the original survey  

3. Ownership, Transfer, and Description of Real Property  
3.1. Distinction between private and public lands  
3.2. Sources of title  
3.3. Methods of transferring title  
3.4. Chain of title  
3.5. Unwritten rights  
3.6. Elements and types of deeds and descriptions  
3.7. Deeds of trust, mortgages, and other instruments  

4. Boundaries Law, and Presumptions  
4.1. Constitutional law  
4.2. Statute law  
4.3. Common law  
4.4. Administrative law  
4.5. Sovereign immunity  
4.6. Acts, judicial notice, and presumptions  

5. The Creation of General Land Office (GLO) Boundaries  
5.1. U.S. Public Lands Survey System (PLSS)  
5.2. History and evolution, the Rectangular System  
5.3. Sections and townships  
5.4. Original surveys  
5.5. Relationships of plats, field notes, monuments, and accessories  

6. Creation of Non-Sectionalized Boundaries  
6.1. Various methods of creating  
6.2. Metes and bounds  
6.3. Exception area, distance, proportion, and division  
6.4. Types, calls for, and properties of monuments  
6.5. Deed terms  
6.6. Coordinate systems and datums  
6.7. Subdivision descriptions  
6.8. Protraction  
6.9. Features of planning acts  
6.10. Writing legal descriptions  

7. Federal and State Non-Sectionalized Land Surveys  
7.1. Types in other states  
7.2. U.S. Mineral Surveys  
7.3. Mill sites  

8. Locating Easements and Reversions
8.1. Federal restrictions on access
8.2. Native lands
8.3. Alaska Easement Law
8.4. Alaska Statutes on vacation of easements

9. Riparian and Littoral Boundaries
  9.1. Riparian boundaries and rights
  9.2. Submerged lands
  9.3. Navigability
  9.4. Public Trust Doctrine
  9.5. Public water
  9.6. Erosion, accretion, avulsion, and reliction
  9.7. Other water boundary elements

10. Locating Sequential Conveyances
  10.1. Relationship of junior and senior parcels
  10.2. Order of title elements
  10.3. Intent of the parties of deeds
  10.4. Types of monuments
  10.5. Mathematical correctness
  10.6. Location of monuments
  10.7. Lines of possession
  10.8. Superiority of calls
  10.9. Common customs of other surveyors
  10.10. Control by direction and distance
  10.11. Importance of area

11. Locating Simultaneously Created Boundaries (Subdivisions)
  11.1. Parcels without junior or senior rights
  11.2. Parcels sold according to plat
  11.3. Importance of boundary monuments
  11.4. Conflicting monuments
  11.5. Streets and alleys
  11.6. Establishment of lots
  11.7. Treatment of excess and deficiency

12. The Role of the Surveyor; Ethics and Moral Responsibilities
VI. Suggested Text and Bibliography

A. Suggested Text:


B. Bibliography:


### Course Action Request

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

<table>
<thead>
<tr>
<th>1. School or College</th>
<th>EN SOENGR</th>
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<tbody>
<tr>
<td>2. Course Prefix</td>
<td>GEO</td>
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<tr>
<td>3. Course Number</td>
<td>A301</td>
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<td>4. Previous Course Prefix &amp; Number</td>
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<tr>
<td>5a. Credits/CEUs</td>
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<tr>
<td>5b. Contact Hours</td>
<td>(Lecture + Lab)</td>
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#### Complete Course Title

**Geomatics Professional Development I**

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

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<th>7. Type of Course</th>
<th>☑ Academic</th>
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<td>☐ Preparatory/Development</td>
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<td>☐ Non-credit</td>
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<td>☐ CEU</td>
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<tr>
<td></td>
<td>☐ Professional Development</td>
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| 8. Type of Action: | ☐ Add  or ☐ Change  or ☑ Delete |

**If a change, mark appropriate boxes:**

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

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<th>☐ P/NP</th>
<th>☐ NG</th>
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<td>To: 99/9999</td>
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<th>☐ Stacked with</th>
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**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](http://www.uaa.alaska.edu/governance).

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**Initiator Name (typed):** T.B. Quimby  
**Initiator Signed Initials:** __________  
**Date:** __________

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<th>Quantitative Skills</th>
<th>Humanities</th>
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<td>Mark appropriate box:</td>
<td>Fine Arts</td>
<td>Social Sciences</td>
<td>Natural Sciences</td>
<td>Integrative Capstone</td>
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| 15. Course Description (suggested length 20 to 50 words) |  |

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<th>16a. Course Prerequisite(s) (list prefix and number or test code and score)</th>
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<th>17. ☐ Mark if course has fees</th>
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<th>18. ☐ Mark if course is a selected topic course</th>
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<th>19. Justification for Action</th>
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This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

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

1a. School or College  
EN SOENGR

1b. Division  
choose one

1c. Department  
Geomatics

2. Course Prefix  
GEO

3. Course Number  
A302

4. Previous Course Prefix & Number  
N/A

5a. Credits/CEUs  
1

5b. Contact Hours  
(Lecture + Lab)  
(0+2)

6. Complete Course Title  
Geomatics Professional Development II

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
- Automatic Restrictions
- Other (please specify)

9. Repeat Status No  # of Repeats  Max Credits

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

11. Implementation Date  
From: Fall/2014  
To: 99/9999

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.

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Jeff Hollingsworth
Initiator (TYPE NAME)

☑ Approved  ☐ Disapproved
Dean/Director of School/College  Date

☑ Approved  ☐ Disapproved
Undergraduate/Graduate Academic  Date
Board Chair

☑ Approved  ☐ Disapproved
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Department Chair  Date

☑ Approved  ☐ Disapproved
College/School Curriculum Committee Chair  Date
1a. School or College
EN SOENGR

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GEO

3. Course Number
A303

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
1

5b. Contact Hours
(Lecture + Lab)
(0+2)

6. Complete Course Title
Geomatics Professional Development III

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
- Automatic Restrictions
- Other (please specify)
- Course Number
- Contact Hours
- Repeat Status
- Cross-Listed/Stacked
- Course Prerequisites
- Registration Restrictions
- General Education Requirement

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: 99/9999

12. Cross Listed with
☒ Stacked with
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Initiator Signed Initials: ____________ Date: ____________

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Date: 1/13/14
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Date: 1/13/14

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16c. Automatic Restriction(s)
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☐ Major
☐ Class
☐ Level

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action

This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

Initiator (faculty only)
Jeff Hollingsworth
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved

Date

Dean/Director of School/College
Date

Undergraduate/Graduate Academic
Date

Board Chair
Date

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

1a. School or College
EN SOENGR

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GEO

3. Course Number
A355

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(2+2)

6. Complete Course Title
Land Development and Design
Land Dev & Design

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 ☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked ☐ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites ☐ Registration Restrictions
☐ Automatic Restrictions ☐ General Education Requirement
☐ Class ☐ Level ☐ Other ☐ (please specify)
☐ College ☐ Major

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

10. Grading Basis
☒ A-F ☐ P/NP ☐ NG

11. Implementation Date
From: Fall/2014 To: 99/9999

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 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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<tbody>
<tr>
<td>1. BS, Geomatics</td>
<td>N/A</td>
<td>T.B. Quimby</td>
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</table>

Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: _________ Date: __________________

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

13c. Coordination with Library Liaison
Date: 1/13/14

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)


16a. Course Prerequisite(s) (list prefix and number or test code and score)
[GEO A156 and ENGL A212] with a minimum grade of C.

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

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

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

17. ☒ Mark if course has fees Std CoEng fee & existing course fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action

This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.
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<td>Jeff Hollingsworth</td>
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<th>Date</th>
<th>Approved</th>
<th>Disapproved</th>
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<th>Disapproved</th>
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I. **Date Initiated**: December 4, 2013  **Date Revised**: January 10, 2014

II. **Course Information**
   a. College: EN
   b. Course prefix: GEO
   c. Course number: A355
   d. Number of credits and contact hours: 3.0 (2+2)
   e. Course title: Land Development and Design
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisites: [GEO A157 and GEO A267] with a minimum grade of C.
   m. Course Fees: Yes, standard CoEng and a course fee

III. **Course Level Justification**

   This is an upper division course in surveying Geomatics, which builds on earlier Geomatics courses.

IV. **Instructional Goals and Student Learning Outcomes:**

   A. **Instructional Goals:**
      The instructor will explain:
      1. The concepts governing land development and design
      2. The regulations governing the development process
      3. The regulations governing the mapping process
      4. The permitting process and governmental jurisdictions involved
      5. How to design and implement a subdivision map
B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Demonstrate an understanding of the concepts governing land development and design</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>B. Demonstrate an understanding of the regulations governing the development process</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>C. Demonstrate an understanding of the regulations governing the mapping process</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>D. Demonstrate an understanding of the permitting process and governmental jurisdictions involved</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>E. Design and produce a subdivision map</td>
<td>Assignments, Exams, Project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Concepts Governing Land Development
   1.1. Topographical mapping
   1.2. Soils analysis
   1.3. Environmental impact statements
   1.4. Aesthetic principles
       1.4.1. Curvilinear design
       1.4.2. Site planning
   1.5. Economic considerations
   1.6. Ethical considerations

2. Regulations Governing Land Development
   2.1. Federal regulations
   2.2. State regulations
   2.3. Local platting regulations

3. Regulations Governing Mapping
   3.1. Federal regulations
   3.2. State regulations
   3.3. Local platting regulations

4. Permit Processes
   4.1. Department of Environmental Conservation
   4.2. Corps of Engineers
4.3. Boroughs
4.4. Bureau of Land Management
4.5. Bureau of Indian Affairs

5. Mapping of Subdivisions
   5.1. Aesthetic principles in mapping
   5.2. Geometric design
   5.3. Certificates
   5.4. Notes

VI. Suggested Text and Bibliography

A. Suggested Text:

Materials from state, regional and local governing regulatory documents.

B. Bibliography:

Materials from state, regional and local governing regulatory documents.
### 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>3. Course Number</td>
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<td>4. Previous Course Prefix &amp; Number</td>
<td>GEO A257</td>
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<td>5a. Credits/CEUs</td>
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<td>5b. Contact Hours</td>
<td>(Lecture + Lab) (2+2)</td>
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**Complete Course Title**  
Photogrammetry

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

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<th>6. Type of Course</th>
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<td>Title</td>
<td>Cross-Listed/Stacked</td>
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<td>Course Description</td>
<td>Course Prerequisites</td>
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<tr>
<td>Test Score Prerequisites</td>
<td>Co-requisites</td>
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<tr>
<td>Automatic Restrictions</td>
<td>Registration Restrictions</td>
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| 10. Grading Basis | A-F | P/ NP | NG |

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<tr>
<td>1. See attached checklist</td>
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**Initiator Name (typed): T.B. Quimby**  
Initiator Signed Initials: _______  
Date: _______

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<th>13b. Coordination Email</th>
<th>Date: 1/13/14</th>
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<td>submitted to Faculty Listserv: <a href="mailto:uaa-faculty@lists.uaa.alaska.edu">uaa-faculty@lists.uaa.alaska.edu</a></td>
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<th>14. General Education Requirement</th>
<th>Oral Communication</th>
<th>Written Communication</th>
<th>Quantitative Skills</th>
<th>Humanities</th>
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<td>Mark appropriate box:</td>
<td>Fine Arts</td>
<td>Social Sciences</td>
<td>Natural Sciences</td>
<td>Integrative Capstone</td>
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| 15. Course Description (suggested length 20 to 50 words) | |
|--------------------------------------------------------| |
| Introduction to principles of optics and image formation, aerial and terrestrial cameras, lens distortions, close-range photogrammetry, stereoscopic image acquisition and measurements, 3D model reconstruction, and aerial photogrammetry. |

| 16a. Course Prerequisite(s) (list prefix and number or test code and score) | 16b. Co-requisite(s) (concurrent enrollment required) |
| [ENGL A212 and GEO A246 and GIS A351] with a minimum grade of C. | |

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<th>16c. Automatic Restriction(s)</th>
<th>16d. Registration Restriction(s) (non-codable)</th>
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<tbody>
<tr>
<td>College</td>
<td>Major</td>
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| 17. | Mark if course has fees Std CoEng fee |

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

| 19. Justification for Action | This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents. |

---

**Initiator (faculty only)**  
Jeff Hollingsworth  
Initiator (TYPE NAME)  
Initiator Signed Initials: _______  
Date: _______

**Approved**

**Disapproved**

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

**Undergraduate/Graduate Academic Board Chair**  
Date: _______

**Provost or Designee**  
Date: _______
## Course Being Changed:

<table>
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<tr>
<th>Impact Program or Course</th>
<th>Date of Notification</th>
<th>Chair/Coordinator Contacted</th>
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<td>Geomatics BS</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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<td>Geomatics AAS</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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<tr>
<td>GEO A467</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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I. **Date Initiated:** December 19, 2013  **Date Revised:** January 10, 2014

II. **Course Information**
   - **College:** EN
   - **Course prefix:** GEO
   - **Course number:** A357
   - **Number of credits and contact hours:** 3.0 (2+2)
   - **Course title:** Photogrammetry
   - **Grading Basis:** A-F
   - **Implementation date:** Fall 2014
   - **Cross listing:** None
   - **Stacking:** None
   - **Course Description:** Introduction to principles of optics and image formation, aerial and terrestrial cameras, lens distortions, close-range photogrammetry, stereoscopic image acquisition and measurements, 3D model reconstruction, and aerial photogrammetry.
   - **Course attributes:** None
   - **Course registration prerequisites/restrictions:** Prerequisites: [ENGL A212 and GEO A246 and GIS A351] with a minimum grade of C.
   - **Course fees:** Yes, standard CoEng course fee

III. **Course Level Justification**

   This course provides the students with the fundamental theory and skills of introductory photogrammetry based on topics provided in the prerequisite courses. It teaches the student to implement fundamental photogrammetric works.

IV. **Instructional Goals and Student Learning Outcomes:**

   A. **Instructional Goals.**
      
      The instructor will:
      1. Provide overview of basic concepts of geometric and physical optics relevant to photogrammetry
      2. Explain methods and introduce techniques of camera calibration
      3. Provide overview of film and digital cameras used in photogrammetry
      4. Introduce basic techniques of image acquisition
      5. Explain basic geometrical concepts of stereo photogrammetry
      6. Introduce basic techniques of image acquisition
7. Explain principles of image measurements and calculations of coordinates of an object
8. Introduce principles of automated 3D model reconstruction
9. Introduce basic steps of aerial photogrammetric surveying and map compilation

B. Student Learning Outcomes & Assessment:

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<tr>
<td>Upon successful completion of this course a student will be able to:</td>
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<tr>
<td>A. Demonstrate understanding of the theory of photogrammetry</td>
<td>Homework assignments, technical reports, exams</td>
</tr>
<tr>
<td>B. Implement basic steps of camera calibration</td>
<td>Homework assignments, technical reports, exams</td>
</tr>
<tr>
<td>C. Implement basic steps of close-range photogrammetry</td>
<td>Homework assignments, technical reports, exams</td>
</tr>
<tr>
<td>D. Reconstruct 3D models using multi-view images</td>
<td>Homework assignments, technical reports, exams</td>
</tr>
<tr>
<td>E. Demonstrate understanding of the basic steps of aerial photogrammetric surveying</td>
<td>Homework assignments, technical reports, exams</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Introduction
   1.1. History
   1.2. Types of photographs
   1.3. Taking aerial photographs
   1.4. Uses of photogrammetry

2. Optics for Photogrammetry
   2.1. Introduction
   2.2. Physics and geometry of lenses
   2.3. Snell’s law

3. Principles of Photogrammetry
   3.1. Introduction
   3.2. Characteristics of aerial cameras
   3.3. Photographic process
   3.4. Digital cameras

4. Aerial Cameras
   4.1. Introduction
   4.2. Types of cameras
4.3. Parts of cameras
4.4. Camera calibrations

5. Photographic Measurements and Refinement
   5.1. Introduction
   5.2. Photo coordinate system
   5.3. Coordinate corrections

6. Vertical Photographs
   6.1. Geometry of vertical photographs
   6.2. Scale
   6.3. Relief displacement
   6.4. Error evaluation

7. Elements of Analytical Photogrammetry
   7.1. Single image and image stereopair
   7.2. Geometric constrains
   7.3. Collinearity
   7.4. Co-planarity

8. Measurements in Image Stereopair
   8.1. Vertical parallax
   8.2. Horizontal parallax
   8.3. Interior orientation
   8.4. Relative orientation
   8.5. Exterior (absolute) orientation

9. 3D modeling
   9.1. Multi-view geometry
   9.2. Automated 3D model reconstruction

10. Project Planning
    10.1. Flight planning
    10.2. Control surveys
    10.3. Photographic considerations
    10.4. Flight map

11. Aerial Surveying
    11.1. Mapping project
    11.2. Project definition
    11.3. Photogrammetric mapping
VI. Suggested Text and Bibliography

A. Suggested Text:

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

1a. School or College
EN SOENGR

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GEO

3. Course Number
A358

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(2+2)

6. Complete Course Title
Programming for Digital Cartography

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
☐ Automatic Restrictions
☐ Other
☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Co-requisites
☐ Registration Restrictions
☐ General Education Requirement

9. Repeat Status No
# of Repeats
Max Credits

10. Grading Basis
☒ A-F
☐ P/NO
☐ NG

11. Implementation Date
From: Fall/2014
To: 99/9999

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.
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<td>T.B. Quimby</td>
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Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: __________ Date: __________

13b. Coordination Email
Date: 1/13/14
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
Date: 1/13/14

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)

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

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

16c. Automatic Restriction(s)
☐ College
☐ Major
☐ Class
☐ Level

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

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

Initiator (faculty only)
Jeff Hollingsworth

Initiator (TYPE NAME)

☑ Approved
☐ Disapproved

Dean/Director of School/College
Date

Undergraduate/Graduate Academic
Date

Board Chair
Date

Provost or Designee
Date

123
Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

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<td>5b. Contact Hours (Lecture + Lab)</td>
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6. Complete Course Title
Geodesy and Map Projections
Geo & Map Projections
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
- ☐ Automatic Restrictions
- ☐ Other

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: 99/9999

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 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>Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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<tr>
<td>Initiated Program/Course</td>
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<tr>
<td>1. See attached checksheet</td>
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Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: __________
Date: __________

13b. Coordination Email
Date: 1/13/14
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
Date: 1/13/14

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)
Introduction to geometrical and physical geodesy. Computations on the ellipsoid. Elements of datums. Map projections and state plane coordinate systems.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
GEO A246 with a minimum grade of C.

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

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

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

17. ☑ Mark if course has fees Std CoEng fee & existing course fee

18. ☑ Mark if course is a selected topic course

19. Justification for Action
This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only)
Jeff Hollingsworth
Initiator (TYPE NAME)

Approved
Disapproved

Date

Dean/Director of School/College

Approved
Disapproved

Date

Undergraduate/Graduate Academic

Approved
Disapproved

Date

Board Chair

Approved
Disapproved

Date

Provost or Designee
### Box 13a

<table>
<thead>
<tr>
<th>Impacted Program or Course</th>
<th>Date of Notification</th>
<th>Chair/Coordinator Contacted (not listerve)</th>
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<tr>
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<td>1/13/14</td>
<td>Khyrs Duddleston</td>
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<tr>
<td>Geomatics BS</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
</tr>
<tr>
<td>GEO A359</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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<tr>
<td>GEO A460</td>
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<td>GEO A466</td>
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<tr>
<td>GEO A468</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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</table>
I. Date Initiated: December 4, 2013   Date Revised: January 10, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GEO
   c. Course number A359
   d. Number of credits and contact hours: 3.0 (3+0)
   e. Course title: Geodesy and Map Projections
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking None
   j. Course Description: Introduction to geometrical and physical geodesy. Computations on the ellipsoid. Elements of datums. Map projections and state plane coordinate systems.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisite: GEO A246 with a minimum grade of C.
   m. Course fees: Yes, standard CoEng and a course fee

III. Course Level Justification

This course builds on concepts from lower division courses and prepares students for upper division course.

IV. Instructional Goals and Student Learning Outcomes:

A. Instructional Goals:
   The instructor will explain:
   1. The geometry of the ellipsoid, computations on the ellipsoid and respective direct and inverse solutions
   2. How scale factors are applied to measured and calculated values
   3. The concepts and mathematics of map projections
   4. The concepts and mathematics of coordinate transformation calculations
   5. The concepts and mathematics of map projection formula for Alaska State Plane computations for direct and inverse solutions
B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Perform computations on the ellipsoid and respective direct and inverse solutions</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>B. Apply scale factors to measured and calculated values</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>C. Demonstrate an understanding of the concepts and calculations of map projections</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>D. Apply the concepts and mathematics of coordinate transformation calculations</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>E. Apply concepts and mathematics of map projection formula to Alaska State Plane computations for direct and inverse solutions</td>
<td>Assignments, Exams, Project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Introduction to Geodetic Surveying
   1.1. History of geodesy
   1.2. Basic concepts and definitions of geodesy

2. The Earth as a Sphere
   2.1. Spherical excess
   2.2. Sea level reduction
   2.3. Computations of a quadrilateral

3. The Ellipsoid of Revolution as a Mathematical Model of the Earth
   3.1. Analysis of the geometry of the ellipsoid
   3.2. Computational methods

4. Gravity Models
   4.1. Geoid heights
   4.2. Deflection of the vertical

5. Map Projections
   5.1. Basic concepts and definitions
   5.2. Properties of various projections
6. State Plane Coordinate System
   6.1. Basic concepts and overview
   6.2. Alaska State Plane Coordinate System
   6.3. State plane computations

7. Universal Transverse Mercator (UTM) Coordinate System
   7.1. General scheme and purpose
   7.2. Formulas and methods

8. Coordinates Transformations
   8.1. Between 3D and geographic
      8.1.1. Direct transformation
      8.1.2. Inverse transformation
   8.2. Between geographic and state plane
      8.2.1. Direct transformation
      8.2.2. Inverse transformation
   8.3. Between different ellipsoids

9. Elements of Datums
   9.1. Horizontal datums
   9.2. Vertical datums
   9.3. Local datums

10. Gobal Datums

11. Datum Transformations

VI. Suggested Text and Bibliography

A. Suggested Text:


B. 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>
<tr>
<td>EN SOENGR</td>
<td>choose one</td>
<td>Geomatics</td>
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<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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<tbody>
<tr>
<td>GEO</td>
<td>A366</td>
<td>N/A</td>
<td>3</td>
<td>(3+0)</td>
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<tr>
<th>6. Complete Course Title</th>
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<tr>
<td>Spatial Data Adjustments II</td>
</tr>
<tr>
<td>Spatial Data Adj II</td>
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<table>
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<tr>
<th>7. Type of Course</th>
<th>8. Type of Action:</th>
<th>9. Repeat Status No</th>
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<td>☑ Add or ☐ Change or ☐ Delete</td>
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<th>11. Implementation Date</th>
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<td>☑ A-F</td>
<td>From: Fall/2014 To: 99/9999</td>
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<tr>
<th>12. ☐ Cross Listed with</th>
<th>☐ Stacked with</th>
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### 13a. Impacted Courses or Programs

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<th>Impacted Program/Course</th>
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<td>1. BS, Geomatics</td>
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<td>T.B. Quimby</td>
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**Initiator Name (typed): T.B. Quimby**  
Initiator Signed Initials: _________  
**Date:**

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

**13c. Coordination with Library Liaison**  
**Date:** 1/13/14

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<th>14. General Education Requirement</th>
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<td>Theory and mechanics of a least squares adjustment using the traditional surveying observations of distances, angles, azimuths, and elevation differences. Post-adjustment analysis through the use of various statistical tests and error ellipse computation and analysis. Least squares adjustment and analysis of differential leveling, triangulation, trilateration, traverse, and network observations.</td>
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<tr>
<th>16a. Course Prerequisite(s) (list prefix and number or test code and score)</th>
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<td>GEO A265 with a minimum grade of C.</td>
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| 16b. Co-requisite(s) (concurrent enrollment required) |

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<th>16c. Automatic Restriction(s)</th>
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<td>☐ Major</td>
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<tr>
<td>☐ Class</td>
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<tr>
<td>☐ Level</td>
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| 16d. Registration Restriction(s) (non-codable) |

| 17. ☑ Mark if course has fees Std CoEng fee & new course fee |

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

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<th>19. Justification for Action</th>
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<td>This course is being added as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.</td>
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<tr>
<th>Initiator (faculty only)</th>
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<tbody>
<tr>
<td>Jeff Hollingsworth</td>
</tr>
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</table>

**Initiator (TYPE NAME)**  
**Date:**

<table>
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<tr>
<th>Dean/Director of School/College</th>
<th>Date</th>
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<th>Date</th>
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<th>Provost or Designee</th>
<th>Date</th>
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<tbody>
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<tbody>
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<td>Date</td>
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</table>
I. **Date Initiated**: December 4, 2013  **Date Revised**: January 10, 2014

II. **Course Information**  
   a. College: EN  
   b. Course prefix: GEO  
   c. Course number: A366  
   d. Number of credits and contact hours: 3.0 (3+0)  
   e. Course title: Spatial Data Adjustments II  
   f. Grading Basis: A-F  
   g. Implementation date: Fall 2014  
   h. Cross listing: None  
   i. Stacking: None  
   j. Course Description: Theory and mechanics of a least squares adjustment using the traditional surveying observations of distances, angles, azimuths, and elevation differences. Post-adjustment analysis through the use of various statistical tests and error ellipse computation and analysis. Least squares adjustment and analysis of differential leveling, triangulation, trilateration, traverse, and network observations.  
   k. Course attributes: None  
   l. Course registration prerequisites/restrictions:  
      Prerequisite: GEO A265 with a minimum grade of C.  
   m. Course fees: Yes, standard CoEng and a course fee

III. **Course Level Justification**  
   Builds upon previous course work and requires familiarity with the concepts, methods, and vocabulary of the discipline.

IV. **Instructional Goals and Student Learning Outcomes:**

A. **Instructional Goals:**  
   The instructor will explain:  
   1. The application of least squares adjustment to triangulation, trilateration, traverse, GNSS.  
   2. The application of least squares adjustment to coordinate transformations  
   3. Error ellipse and blunder detection  
   4. The analysis of the post adjustment process  
   5. Computer optimization techniques in adjustment
B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
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<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
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<tr>
<td>A. Apply least squares adjustment to triangulation, trilateration, traverse, GNSS.</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>B. Apply least squares adjustment to coordinate transformations</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>C. Perform error ellipse computations and blunder detection</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>D. Analyze a post adjustment report</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>E. Explain computer optimization methods for adjustment</td>
<td>Assignments, Exams, Project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Trilateration Surveys
   1.1. Distance observation equation
   1.2. Intersection example
   1.3. Formulation of coefficient matrix
   1.4. Iteration termination
      1.4.1. Maximum iterations
      1.4.2. Maximum correction
      1.4.3. Monitoring reference variance

2. Triangulation Surveys
   2.1. Azimuth observation equation
   2.2. Angle observation equation
   2.3. Examples
      2.3.1. Intersections
      2.3.2. Resections
      2.3.3. Quadrilaterals

3. Adjustment of Traverse and Networks
   3.1. Traverse example
   3.2. Minimum amount of control
   3.3. Network example
4. Adjustment of GNSS Networks
   4.1. Observation equation
   4.2. Reference coordinate systems and conversions
   4.3. Pre-adjustment analysis
      4.3.1. Fixed baseline observations
      4.3.2. Repeat baseline observations
      4.3.3. Loop closures

5. Coordinate Transformations
   5.1. Two-dimensional transformations
      5.1.1. Conformal observation equation
      5.1.2. Affine observation equation
      5.1.3. Projective observation equation
   5.2. Three-dimensional transformation
   5.3. Statistically valid parameters

6. Error Ellipse
   6.1. Development of equations
   6.2. Confidence levels
   6.3. Uses in network design
   6.4. Other measures of station uncertainty

7. Constraint Equations
   7.1. Adjustment of control
   7.2. Method of elimination of constraints
      7.2.1. Holding azimuth of a line fixed
   7.3. Helmert's method
      7.3.1. Holding azimuth of a line fixed
   7.4. Redundancies in a constrained adjustment
   7.5. Overweighting method

8. Blunder Detection in Horizontal Networks
   8.1. A priori methods for detecting blunders
   8.2. Development of covariance matrix for residuals
   8.3. Statistical detection of outliers
      8.3.1. Data snooping
      8.3.2. Tau criterion
   8.4. Adjusting control
   8.5. Internal and external reliability
   8.6. Survey design

9. Method of General Least Squares Adjustment
   9.1. The general least squares solution
   9.2. Fitting points to a straight line
   9.3. Coordinate transformations
   9.4. Two-dimensional transformations
9.4.1. Conformal
9.4.2. Affine
9.4.3. Projective
9.5. Three-dimensional transformation

10. Three-Dimensional Geodetic Network Adjustment
10.1. Linearization of observation equations
   10.1.1. Slant distances
   10.1.2. Azimuths
   10.1.3. Vertical angles
   10.1.4. Horizontal angles
   10.1.5. Differential leveling
   10.1.6. Horizontal distances
10.2. Minimum number of constraints
10.3. Systematic errors

11. Combining GNSS and Terrestrial Observations
11.1. Development of Helmert transformation
11.2. Rotations between coordinate systems
11.3. Combining GNSS baseline vectors with terrestrial observations
11.4. Localization

12. Analysis of Adjustments
12.1. Basic concepts and analysis of residuals
12.2. Goodness of fit test
12.3. Comparison of residual plots
12.4. Statistical blunder detection

13. Computer Optimization
13.1. Storage optimization
13.2. Direct formation of normal equations
13.3. Cholesky decomposition and solution of normal equations
13.4. Cholesky factor inverse
13.5. Optimization of sparseness of normal matrix
VI. Suggested Text and Bibliography

A. Suggested Text:


B. Bibliography:

1a. School or College
**EN SOENGR**

1b. Division
**choose one**

1c. Department
**Geomatics**

2. Course Prefix
**GEO**

3. Course Number
**A369**

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

5a. Credits/CEUs
**3**

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

6. Complete Course Title
**Cadastral Surveys**

**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**

or **[ ] Change**

or **[ ] Delete**

If a change, mark appropriate boxes:

[ ] Prefix
[ ] Credits
[ ] Title
[ ] Grading Basis
[ ] Course Description
[ ] Test Score Prerequisites
[ ] Automatic Restrictions
[ ] Other

9. Repeat Status No

[ ] # of Repeats

[ ] Max Credits

10. Grading Basis

[ ] A-F

[ ] P/NP

[ ] NG

11. Implementation Date

From: Fall/2014

To: 99/9999

12. [ ] Cross Listed with

[ ] Stacked with

[ ] Cross-Listed Coordination Signature

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List any programs or college requirements that require this course.

Please type field 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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<td>N/A</td>
<td>T.B. Quimby</td>
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Initiator Name (typed): **T.B. Quimby**

Initiator Signed Initials: _____

Date: __________

13b. Coordination Email

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

13c. Coordination with Library Liaison

Date: __________

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)

Discusses the United States Public Land Survey System with emphasis on Alaska; sectionalized land subdivision, corner restoration, resurveys, evidence, sources for legal research, and current BLM procedures and regulations.

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

**GEO A267** with a minimum grade of C.

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

16c. Automatic Restriction(s)

[ ] College

[ ] Major

[ ] Class

[ ] Level

17. [X] Mark if course has fees Std CoEng fee & new course fee

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

19. Justification for Action

This course is being added as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only)

**Jeff Hollingsworth**

Initiator (TYPE NAME)

[ ] Approved

[ ] Disapproved

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
I. **Date Initiated:** December 4, 2013  **Date Revised:** January 10, 2014

II. **Course Information**

a. College: EN  
b. Course prefix: GEO  
c. Course number: A369  
d. Number of credits and contact hours: 3.0 (3+0)  
e. Course title: Cadastral Surveys  
f. Grading Basis: A-F  
g. Implementation date: Fall 2014  
h. Cross listing: None  
i. Stacking None  
j. Course Description: Discusses the United States Public Land Survey System with emphasis on Alaska; sectionalized land subdivision, corner restoration, resurveys, evidence, sources for legal research, and current BLM procedures and regulations.  
k. Course attributes: None  
l. Course registration prerequisites/restrictions: 
   Prerequisite: GEO A267 with a minimum grade of C.  
m. Course fees: Yes, standard CoEng and Geomatics course fee

III. **Course Level Justification**

This course continues, and builds on, the topic of boundary law presented in GEO A267.

IV. **Instructional Goals and Student Learning Outcomes:**

A. **Instructional Goals:**

   The instructor will explain:
   1. The process of performing research for BLM and Alaska Public Records
   2. The procedures for obtaining and evaluation of evidence
   3. Methods of subdivision of sections and restoration of lost and obliterated corners for the Public Land Survey System
   4. How the Public Land Survey System is used as a Land information system for GIS
B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Perform research for BLM and Alaska Public Records</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>B. Use recognized procedures for obtaining and evaluation of evidence</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>C. Demonstrate an understanding of methods of subdivision of sections, retracement surveys and restoration of lost and obliterated corners for the Public Land Survey System</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>D. Demonstrate an understanding of how the Public Land Survey System is used as a Land information system for GIS</td>
<td>Assignments, Exams, Project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Procedures for Obtaining Evidence and Research
   1.1. Methods research of BLM and Alaska Records
   1.2. General evidence
   1.3. Verbal evidence
   1.4. Other evidence
   1.5. Measurements as evidence
   1.6. Plats as evidence

2. Preservation of Evidence
   2.1. Vanishing evidence
   2.2. Perpetuation of evidence
   2.3. Authority to perpetuate
   2.4. Responsibility of perpetuating evidence
   2.5. Oaths and witness evidence

3. Public Land Survey System
   3.1. Subdivision of Sections
   3.2. "Manual" Special Instructions
   3.3. Statement of Work
   3.4. Government survey plats and notes
   3.5. Monuments, markings, and types of accessories
4. Resurvey and Retracement of Sectionalized Lands
   4.1. Federal rules of survey
   4.2. Federal patents
   4.3. Original corners and field notes
   4.4. Evidence recovery
   4.5. Locating original lines
   4.6. Restoring lost corners
   4.7. Double and single proportionate measurement
   4.8. Subdivision of sections by protraction
   4.9. Partitioning of standard and fractional sections
   4.10. Sections with government lots

5. Bureau of Land Management (BLM) in Alaska
   5.1. Innovative methodologies
   5.2. History of BLM Surveys in Alaska
   5.3. Survey procedures, plats, and notes
   5.4. Rules specific to the Alaska Public Land Survey System

6. PLSS as a Land Information System (LIS)
   6.1. Definition and Use of Land Information Systems
   6.2. Applications of LIS
   6.3. Base map construction methods

VI. Suggested Text and Bibliography

A. Suggested Text:

   Manual of Survey Instructions. 2009. U.S. Dept. of Interior, Bureau of

B. Bibliography:


Brown, C. M. et al. Evidence and Procedures for Boundary


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

1a. School or College
EN SOENGR

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GEO

3. Course Number
A410

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(2+2)

6. Complete Course Title
Airborne LiDAR Surveying
Airborne LiDAR Surveying

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 ☐ Course Number ☐ Contact Hours ☐ Repeat Status ☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Title ☐ Course Prerequisites ☐ Co-requisites ☐ Course Description ☐ Registration Restrictions
☐ Credits ☐ Co-requisites ☐ General Education Requirement ☐ Test Score Prerequisites ☐ Other
☐ Repeat Status ☐ Contact Hours ☐ Title ☐ Credits ☐ Contact Hours
☐ Credits ☐ Title ☐ Repeat Status ☐ Credits
☐ Course Number ☐ Contact Hours ☐ Repeat Status
☐ Contact Hours ☐ Repeat Status ☐ Grading Basis
☐ Course Number ☐ Contact Hours

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

10. Grading Basis
☑ A-F ☐ P/NP ☐ NG

11. Implementation Date
From: Fall/2014 To: 99/9999

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 in table. If more than three entries, submit a separate table. A template is available at www.ualaska.edu/governance.

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geomatics BS</td>
<td>N/A</td>
<td>T.B. Quimby</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initiator Name (typed): T.B. Quimby Initiator Signed Initials: __________ Date: __________

13b. Coordination Email
Date: 1/13/14 submitted to Faculty Listserv: (uaa-faculty@lists.ualaska.edu)

13c. Coordination with Library Liaison
Date: 1/13/14

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)
Introduction to principles of LiDAR airborne surveying. Main elements of imaging systems and principles of data acquisition.
Analysis of errors and accuracy of LiDAR data. Classification of LiDAR data.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
GIS A301 with a minimum grade of C.

16b. Co-requisite(s) (concurrent enrollment required)
GEO A420

16c. Automatic Restriction(s)
☐ College  ☐ Major  ☐ Class  ☐ Level

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

17. ☑ Mark if course has fees Std CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is being added as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only)
Gennady Gienko Initiator (TYPE NAME)

☑ Approved ☐ Disapproved
Dean/Director of School/College Date

☑ Approved ☐ Disapproved
Undergraduate/Graduate Academic Date
Board Chair

☑ Approved ☐ Disapproved
Provost or Designee Date

110
I. Date Initiated: December 19, 2013          Date Revised: January 11, 2014

II. Course Information

   a. College: EN
   b. Course prefix: GEO
   c. Course number: A410
   d. Number of credits and contact hours: 3.0 (2+2)
   e. Course title: Airborne LiDAR Surveying
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Introduction to principles of LiDAR airborne surveying. Main elements of imaging systems and principles of data acquisition. Analysis of errors and accuracy of LiDAR data. Classification of LiDAR data.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisite: GIS A301 with a minimum grade of C.
      Co-requisite: GEO A420
   m. Course fees: Yes, standard CoEng course fee

III. Course Level Justification

   The course is built upon previous course work and requires thorough understanding of geospatial concepts, methods, and techniques. The course reinforces proficiency in programming and develops strong analytical skills.

IV. Instructional Goals and Student Learning Outcomes:

   A. Instructional Goals:
      The instructor will:
      1. Introduce the concept of airborne LiDAR surveying
      2. Introduce principles of LiDAR sensors
      3. Provide an overview of airborne platforms and LiDAR imaging systems
      4. Explain methods of manipulating with LiDAR data
      5. Provide an overview errors and introduce methods or accuracy assessment
      6. Introduce methods and techniques of LiDAR data classification
B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to demonstrate understanding of:</td>
<td></td>
</tr>
<tr>
<td>A. The basic concepts of LiDAR aerial surveying</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>B. The main elements of LiDAR imaging system</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>C. The principles of LiDAR data classification</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>D. LiDAR data georegistration</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>E. Airborne LiDAR data accuracy</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>F. The principles of feature extraction using LiDAR data</td>
<td>Homework assignments, exams</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Introduction to LiDAR Remote Sensing
2. Airborne LiDAR Systems
3. Inertial Measurement Units
4. Airborne LiDAR Data
5. LiDAR Data Classification
6. LiDAR Data Georegistration
7. Airborne LiDAR Accuracy
8. Airborne LiDAR Strip Adjustment
9. Feature Extraction Using LiDAR Data

VI. Suggested Text and Bibliography

A. Suggested Text:

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

1a. School or College
EN SOENGR

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GEO

3. Course Number
A420

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(2+2)

6. Complete Course Title
High Density Spatial Data Analysis
HD Spatial Data Anal
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 ☐ Contact Hours ☐ Repeat Status ☐ Cross-Listed/Stacked
☐ Title ☐ Course Prerequisites ☐ Registration Restrictions ☐ General Education Requirement
☐ Grading Basis ☐ Course Prerequisites ☐ Co-requisites ☐ Other (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: 99/9999

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 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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<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
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</table>

Initiator Name (typed): T.B. Quimby Initiator Signed Initials: __________ Date: __________

13b. Coordination Email: Date: 1/13/14 submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison: Date: 1/13/14

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)
Introduction to principles of point cloud data analysis and processing for Geomatics applications. Elements of computational geometry and spatial topology.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
[GIS A301 and GEO A357] with a minimum grade of C.

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

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

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

17. ☒ Mark if course has fees Std CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is being added as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only)
Gennady Gienko
Initiator (TYPE NAME)

☐ Approved ☐ Disapproved
Dean/Director of School/College Date

☐ Approved ☐ Disapproved
Department Chair Date

☐ Approved ☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved ☐ Disapproved
Provost or Designee Date

143
I. Date Initiated: December 19, 2013          Date Revised: January 11, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GEO
   c. Course number: A420
   d. Number of credits and contact hours: 3.0 (2+2)
   e. Course title: High Density Spatial Data Analysis
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Introduction to principles of point cloud data analysis and processing for Geomatics applications. Elements of computational geometry and spatial topology.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions: Prerequisites: [GIS A301 and GEO A357] with a minimum grade of C.
   m. Course fees: Yes, standard CoEng course fee

III. Course Level Justification

The course is built upon previous course work and requires understanding of basic geospatial concepts, methods, and vocabulary of the Geomatics discipline. The course develops strong analytical skills.

IV. Instructional Goals and Student Learning Outcomes:

A. Instructional Goals:
   The instructor will:
   1. Provide overview of basic concepts of high density geospatial data
   2. Introduce data structures to store point cloud data
   3. Provide overview of fundamental concepts of computational geometry
   4. Provide overview of fundamental concepts of spatial topology
   5. Introduce fundamental methods of geospatial point cloud data analysis
   6. Introduce basic algorithms of manipulating point cloud data
B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Demonstrate understanding of the basic concepts of high density spatial data</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>B. Demonstrate understanding of fundamental concepts of computational geometry</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>C. Demonstrate understanding of fundamental concepts of spatial topology</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>D. Demonstrate understanding of fundamental methods of geospatial point cloud data analysis</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>E. Use basic tools for manipulating of point cloud data</td>
<td>Homework assignments, exams</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Introduction to High Density Spatial Data
2. Multi-Source Geospatial Point Clouds
3. Elements of Computational Geometry
4. Fundamentals of Spatial Topology
5. Methods of Geospatial Point Cloud Data Analysis
6. Point Cloud Filtering
7. Multi-Temporal Point Clouds Analysis
8. Feature Extraction from Point Cloud Data

IV. Suggested Text and Bibliography

A. Suggested Text:

B. 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>EN SOENGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. Division</td>
<td>choose one</td>
</tr>
<tr>
<td>1c. Department</td>
<td>Geomatics</td>
</tr>
<tr>
<td>2. Course Prefix</td>
<td>GEO</td>
</tr>
<tr>
<td>3. Course Number</td>
<td>A433</td>
</tr>
<tr>
<td>4. Previous Course Prefix &amp; Number</td>
<td>N/A</td>
</tr>
<tr>
<td>5a. Credits/CEUs</td>
<td>3</td>
</tr>
<tr>
<td>5b. Contact Hours</td>
<td>(Lecture + Lab) (3+0)</td>
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</tbody>
</table>

## Complete Course Title

Hydrographic Surveying

Abbreviated Title for Transcript (30 character)

<table>
<thead>
<tr>
<th>6. Complete Course Title</th>
<th>Hydrographic Surveying</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Type of Course</td>
<td>Academic</td>
</tr>
</tbody>
</table>

8. Type of Action:  

| Add                      | Change          | Delete          |

If a change, mark appropriate boxes:

- Prefix
- Credits
- Title
- Grading Basis
- Course Description
- Test Score Prerequisites
- Automatic Restrictions
- Class
- Level
- College
- Major
- Other

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: 99/9999 |

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 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).

| Impacted Program/Course | Date of Coordination | Chair/Coordinator Contacted |

| Initator Name (typed):  | T.B. Quimby          |
| Initator Signed Initials: | __________________                |

13b. Coordination Email

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

13c. Coordination with Library Liaison

| Date: 1/13/14 |

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)

The course provides students with knowledge of and skills to apply physical principles, instrumentation, data analysis methods, and visualization products associated with hydrographic surveying, chart publication, and related marine measurement practices of government and industry.

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

(GEO A266 and GEO A466) with minimum grade of C or instructor approval.

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

16c. Automatic Restriction(s)

- College
- Major
- Class
- Level

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

17. Mark if course has fees Std CoEng fee

18. Mark if course is a selected topic course

19. Justification for Action

This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

---

Initiator (faculty only)  

**Jeff Hollingsworth**

Initiator (TYPE NAME)  

<table>
<thead>
<tr>
<th>Approved</th>
<th>Disapproved</th>
<th>Date</th>
</tr>
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<tbody>
<tr>
<td>Dean/Director of School/College</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
I. **Date Initiated:** December 4, 2013  **Date Revised:** January 11, 2014

II. **Course Information**
   a. College: EN
   b. Course prefix: GEO
   c. Course number: A433
   d. Number of credits and contact hours: 3.0 (3+0)
   e. Course title: Hydrographic Surveying
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Introduction to the theory and practice of Hydrographic Surveying. The course provides students with knowledge of and skills to apply physical principles, instrumentation, data analysis methods, and visualization products associated with hydrographic surveying, chart publication, and related marine measurement practices of government and industry.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisites: [GEO A266 and GEO A466] with minimum grade of C or instructor approval.
   m. Course fees: Yes, standard CoEng and a course fee

III. **Course Level Justification**

   This course builds on the knowledge from GEO A266 and GEO A466. Students required to analyze complex data and apply advanced analytical skills to produce plans and documents relevant to the discipline.

IV. **Instructional Goals and Student Learning Outcomes:**

   A. **Instructional Goals:**
      The instructor will explain:
      1. The fundamental theories and practical applications of hydrographic surveying.
      2. The interactions of oceans and tidal water
      3. The national and international standards for hydrographic surveys
      4. Navigation, datums and positioning principles in hydrographic surveying
      5. Current hydrographic survey technology and operations.
B. Student Learning Outcomes & Assessments:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Access and interpret technical information from public data bases for geodesy,</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>tidal datums and descriptions, and historical surveys</td>
<td></td>
</tr>
<tr>
<td>B. Integrate information from nautical charts and publications in operating on the ocean</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>and in the coastal zone, including basic navigation</td>
<td></td>
</tr>
<tr>
<td>C. Integrate tidal measurements in establishing vertical control</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>D. Formulate measurement programs that apply properties of sound in mapping ocean</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>bathymetry, including the role of temperature and salinity on acoustics</td>
<td></td>
</tr>
<tr>
<td>E. Apply horizontal and vertical datums in defining cartographic features</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>F. Plan a hydrographic survey to specific international and national standards</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>G. Specify technology to acquire hydrographic data to specific standards</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>H. Specify and apply software for planning, acquisition and processing of hydrographic</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>data</td>
<td></td>
</tr>
<tr>
<td>I. Report on a field of specific interest in applying hydrographic surveying technology</td>
<td>Assignments, Exams, Project</td>
</tr>
</tbody>
</table>
V. Typical Course Outline

1. Introduction
   1.1. Course organization and expectations
   1.2. Importance of charting to ocean science and engineering
   1.3. Terminology of hydrography
   1.4. Concept of survey methodology
   1.5. Sources of hydrographic information

2. Oceanography and Acoustics
   2.1. Structure of the ocean, continental shelf, and ocean basins
   2.2. Seawater salinity, temperature and density considerations
   2.3. Sea ice
   2.4. Sound in the sea and acoustics
   2.5. Practical applications and limitations of acoustics

3. Navigation and Positioning
   3.1. Chart reading and navigation
   3.2. Positioning techniques and technology
   3.3. Roles of tides and currents
   3.4. Operational aspects of charts, navigation, and positioning

4. Horizontal and Vertical Datums
   4.1. Datum definitions
   4.2. Horizontal positioning standards
   4.3. Vertical positioning standards
   4.4. Sources of datum information and documentation

5. Tides and tidal currents
   5.1. Tide-producing forces
   5.2. Dynamic theory of tides
   5.3. Tides as waves
   5.4. Tidal currents
   5.5. Tidal data collection, analysis, and reporting

6. Hydrographic Surveying Standards
   6.1. International Hydrographic Organization (IHO) standards
   6.2. National Oceanic and Atmospheric Administration (NOAA) specifications and deliverables
   6.3. United States Army Corps of Engineers (USACE) engineering and surveying standards
   6.4. Contractual standards
   6.5. Quality management procedures
7. Hydrographic Survey Operations
   7.1. Survey planning and data collection
   7.2. Sheet layout and data acquisition
   7.3. Field logistics
   7.4. Data processing and reporting

8. Hydrographic Survey Technology
   8.1. Vertical echosounder and multibeam tools
   8.2. Sidescan sonar and towed instruments
   8.3. Geophysical exploration
   8.4. LiDAR surveying
   8.5. Current and tidal instrumentation
   8.6. Geodetic positioning instrumentation

VI. Suggested Text and Bibliography

A. Suggested Text:

No single academic textbook is required for purchase by students. Rather students will be required to review materials available on the web or provided in hard copy by the instructor from the most current editions of the references listed below.

B. Bibliography:


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

1a. School or College
EN SOENGR

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GEO

3. Course Number
A457

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

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

6. Complete Course Title
Boundary Law II

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 Description
- Test Score Prerequisites
- Automatic Restrictions
- Other

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis
☒ A-F ☐ P/NP ☐ NG

11. Implementation Date
From: Fall/2014 To: 99/9999

12. Cross Listed with

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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<tbody>
<tr>
<td>1. Geomatics BS</td>
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<td>T.B. Quimby</td>
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<tr>
<td>2. Legal Studies BA</td>
<td>1/13/14</td>
<td>Deb Periman</td>
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<td>3.</td>
<td></td>
<td></td>
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Initiator Name (typed): T.B. Quimby Initiator Signed Initials: __________ Date: __________

13b. Coordination Email Date: 1/13/14 submitted to Faculty Listserv: uae-faculty@lists.uaa.alaska.edu

13c. Coordination with Library Liaison Date: 1/13/14

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)
Alaskan survey history and case law, Alaska Statutes and Administrative code, writing legal descriptions and the standards of practice for surveying in Alaska.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
GEO A369 with a minimum grade of C.

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

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

17. ☒ Mark if course has fees Std CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only) Jeff Hollingsworth
Initiator (TYPE NAME) __________

Initiator (faculty only) 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

151
I. **Date Initiated:** December 4, 2013 **Date Revised:** January 11, 2014

II. **Course Information**
   a. College: EN
   b. Course prefix: GEO
   c. Course number: A457
   d. Number of credits and contact hours: 3.0 (3+0)
   e. Course title: Boundary Law II
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking None
   j. Course Description: Alaskan survey history and case law, Alaska Statutes and Administrative code, writing legal descriptions and the standards of practice for surveying in Alaska.
   k. Course attributes: None
   l. Course registration prerequisites/ restrictions: Prerequisite: GEO A369 with a minimum grade of C.
   m. Course fees: Yes, standard CoEng and Geomatics course fee

III. **Course Level Justification**

This course builds on the material presented in GEO A369. Students are expected to research, compare, and analyze legal issues.

IV. **Instructional Goals and Student Learning Outcomes:**

A. **Instructional Goals:**

The instructor will explain:

1. Alaska State Statutes and Administrative Code applicable to land surveying
2. The Alaska Easement Law
3. ALTA/ACSM survey procedures
4. Elements of and preparing legal description
B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Apply Alaska State Statutes and Administrative Code applicable to land surveying</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>B. Analyze and apply the Alaska Easement Law</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>C. Understand and Interpret ALTA/ACSM survey procedures</td>
<td>Assignments, Exams, Project</td>
</tr>
<tr>
<td>D. Apply elements of and prepare legal description</td>
<td>Assignments, Exams, Project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Alaska Easement Law
   1.1. Highway rights of way in Alaska
   1.2. General Alaska easement law
   1.3. RS-2477 trails cases
   1.4. Section line easement
   1.5. Public land order cases
   1.6. Public prescriptive
   1.7. Rights across private lands

2. Alaska Statutes
   2.1. AS Title 08 - Business and Professions
   2.2. AS Title 09 - Code of Civil Procedure
   2.3. AS Title 10 - Incorporation & Associations
   2.4. AS Title 11 - Criminal Law
   2.5. AS Title 18 Health, Safety, and Housing
   2.6. AS Title 19 - Highways & Ferries
   2.7. AS Title 27 - Mining
   2.8. AS Title 29 - Municipal Government
   2.9. AS Title 34 - Property
   2.10. AS Title 35 - Public Buildings, Works and Improvements
   2.11. AS Title 36 - Public Contracts
   2.12. AS Title 38 - Public Lands
   2.13. AS Title 40 - Public Records & Recorders
   2.14. AS Title 44 - State Government
3. Administrative Codes
   3.1. 11 AAC - Natural Resources
   3.2. 12 AAC - Professional and Vocational Regulations
   3.3. 17 AAC - Department of Transportation and Public Facilities
   3.4. 18 AAC - Environmental Conservation

4. Federal Laws Affecting Alaska
   4.1. Alaska Native Claims Settlement Act
   4.2. Federal Statute 25 CFR, Parts 150 and 169
   4.3. Alaska Railroad Transfer Act

5. Writing and Interpreting Legal Descriptions
   5.1. Types of legal descriptions
   5.2. Description elements
   5.3. Writing legal descriptions

6. Flood Plains and Wetlands
   6.1. National Flood Insurance Program (NFIP)
   6.2. Grade on structures
   6.3. Plat preparation for the NFIP

7. American Land Title Association (ALTA) / American Congress on Surveying and Mapping (ACSM) Surveys
   7.1. Standards of survey
   7.2. Current ALTA/ACSM requirements

8. Water Boundaries
   8.1. Review of case law in regard to water boundaries
   8.2. Court decisions important to Alaska
   8.3. Isostatic rebound, glaciers, and earthquakes
   8.4. Interpretations of meanderability

VI. Suggested Text and Bibliography

A. Suggested Text:
   

B. Bibliography:

Beardsley, D. Alaska Easement Law, IRWA publication, 1999


# 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>EN SOENGR</th>
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<tbody>
<tr>
<td>1b. Division</td>
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<tr>
<td>1c. Department</td>
<td>Geomatics</td>
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<th>2. Course Prefix</th>
<th>GEO</th>
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<tr>
<td>3. Course Number</td>
<td>A459</td>
</tr>
<tr>
<td>4. Previous Course Prefix &amp; Number</td>
<td>N/A</td>
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<tr>
<td>5a. Credits/CEUs</td>
<td>3</td>
</tr>
<tr>
<td>5b. Contact Hours</td>
<td>(Lecture + Lab) (3+0)</td>
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**Complete Course Title**

Geodetic Geomatics

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

Geodetic Geomatics

<table>
<thead>
<tr>
<th>6. Type of Course</th>
<th>☒ Academic</th>
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<tbody>
<tr>
<td>7. Type of Course</td>
<td>☐ Preparatory/Development</td>
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<tr>
<td>8. Type of Action</td>
<td>☐ Add</td>
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<tr>
<td>9. Repeat Status No</td>
<td># of Repeats</td>
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<tr>
<td>10. Grading Basis</td>
<td>☒ A-F</td>
</tr>
<tr>
<td>11. Implementation Date</td>
<td>From: Fall/2014 To: 99/9999</td>
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<tr>
<td>12. ☐ Cross Listed with</td>
<td>Stacked with</td>
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**Impacted Courses or Programs:**

- Geomatics BS
- Natural Sciences BS

**Initiator Name (typed):** T.B. Quimby

<table>
<thead>
<tr>
<th>13a. Impacted Program/Course</th>
<th>1. Geomatics BS</th>
<th>Date of Coordination: 1/13/14</th>
<th>Chair/Coordinator Contacted: T.B. Quimby</th>
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<tbody>
<tr>
<td>2. Natural Sciences BS</td>
<td>N/A</td>
<td>1/13/14</td>
<td>Khrys Duddleston</td>
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<td>3.</td>
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**Initiator Signed Initials:** _______________________

**Date:** __________

**Coordination Email:** Date: 1/13/14 submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

**Coordination with Library Liaison:** Date: 1/13/14

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<th>14. General Education Requirement</th>
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<td>Mark appropriate box:</td>
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<td>☐ Oral Communication</td>
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<tr>
<td>☐ Written Communication</td>
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<tr>
<td>☐ Quantitative Skills</td>
</tr>
<tr>
<td>☐ Humanities</td>
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<tr>
<td>☐ Fine Arts</td>
</tr>
<tr>
<td>☐ Social Sciences</td>
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<tr>
<td>☐ Natural Sciences</td>
</tr>
<tr>
<td>☐ Integrative Capstone</td>
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<table>
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<tr>
<th>15. Course Description (suggested length 20 to 50 words)</th>
</tr>
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</table>

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

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

<table>
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<tr>
<th>16c. Automatic Restriction(s)</th>
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<tbody>
<tr>
<td>☐ College</td>
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<tr>
<td>☐ Major</td>
</tr>
<tr>
<td>☐ Class</td>
</tr>
<tr>
<td>☐ Level</td>
</tr>
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</table>

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

| 17. ☐ Mark if course has fees |

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

<table>
<thead>
<tr>
<th>19. Justification for Action</th>
</tr>
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<tbody>
<tr>
<td>This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.</td>
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</tbody>
</table>

**Justification for Action**

- ☑ Approved
- ☐ Disapproved

**Approved by:**

- Dean/Director of School/College
- Undergraduate/Graduate Academic
- Provost or Designee

**Disapproved by:**

- Department Chair
- Board Chair
- College/School Curriculum Committee Chair

**Date:** __________

**Initiator (faculty only):** Jeff Hollingsworth

**Initiator (TYPE NAME):**

- ☑ Approved
- ☐ Disapproved
# Course Action Request

**University of Alaska Anchorage**

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

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<td>2. Course Prefix</td>
<td>GEO</td>
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<tr>
<td>3. Course Number</td>
<td>A460</td>
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<td>4. Previous Course Prefix &amp; Number</td>
<td>N/A</td>
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<tr>
<td>5a. Credits/CEUs</td>
<td>3</td>
</tr>
<tr>
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<td>(Lecture + Lab) (1+6)</td>
</tr>
</tbody>
</table>

## 6. Complete Course Title

**Geomatics Capstone Project**

**Geo Capstone**

Abbreviated Title for Transcript (30 character)

## 7. Type of Course

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

## 8. Type of Action:

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

If a change, mark appropriate boxes:

- [ ] Prefix
- [ ] Credits
- [x] Title
- [ ] Grading Basis
- [x] Course Description
- [ ] Test Score Prerequisites
- [ ] Automatic Restrictions
- [ ] Other

## 9. Repeat Status No

- Mark appropriate box:
  - [x] # of Repeats
  - Max Credits

## 10. Grading Basis

- Mark appropriate box:
  - [x] A-F
  - [ ] P/NP
  - [ ] NG

## 11. Implementation Date

- Semester/year:
  - From: Fall/2014
  - To: 99/9999

## 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 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. Geomatics UC</td>
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<td>T.B. Quimby</td>
</tr>
<tr>
<td>2. Geomatics BS</td>
<td>N/A</td>
<td>T.B. Quimby</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initiator Name (typed): **T.B. Quimby**

Initiator Signed Initials: _________

Date: __________

## 13b. Coordination Email

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

## 13c. Coordination with Library Liaison

Date: __________

## 14. General Education Requirement

Mark appropriate box:

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

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

Students complete a capstone project in Geomatics. Utilizes techniques of research, design, data compilation, analysis, and mapping learned throughout the Geomatics curriculum to complete a Geomatics project. Professional standards and ethical concerns for Geomatics professionals.

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

- [ ] GEO A357 and GEO A466 and GEO A365
- [ ] GEO A357 and GEO A466 and GIS A367 and GIS A458
- [ ] GEO A357 and GEO A466 and GIS A367 and GIS A458
- [ ] GIS A367 and GIS A458

with minimum grade of C.

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

- ESM A450

## 16c. Automatic Restriction(s)

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

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

## 17. Mark if course has fees Std CoEng fee

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

## 19. Justification for Action

This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

---

157
<table>
<thead>
<tr>
<th>Initiator (faculty only)</th>
<th>Date</th>
<th>Dean/Director of School/College</th>
<th>Date</th>
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<tr>
<td>Jeff Hollingsworth</td>
<td></td>
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<th>Initiator (TYPE NAME)</th>
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<tr>
<th>Department Chair</th>
<th>Date</th>
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<th>Date</th>
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<table>
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<th>College/School Curriculum Committee Chair</th>
<th>Date</th>
<th>Approved</th>
<th>Disapproved</th>
<th>Date</th>
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</thead>
</table>
COURSE CONTENT GUIDE

University of Alaska Anchorage, College of Engineering, Geomatics Dept.

I. Date Initiated: January 6, 2014          Date Revised: January 11, 2014

II. Course Information

   a. College: EN
   b. Course prefix: GEO
   c. Course number: A460
   d. Number of credits and contact hours: 3.0 (1+6)
   e. Course title: Geomatics Capstone Project
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Students complete a capstone project in Geomatics. Use of all prior course work in the major. Utilizes techniques of research, design, data compilation, analysis, and mapping to complete a Geomatics project. Professional standards and ethical concerns for Geomatics professionals. Students work with faculty to develop acceptable project proposals before starting work.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions: Specifics corresponding to which program in Geomatics the students are in: Prerequisites: [[GEO A357 and GEO A466 and GEO A365] or [GEO A357 and GEO A466 and GIS A367 and GIS A458] or [GEO A357 and GEO A466 and GIS A367 and GIS A458 and CSCE A360] or [GIS A367 and GIS A458]] with minimum grade of C.
      Corequisite: ESM A450
   m. Course fees: Yes, standard CoEng course fee

III. Course Level Justification

This is the capstone course for the Geomatics degrees and certificates. It is designed to allow integration of several parts of the specific program the students are enrolled in, as well as allow students to practice design thinking and problem solving.
IV. Instructional Goals and Student Learning Outcomes:

A. Instructional Goals:
The instructor will:
   1. Explain how to plan and execute a project on a Geomatics topic which integrates knowledge obtained in earlier Major and GER courses and from a variety of information sources.
   2. Explain how to create a professional report and make an oral presentation of the project.
   3. Discuss the importance of critical, constructive, and creative thinking in completing Geomatics projects using a wide range of knowledge and skills.
   4. Explain the importance and practice of professional and ethical behavior.

B. Student Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Create a project proposal, with a research component, which integrates knowledge from earlier course work in the Major and GER</td>
<td>Discussion with faculty, reports and presentation</td>
</tr>
<tr>
<td>B. Conduct primary and secondary research</td>
<td>Discussion with faculty, reports and presentation</td>
</tr>
<tr>
<td>C. Critically analyze a geomatics problem within the student’s concentration.</td>
<td>Discussion with faculty, reports and presentation</td>
</tr>
<tr>
<td>D. Integrate knowledge from earlier courses in the Geomatics program and General Education to allow synthesis of a solution which balances client needs, societal concerns, and ethical considerations.</td>
<td>Discussion with faculty, reports and presentation</td>
</tr>
<tr>
<td>E. Present findings and results in oral and written form.</td>
<td>Discussion with faculty, reports and presentation</td>
</tr>
</tbody>
</table>

C. GER Capstone Criteria:

1. Knowledge integration incorporated as part of the course design: As a Major capstone course, the major intent is to have the student apply all their prior learning to development, solution, and reporting of a geomatics problem. This necessitates the integration of Major knowledge as well as knowledge.
obtained from GER courses (quantitative skills and written and oral communications are heavily used. Humanities, Social Science, and Fine Arts may play a role depending on the nature of the project.)

2. Knowledge integration is specifically addressed as part of the outcomes assessment: This is explicitly mentioned in SLOs A and D, however they are implied in the other SLOs.

3. At least 3 out of 4 other Instructional Goals and Student Learning Outcomes are part of the course design:
   a. Effective Communication: Effective communication is explicitly covered in Instructional Goal #2 and in SLOs A and E.
   b. Critical Thinking: Critical thinking is explicitly covered in Instructional Goal #3 and in SLO C.
   c. Information Literacy: Information Literacy is explicitly covered in Instructional Goal #1 and in SLO B.
   d. Quantitative Perspectives: The nature of the Major is such that all projects rely heavily on quantitative skills. The Instructional Goals (#1 and #3) and SLOs (A, C, and D) which refer to the Major all map strongly to the use of quantitative perspectives.

4. Performance in Knowledge Integration and at least 2 of the other chosen Instructional Goals and Student Outcomes referenced in 3 are assessed: The students’ attainment of all the SLOs is assessed.

5. Generates student artifacts that demonstrate achievement in the student outcomes: The primary artifact is the final project submitted and presented by the students.

Typical Course Outline

1. Research Techniques
   1.1. Primary research
   1.2. Secondary research
   1.3. Thesis statements and project proposals

2. Integrating Knowledge from Different Sources to Solve a Problem
   2.1. Identification of required knowledge
   2.2. Balancing conflicting demands

3. Presentation
   3.1. Analysis of audience, purpose, and approach
   3.2. Oral presentations
   3.3. Written presentations
   3.4. Graphical and video techniques

4. Ethical and Professional Considerations
   4.1. Surveyor’s code of ethics
   4.2. Other codes of ethics
   4.3. Professional affiliations
4.4. Attributes of a professional

VI. Suggested Text and Bibliography

A. Suggested Text:

Text(s) vary depending upon the student’s individual topic.

B. Bibliography:


1a. School or College  
EN SOENGR

1b. Division  
choose one

1c. Department  
Geomatics

<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>GEO</td>
<td>A466</td>
<td>N/A</td>
<td>3</td>
<td>(2+2)</td>
</tr>
</tbody>
</table>

6. Complete Course Title  
Geopositioning

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

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: 99/9999

12. ☐ Cross Listed with  
☐ Stacked with

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

<table>
<thead>
<tr>
<th>Initiator Name (typed):</th>
<th>Initiator Signed Initials:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>T.B. Quimby</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13b. Coordination Email  
Date: 1/13/14  
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison  
Date: 1/13/14

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)


16a. Course Prerequisite(s) (list prefix and number or test code and score)  
[GEO A359 and GEO A265] with a minimum grade of C.

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

16c. Automatic Restriction(s)  
☐ College  ☐ Major  ☐ Class  ☐ Level

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

17. ☒ Mark if course has fees Std CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action  
This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

Initiator (faculty only)  
Jeff Hollingsworth  
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

163
COURSE CONTENT GUIDE

University of Alaska Anchorage, College of Engineering, Geomatics Dept.

I. Date Initiated: December 23, 2013  Date Revised: January 11, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GEO
   c. Course number: A466
   d. Number of credits and contact hours: 3.0 (2+2)
   e. Course title: Geopositioning
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisites: [GEO A359 and GEO A265] with a minimum grade of C.
   m. Course fees: Yes, standard CoEng course fee

III. Course Level Justification

This course develops advanced concepts in GIS and builds on the knowledge and skills of the prerequisite courses.

IV. Instructional Goals and Student Learning Outcomes:

A. Instructional Goals.
   The instructor will:
   1. Explain the theoretical foundations of GNSS.
   2. Connect suitable observation methodologies to match specific project specifications and needs
   3. Demonstrate how to perform Static, Real Time Kinematic (RTK) and Autonomous GNSS observations
   4. Explain how to reduce and analyze GNSS measurements
   5. Explain how to apply GNSS technology to Geomatics applications
B. Student Learning Outcomes & Assessments:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Demonstrate an understanding of the theoretical foundations of GNSS</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>B. Demonstrate an understanding GNSS measurements and data collection</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>C. Demonstrate an understanding of GNSS data Reduction, analysis and adjustment of GNSS observations</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>D. Apply GNSS technology to geomatics application</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>E. Demonstrate an understanding of the theoretical foundations of GNSS</td>
<td>Assignments, exams, project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Review of Geodetic Concepts
   1.1. Reference frames and measurement systems
   1.2. Geodetic and Cartesian co-ordinates
   1.3. Ellipsoid and geoid heights

2. Review of Previous Systems
   2.1. Astronomical observations
   2.2. TRANSIT Doppler
   2.3. Classical terrestrial systems
   2.4. Loran, Omega, and other radio positioning systems

   3.1. GPS (Global Positioning System)
   3.2. GLONASS (Russian Global Navigation Satellite System)
   3.3. Galileo
   3.4. Compass
   3.5. NAVSTAR
   3.6. Other satellite systems

4. GNSS Methodologies
   4.1. Pseudo-range measurements
   4.2. Carrier phase measurements
4.3. Static and rapid static measurements
4.4. Kinematics and real-time kinematic measurements
4.5. On-The-Fly (OTF) measurements

5. GNSS Elements
   5.1. Orbit determination and parameters
   5.2. Dilution of precision
   5.3. Ephemerides
   5.4. Reference frames

6. Signal Structures
   6.1. Modulation techniques, Code Division Multiple Access (CDMA)
   6.2. Message formats
   6.3. Selective Availability

7. Biases and Errors
   7.1. Range error
   7.2. Clock and orbit biases
   7.3. Ionospheric and tropospheric errors
   7.4. Observation errors
   7.5. Multipath errors

8. Solutions
   8.1. Types of solutions
   8.2. Relative positioning using differencing solutions
   8.3. Network solutions
   8.4. Constrained solutions
   8.5. Iono-free solutions
   8.6. Wide-lane solutions

   9.1. Theory and operation
   9.2. Kalman filtering
   9.3. GNSS/INS positioning

10. Adjustment of GNSS Measurements
    10.1. Reduction and checking
    10.2. Least squares adjustment
    10.3. Combining terrestrial measurements and GNSS
    10.4. Combining GNSS and INS measurements

11. Practical Aspects
    11.1. Planning and field operations
    11.2. Data processing
    11.3. GNSS survey standards
    11.4. Advantages and limitations of GNSS measurements
11.5. Continuously Operating Reference Station (CORS) and other base stations

12. Review of Geodetic Concepts
   12.1. Reference frames and measurement systems
   12.2. Geodetic and Cartesian co-ordinates
   12.3. Ellipsoid and geoid heights

13. Review of Previous Systems
   13.1. Astronomical observations
   13.2. TRANSIT Doppler
   13.3. Classical terrestrial systems
   13.4. Loran, Omega, and other radio positioning systems

VI. Suggested Text and Bibliography

A. Suggested Text:


B. Bibliography:


   Rapp, R. *Lecture Notes (Geometric Geodesy I and II)*. Columbus, OH: The Ohio State University, 1991.
# 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>EN SOENGR</td>
<td>choose one</td>
<td>Geomatics</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>GEO</td>
<td>A467</td>
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## Complete Course Title

**Analytical and Digital Photogrammetry**

### Abbreviated Title for Transcript (30 character)

<table>
<thead>
<tr>
<th>7. Type of Course</th>
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<tbody>
<tr>
<td>☑ Academic</td>
</tr>
</tbody>
</table>

### Type of Action:

- ☐ Add
- ☑ Change
- ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
- ☐ Other

<table>
<thead>
<tr>
<th>9. Repeat Status No</th>
<th># of Repeats</th>
<th>Max Credits</th>
</tr>
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</table>

### Grading Basis

- ☑ A-F
- ☑ P/NP
- ☐ NG

### Implementation Date

From: Fall/2014  To: 99/9999

<table>
<thead>
<tr>
<th>12. Cross Listed with</th>
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<tbody>
<tr>
<td>☐ Stacked with</td>
</tr>
</tbody>
</table>

### Cross Listed Coordination Signature

- Date: 1/13/14

### Impacting Courses or Programs

1. Geomatics BS
   - Initiated by: T.B. Quimby
   - Date of Coordination: 1/13/14
   - Chair/Coordinator Contacted: K.B. Quimby
2. Natural Sciences BS
   - Date of Coordination: 1/13/14
   - Chair/Coordinator Contacted: Kristy Duddleston
3. [Other programs or college requirements]
   - Date of Coordination: [Date]
   - Chair/Coordinator Contacted: [Name]

### General Education Requirement

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

### Course Description

(Suggested length 20 to 50 words)

### Course Prerequisite(s)

[List prefix and number or test code and score]

### Co-requisite(s)

(Concurrent enrollment required)

### Registration Restriction(s)

(Non-codable)

### Mark if course has fees

### Mark if course is a selected topic course

### Justification for Action

This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

**Initiator (faculty only)**

- Jeff Hollingsworth

**Initiator (TYPE NAME)**

- Approved
- Disapproved

**Department Chair**

- Approved
- Disapproved

**College/School Curriculum Committee Chair**

- Approved
- Disapproved

**Dean/Director of School/College**

- Approved
- Disapproved

**Undergraduate/Graduate Academic Chair**

- Approved
- Disapproved

**Provost or Designee**

- Approved
- Disapproved

---

**Date**

---

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# 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>1c. Department</td>
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<tr>
<td>Selected Advanced Topics in Geomatics</td>
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<td>❑ Preparatory/Development</td>
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<td>❑ Non-credit</td>
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<td>❑ CEU</td>
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<td>❑ Professional Development</td>
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<table>
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<tr>
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<td>❑ Change</td>
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<tr>
<td></td>
<td>❑ Delete</td>
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</tbody>
</table>

If a change, mark appropriate boxes:
- ❑ Prefix
- ❑ Credits
- ❑ Title
- ❑ Grade Basis
- ❑ Course Description
- ❑ Test Score Prerequisites
- ❑ Automatic Restrictions
- ❑ Other

| 9. Repeat Status No | # of Repeats | 4 |
|---------------------|--------------|

<table>
<thead>
<tr>
<th>10. Grading Basis</th>
<th>❑ A-F</th>
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<tbody>
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<td>❑ NG</td>
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<table>
<thead>
<tr>
<th>11. Implementation Date</th>
</tr>
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<tbody>
<tr>
<td>From: Fall/2014</td>
</tr>
<tr>
<td>To: 99/9999</td>
</tr>
</tbody>
</table>

| 12. | ❑ Cross Listed with |

| 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). |

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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<tbody>
<tr>
<td>BS, Geomatics</td>
<td>N/A</td>
<td>T.B. Quimby</td>
</tr>
<tr>
<td>UC, GIS</td>
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<td>T.B. Quimby</td>
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<tr>
<td>BS, GIS</td>
<td>N/A</td>
<td>T.B. Quimby</td>
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</table>

Initiator Name (typed): T.B. Quimby

Initiator Signed Initials: _________

<table>
<thead>
<tr>
<th>13b. Coordination Email</th>
<th>Date: 1/13/14</th>
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<tbody>
<tr>
<td>submitted to Faculty Listserv: (<a href="mailto:uaa-faculty@lists.uaa.alaska.edu">uaa-faculty@lists.uaa.alaska.edu</a>)</td>
<td></td>
</tr>
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</table>

| 13c. Coordination with Library Liaison | Date: 1/13/14 |

<table>
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<tr>
<th>14. General Education Requirement</th>
<th>Mark appropriate box:</th>
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<td>Humanities</td>
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<td>Fine Arts</td>
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<tr>
<td></td>
<td>Social Sciences</td>
</tr>
<tr>
<td></td>
<td>Natural Sciences</td>
</tr>
<tr>
<td></td>
<td>Integrative Capstone</td>
</tr>
</tbody>
</table>

| 15. Course Description (suggested length 20 to 50 words) | Advanced theoretical or practical concepts in Geomatics. Specific course content is determined according to student needs, developments in technology, or licensing requirements. May be repeated 4 times with change of topics. |

<table>
<thead>
<tr>
<th>16a. Course Prerequisite(s) (list prefix and number or test code and score)</th>
<th>GEO A246 and GIS A201 with a minimum grade of C.</th>
</tr>
</thead>
</table>

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

<table>
<thead>
<tr>
<th>16c. Automatic Restriction(s)</th>
<th>College</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Major</td>
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<tr>
<td></td>
<td>Class</td>
</tr>
<tr>
<td></td>
<td>Level</td>
</tr>
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</table>

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

<table>
<thead>
<tr>
<th>17.</th>
<th>❑ Mark if course has fees Std CoEng fee</th>
</tr>
</thead>
</table>

| 18. | ❑ Mark if course is a selected topic course |

<table>
<thead>
<tr>
<th>19. Justification for Action</th>
</tr>
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<tbody>
<tr>
<td>Advanced theoretical or practical concepts in Geomatics. Specific course content is determined by student needs, developments in technology, or licensing requirements.</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Initiator (faculty only)</th>
<th>Gennady Gienko</th>
</tr>
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</table>

Initiator (TYPE NAME)

<table>
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<tr>
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<th>Date</th>
</tr>
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<tbody>
<tr>
<td>Disapproved</td>
<td>Dean/Director of School/College</td>
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</table>

<table>
<thead>
<tr>
<th>Approved</th>
<th>Date</th>
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<tbody>
<tr>
<td>Disapproved</td>
<td>Undergraduate/Graduate Academic</td>
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<th>Approved</th>
<th>Date</th>
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<tbody>
<tr>
<td>Disapproved</td>
<td>Board Chair</td>
</tr>
</tbody>
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<table>
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<tr>
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<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disapproved</td>
<td>Provost or Designee</td>
</tr>
</tbody>
</table>

---

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COURSE CONTENT GUIDE

University of Alaska Anchorage, College of Engineering, Geomatics Dept.

I. **Date Initiated:** January 16, 2014
   **Date Revised:** January 16, 2014

II. **Course Information**
   
   a. **College:** EN
   b. **Course prefix:** GEO
   c. **Course number:** A490
   d. **Number of credits and contact hours:** 1-6 (0-6+0-12)
   e. **Course title:** Selected Advanced Topics in Geomatics
   f. **Grading Basis:** A-F
   g. **Implementation date:** Fall 2014
   h. **Cross listing:** None
   i. **Stacking:** None
   j. **Course Description:** Advanced theoretical or practical concepts in Geomatics. Specific course content is determined according to student needs, developments in technology, or licensing requirements. May be repeated 4 times with change of topics.
   k. **Course attributes:** None
   l. **Course registration prerequisites/restrictions:**
      Prerequisites: [GEO A246 and GIS A201] with a minimum grade of C.
   m. **Course fees:** Yes, standard CoEng course fee

III. **Course Level Justification**

   This course enables the program to respond to specific needs of students, i.e. to meet professional licensing or certification requirements, to address a particular area of student interest, or to provide training in emerging technologies. Topics will require higher-order thinking skills in analysis, synthesis, and problem solving.

IV. **Instructional Goals and Student Learning Outcomes:**

   **A. Instructional Goals:**
   
   The instructor will:
   1. Present the selected topics in detail and attempt to tailor presentations to the interests of the class
   2. Include guest lectures as possible to broaden and deepen the topic offered
   3. Present theoretical and practical examples that are professionally useful to the class participants on finishing the class
   4. Encourage students to participate by sharing their professional experience with the class
B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Demonstrate and advanced understanding of the topic offered</td>
<td></td>
</tr>
<tr>
<td>B. Apply the principles and information provided to real-world problems</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>C. Apply critical and constructive thinking to understand technical and societal issues related to the topic</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>D. Evaluate, analyze, and synthesize solutions to problems in the topic area, and communicate to other professionals</td>
<td>Homework assignments, projects, exams</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

Specific topic and content will be proposed for each implementation of the course.

VI. Suggested Text and Bibliography

A. Suggested Text:

To be determined by instructor for each implementation of the course.

B. Bibliography:

To be determined by instructor for each implementation of the course.
Example: Implementation Details of this Course

**Title:** GEO A490 Laser Scanning: Theory and Practice     1 credit.

**Course Description**

Theoretical foundations of terrestrial laser scanning systems, together with practical application of terrestrial scanners and software. Measurement techniques and project planning.

**Textbook**


**Instructional Goals**

The instructor will cover material on the theory and application of terrestrial laser scanning. The class will work with the Leica ScanStation 2 to scan various scenes and process the measurement data, using Leica Cyclone software. The method used will be a combination of lectures and laboratory work.

**Student Learning Outcomes & Assessment:**

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Describe how laser scanning works</td>
<td>Homework assignments, quizzes, labs, exams</td>
</tr>
<tr>
<td>B. Use a terrestrial laser scanner to undertake simple jobs</td>
<td>Homework assignments, quizzes, labs, exams</td>
</tr>
<tr>
<td>C. Operate scanner software and explain their use of it</td>
<td>Homework assignments, labs, quizzes, exams</td>
</tr>
<tr>
<td>D. Design and implement a terrestrial laser scanning project</td>
<td>Homework assignments, labs, quizzes, projects, exams</td>
</tr>
</tbody>
</table>

**Topical Outline**

1. Theory of Scanning and Scanners
2. Error Models
3. Reconstructing the Image Space from the Point Cloud
4. Joining Point Clouds
5. Introducing Control and Minimizing Error
6. Production Processes
7. Recent Advances in Terrestrial Laser Scanning
# 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>EN SOENGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. Division</td>
<td>choose one</td>
</tr>
<tr>
<td>1c. Department</td>
<td>Geomatics</td>
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<th>2. Course Prefix</th>
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</tr>
<tr>
<td>4. Previous Course Prefix &amp; Number</td>
<td>GIS A268</td>
</tr>
<tr>
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<td>3</td>
</tr>
<tr>
<td>5b. Contact Hours</td>
<td>(Lecture + Lab) (2+2)</td>
</tr>
</tbody>
</table>

**Complete Course Title**

Introduction to Geographic Information Systems

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

Intro to GIS

| 6. Credits | 3 |
| 7. Contact Hours | (Lecture + Lab) (2+2) |

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If a change, mark appropriate boxes:

- Prefix
- Credits
- Title
- Grading Basis
- Course Description
- Test Score Prerequisites
- Automatic Restrictions
- Class
- Level
- Other

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<th>semester/year</th>
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<td>To: 99/9999</td>
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<table>
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<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.

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<td>T.B. Quimby</td>
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Initiator Name (typed): T.B. Quimby

Initiator Signed Initials: _________

Date: __________________

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<th>Date: 1/13/14</th>
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submitted to Faculty Listserv: (uae-faculty@lists.uaa.alaska.edu)

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<th>14. General Education Requirement</th>
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Mark appropriate box:

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

<table>
<thead>
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<th>15. Course Description (suggested length 20 to 50 words)</th>
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Introduction to the concepts and practical skills of Geographic Information Systems (GIS). Covers digital representation of geographic objects, data sources, data input and manipulation, map projection and coordinate systems, data management and analysis, and mapping and presentation of geographic information.

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<tr>
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- College
- Major
- Class
- Level

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<th>17. Mark if course has fees Std CoEng fee</th>
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<th>18. Mark if course is a selected topic course</th>
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<table>
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<th>19. Justification for Action</th>
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This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

<table>
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<tr>
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<th>Date</th>
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Caixia Wang

Initiator (TYPE NAME)

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Department Chair

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College/School Curriculum Committee Chair

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### Box 13a

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<th>GIS A101 (formerly GIS A268)</th>
<th>Introduction to GIS (formerly Elements of Geographic Information Systems)</th>
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<tr>
<td><strong>Impacted Program or Course</strong></td>
<td><strong>Date of Notification</strong></td>
<td><strong>Chair/Coordinator Contacted</strong> (not listerve)</td>
</tr>
<tr>
<td>Environment &amp; Society BA</td>
<td>1/13/14</td>
<td>Dorn Van Dommelen</td>
</tr>
<tr>
<td>Environment &amp; Society BS</td>
<td>1/13/14</td>
<td>Dorn Van Dommelen</td>
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<tr>
<td>Geography Minor</td>
<td>1/13/14</td>
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<tr>
<td>Natural Sciences BS</td>
<td>1/13/14</td>
<td>Khrys Duddleston</td>
</tr>
<tr>
<td>Geographic Information Systems, UC</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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<tr>
<td>Geomatics BS</td>
<td>1/13/14</td>
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<td>Geomatics AAS</td>
<td>1/13/14</td>
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<td>GIS A495</td>
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<td>Bart Quimby</td>
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</table>
COURSE CONTENT GUIDE

University of Alaska Anchorage, College of Engineering, Geomatics Dept.

I. Date Initiated: December 20, 2013  Date Revised: January 11, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GIS
   c. Course number: A101
   d. Number of credits and contact hours: 3.0 (2+2)
   e. Course title: Introduction to Geographic Information Systems
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Introduction to the concepts and practical skills of Geographic Information Systems (GIS). Covers digital representation of geographic objects, data sources, data input and manipulation, map projection and coordinate systems, data management and analysis, and mapping and presentation of geographic information.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions: None
   m. Course fees: Yes, standard CoEng course fee

III. Course Level Justification

   This course is an introduction to Geographic Information Systems (GIS) and introduces the theoretical foundations and concepts of GIS. This is an entry level course.

IV. Instructional Goals and Student Learning Outcomes:

   A. Instructional Goals.
   The instructor will:
   1. Provide the fundamentals for GIS
   2. Present the basic theory and concepts of GIS
B. Student Learning Outcomes & Assessments:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Demonstrate the ability to gather and convert data for use in a GIS</td>
<td>Assignments, projects, and exams</td>
</tr>
<tr>
<td>B. Demonstrate the skills to translate data and work in different coordinate systems</td>
<td>Assignments, projects, and exams</td>
</tr>
<tr>
<td>C. Demonstrate the ability to read and interpret proper metadata</td>
<td>Assignments, projects, and exams</td>
</tr>
<tr>
<td>D. Demonstrate the ability to symbolize spatial data properly</td>
<td>Assignments, projects, and exams</td>
</tr>
<tr>
<td>E. Demonstrate the ability to digitize geographic features</td>
<td>Assignments, projects, and exams</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Introduction to GIS
   1.1. What is a GIS
   1.2. Major areas of practical applications

2. Map Projections and Coordinate Systems
   2.1. Map projections
   2.2. Coordinate systems
   2.3. Geocoding

3. Digital Representations of Geographic Objects
   3.1. Internal data formats of a GIS
   3.2. Data Models: raster and vector

4. GIS Data Input and Storage
   4.1. GIS data sources and data conversion
   4.2. Edit existing map features and their topologic relations
   4.3. Create your own GIS datasets

5. GIS Data Manipulation
   5.1. Map projection and coordinate transformation
   5.2. GIS data layer merging and clipping
   5.3. Attribute tables, table join and relate

6. GIS Database Query and Basic Spatial Analysis
   6.1. Attribute and spatial query
   6.2. Overlay query
   6.3. Proximity analysis
7. Maps and GIS Data Display
   7.1. Principles of cartographic design in GIS
   7.2. Map features symbolization and labeling

8. Data Standard and Quality
   8.1. Positional accuracy
   8.2. Attribute accuracy

VI. Suggested Text and Bibliography

A. Suggested Texts:


B. Bibliography:


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

1a. School or College
   EN SOENGR

1b. Division
   choose one

1c. Department
   Geomatics

2. Course Prefix
   GIS

3. Course Number
   A123

4. Previous Course Prefix & Number
   N/A

5a. Credits/CEUs
   1

5b. Contact Hours
   (Lecture + Lab)
   (1+0.5)

6. Complete Course Title
   Introduction to Geographic Information Systems (GIS)
   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
   □ Automatic Restrictions
   □ Class
   □ Level
   □ College
   □ Major
   □ Other
   □ Repeat Status
   □ Contact Hours
   □ Cross-Listed/Stacked
   □ General Education Requirement

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: 99/9999

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 in table. If more than three entries, submit a separate table.
     □ Mark appropriate box:
     Oral Communication
     □ Written Communication
     □ Quantitative Skills
     □ Humanities
     □ Fine Arts
     □ Social Sciences
     □ Natural Sciences
     □ Integrative Capstone

14. General Education Requirement
    Date of Coordination
    Chair/Coordinator Contacted

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

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

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

16c. Automatic Restriction(s)
    □ College
    □ Major
    □ Class
    □ Level

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

17. □ Mark if course has fees

18. □ Mark if course is a selected topic course

19. Justification for Action
   This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: __________
Date: __________

Initiator (faculty only)
Gennady Gienko
Initiator (TYPE NAME)

Approved
Disapproved

Date
Dean/Director of School/College

Date
Undergraduate/Graduate Academic

Date
Board Chair

Date
Provost or Designee

Date

178
## Course Action Request

**University of Alaska Anchorage**

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

**1a. School or College**
EN SOENGR

**1b. Division**
choose one

**1c. Department**
Geomatics

**2. Course Prefix**
GIS

**3. Course Number**
A124

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

**5a. Credits/CEUs**
1

**5b. Contact Hours**
(Lecture + Lab) (1+ 0.5)

**6. Complete Course Title**
Introduction to GIS and Remote Sensing

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

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

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

**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:** 99/9999

**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 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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**Initiator Name (typed):** T.B. Quimby

**Initiator Signed Initials:** __________

**Date:** __________

**13b. Coordination Email**

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

**13c. Coordination with Library Liaison**

**Date:** 1/13/14

**14. General Education Requirement**

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<tr>
<td>Integrative Capstone</td>
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**15. Course Description** *(suggested length 20 to 50 words)*

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

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

**16c. Automatic Restriction(s)**

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<th>Level</th>
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**16d. Registration Restriction(s)** *(non-codable)*

**17. Mark if course has fees**

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

**19. Justification for Action**

This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

**Initiator (faculty only)**

Gennady Gienko

**Initiator (TYPE NAME):**

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**Dean/Director of School/College**

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**Board Chair**

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<th>Date</th>
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<tr>
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**Provost or Designee**

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</tr>
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<tbody>
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<tr>
<td>1a. School or College</td>
<td>1b. Division</td>
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<tr>
<td>----------------------</td>
<td>--------------</td>
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<td>choose one</td>
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<th>3. Course Number</th>
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<th>5b. Contact Hours</th>
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<td>(Lecture + Lab)</td>
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6. Complete Course Title
GPS for GIS

Abbreviated Title for Transcript (30 characters)

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<th>7. Type of Course</th>
<th>8. Type of Action:</th>
<th>9. Repeat Status No</th>
<th># of Repeats</th>
<th>Max Credits</th>
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<td>☑ Course Prerequisites</td>
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<td>☑ Test Score Prerequisites</td>
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<td>☑ Class ☑ Level ☑ College ☑ Major (please specify)</td>
<td>☑ Chair/Coordinator Contacted</td>
<td>☑ Date</td>
</tr>
</tbody>
</table>

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☑ A-F ☑ P/NP ☑ NG

11. Implementation Date
From: Fall/2014 To: 99/9999

12. ☑ Cross Listed with ☑ Stacked with

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

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Initiator Name (typed): T.B. Quimby Initiator Signed Initials: __________ Date: __________

13b. Coordination Email Date: 1/13/14
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/13/14

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)

16a. Course Prerequisite(s) (list prefix and number or test code and score)
16b. Co-requisite(s) (concurrent enrollment required)

16c. Automatic Restriction(s)
☑ College ☑ Major ☑ Class ☑ Level

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

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

19. Justification for Action
This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only)
Gennady Gienko
Initiator (TYPE NAME)

☑ Approved Date
☑ Disapproved Date

☑ Approved Date
☑ Disapproved Date

☑ Approved Date
☑ Disapproved Date

☑ Approved Date
☑ Disapproved Date
## Course Action Request

### University of Alaska Anchorage

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

### 1a. School or College
EN SOENGR

### 1b. Division
choose one

### 1c. Department
Geomatics

### 2. Course Prefix
GIS

### 3. Course Number
A201

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

### 5a. Credits/CEUs
3

### 5b. Contact Hours
(Lecture + Lab) (2+2)

### 6. Complete Course Title
Intermediate Geographic Information Systems

### 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
- Automatic Restrictions
- Class
- Level
- College
- (please specify)

### 9. Repeat Status No

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

### 11. Implementation Date
From: Fall/2014
To: 99/9999

### 12. Cross Listed
- [ ] with
- Stacked

### 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.**

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

### 14. General Education Requirement

### 15. Course Description (suggested length 20 to 50 words)
Theoretical and practical examination of analytical methods used in advanced GIS. Topics include georeferencing, spatial analysis and inference, geospatial database, network analysis, and spatial modeling and visualization.

### 16. Course Prerequisite(s) (list prefix and number or test code and score)
[MATH A108 or MATH A109 or any MATH course for which MATH A108 or MATH A109 is in the prerequisite chain] and GIS A101 with a minimum grade of C.

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

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

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

### 17. Mark if course has fees
Std CoEng fee

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

### 19. Justification for Action
This course is being added as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

**Initiator (faculty only)**

**Caixia Wang**

**Initiator (TYPE NAME)**

- [ ] Approved
- [ ] Disapproved

**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**

---

181
I. **Date Initiated**: December 23, 2013  **Date Revised**: January 11, 2014

II. **Course Information**

   a. College: EN
   b. Course prefix: GIS
   c. Course number: A201
   d. Number of credits and contact hours: 3.0 (2+2)
   e. Course title: Intermediate GIS
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Theoretical and practical examination of analytical methods used in advanced GIS. Topics include georeferencing, spatial analysis and inference, geospatial database, network analysis, and spatial modeling and visualization.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisites: [[MATH A108 or MATH A109 or any MATH course for which MATH A108 or MATH A109 is in the prerequisite chain] and GIS A101] with a minimum grade of C.

III. **Course Level Justification**

    This course is to develop advanced concepts and skills built upon the introduction of GIS.

IV. **Instructional Goals and Student Learning Outcomes:**

    A. **Instructional Goals:**
       The instructor will explain:
       1. Advanced concepts and theories of GIS
       2. Georeferencing of spatial data in GIS
       3. The implementations of spatial analysis and modeling in GIS context.
       4. Network analysis
       5. Typical workflow in GIS applications
B. Student Learning Outcomes & Assessments:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Demonstrate understanding of various spatial data models and structures</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>B. Work with spatial and non-spatial data</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>C. Undertake spatial analyses using spatial and non-spatial data</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>D. Georeference raster data in GIS</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>E. Gather geo-spatial data, compile, analysis, and design various maps using GIS</td>
<td>Assignments, exams, project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Introduction
2. The Nature of Geospatial Data
3. Georeferencing
4. Uncertainty
5. Geospatial Data Modeling
6. Creating and Maintaining Geospatial Databases
7. Carography and Geovisualization
8. Spatial Analysis and Inference
9. Spatial Modeling with GIS

VI. Suggested Text and Bibliography

A. Suggested Text:


B. Bibliography:


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

1a. School or College
EN SOENG

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GIS

3. Course Number
A295

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(0+15)

6. Complete Course Title
Internship in GIS

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
☐ Automatic Restrictions
☐ Class
☐ Level
☐ College
☐ Major
☐ Other
(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: 99/9999

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 in table. If more than three entries, submit a separate table. A template is available at www.ualaska.edu/governance.

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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</thead>
<tbody>
<tr>
<td>Geographic Information Systems UC</td>
<td>N/A</td>
<td>T.B. Quimby</td>
</tr>
<tr>
<td>Natural Sciences BS</td>
<td>1/13/14</td>
<td>Khrys Duddleston</td>
</tr>
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</table>

Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: ___________
Date: ___________

13b. Coordination Email
Date: 1/13/14
submitted to Faculty Listserv: (uea-faculty@lists.ualaska.edu)

13c. Coordination with Library Liaison
Date: 1/13/14

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)

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

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

16c. Automatic Restriction(s)
☐ College
☐ Major
☐ Class
☐ Level

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

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

Initiator (faculty only)
Gennady Gienko
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Date

Dean/Director of School/College
Date

Undergraduate/Graduate Academic
Date

Board Chair
Date

Provost or Designee
Date
# 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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<tr>
<td>EN SOENGR</td>
<td></td>
<td>Geomatics</td>
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<table>
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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>GIS</td>
<td>A301</td>
<td>N/A</td>
<td>3</td>
<td>(2+2)</td>
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### Complete Course Title

Intermediate Geographic Information Systems (GIS)

Intermediate GIS

Abbreviated Title for Transcript (30 character)

<table>
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<td># of Repeats</td>
<td>A-F</td>
<td>semester/year</td>
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<td></td>
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<td>P/NP</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>NG</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Course Description

Fundamental concepts of geospatial data structures as well as methods and algorithms for manipulation of geospatial data. Geospatial vector and raster data, surfaces, and networks are also covered.

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

[ENGR A161 and GIS A201] with a minimum grade of C.

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

**16c. Automatic Restriction(s)**

- College
- Major
- Class
- Level

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

**17. Mark if course has fees Std CoEng fee**

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

**19. Justification for Action**

This course is being added as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

---

**Initiator Name (typed):**  T.B. Quimby

**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.

**Impacted Program/Course**

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<td>T.B. Quimby</td>
</tr>
<tr>
<td>Geographic Information Systems UC</td>
<td>N/A</td>
<td>T.B. Quimby</td>
</tr>
<tr>
<td>Geographic Information Systems Minor</td>
<td>N/A</td>
<td>T.B. Quimby</td>
</tr>
</tbody>
</table>

**13b. Coordination Email**

Date: 1/13/14

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

**13c. Coordination with Library Liaison**

Date: 1/13/14

**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)**

Fundamental concepts of geospatial data structures as well as methods and algorithms for manipulation of geospatial data. Geospatial vector and raster data, surfaces, and networks are also covered.

---

**186**
I. Date Initiated: December 19, 2013       Date Revised: January 12, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GIS
   c. Course number A301
   d. Number of credits and contact hours: 3.0 (2+2)
   e. Course title: Spatial Data Structures
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking None
   j. Course Description: Fundamental concepts of geospatial data structures as well as methods and algorithms for manipulation of geospatial data. Geospatial vector and raster data, surfaces, and networks are also covered.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisites: [ENGR A161 and GIS A201] with a minimum grade of C.
   m. Course fees: Yes, standard CoEng course fee

III. Course Level Justification

   This course provides the students with the fundamental concepts of geospatial data structures and methods and algorithms of manipulations with geospatial data. The course is built upon previous course work and requires understanding of basic geospatial concepts, methods, and vocabulary of the Geomatics discipline. The course builds analytical skills.

IV. Instructional Goals and Student Learning Outcomes:

   A. Instructional Goals:
      The instructor will:
      1. Provide overview of basic database concepts relevant to geospatial data
      2. Introduce data structures to store vector and raster data
      3. Explain methods and introduce algorithms of manipulating with vector and raster data
      4. Introduce data structure and basic algorithms for surfaces
      5. Provide an overview of data structures and basic algorithms for networks
6. Provide an overview of data structures and basic algorithms for storage of and access to geospatial data

B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Identify basic differences between spatial and non-spatial databases</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>B. Apply data structures for geospatial vector data</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>C. Use vector data algorithms to address basic problems on spatial data</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>D. Use raster data algorithms to address basic problems on spatial data</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>E. Identify algorithms for surfaces to solve basic problems on spatial data</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>F. Demonstrate understanding of data structures and algorithms for networks</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>G. Use algorithms for accessing and storing geospatial data</td>
<td>Homework assignments, exams</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Object Representation
   1.1. Real world objects and conceptual models
   1.2. Abstract mathematical models
   1.3. Geospatial data models

2. Databases
   2.1. Intro to databases
   2.2. Relational database
   2.3. Storing spatial data in a relational database

3. Vector Data Structures
   3.1. Simple storage of vector data
   3.2. Topological storage of vector data
   3.3. Introduction to topology
   3.4. Topological data structures

4. Vector Algorithms for Lines
   4.1. Simple line intersection algorithm
   4.2. Limitations of line intersection algorithms
   4.3. Straight and wiggly lines
4.4. Calculations on lines
4.5. Line intersection

5. Vector Algorithms for Areas
5.1. Calculations on areas: single polygons
5.2. Calculations on areas: multiple polygons
5.3. Point in polygon: simple algorithm

6. The Efficiency of Algorithms
6.1. How is algorithm efficiency measured?
6.2. Efficiency of the line intersection algorithm
6.3. Efficiency of other algorithms

7. Raster Data Structures
7.1. Raster data in databases
7.2. Raster data structures: the array
7.3. Run length encoding and quadtrees
7.4. Data structures for images

8. Raster Algorithms
8.1. Raster algorithms: attribute query for run length encoded data
8.2. Raster algorithms: attribute query for quadtrees
8.3. Raster algorithms: area calculations

9. Data Structures for Surfaces
9.1. Data models for surfaces
9.2. Algorithms for creating grid surface models
9.3. Algorithms for creating a triangulated irregular network

10. Algorithms for Surfaces
10.1. Elevation, slope and aspect
10.2. Hydrological analysis using a Triangulated Irregular Network (TIN)
10.3. Determining flow direction using a gridded Digital Elevation Model (DEM)
10.4. Using the flow directions for hydrological analysis

11. Data Structures and Algorithms for Networks
11.1. Networks in vector and raster
11.2. Shortest path algorithm
11.3. Data structures for network data
11.4. Faster algorithms for finding the shortest route

12. Strategies for Efficient Data Access
12.1. Tree data structures
12.2. Indexing and storing data using both coordinates
12.3. Space-filling curves for spatial data
12.4. Spatial filling curves and data clustering
12.5. Space-filling curves for indexing spatial data
12.6. Caching

VI. Suggested Text and Bibliography

A. Suggested Text:

B. Bibliography:
**Course Action Request**
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College  
EN SOENGR

1b. Division  
choose one

1c. Department  
Geomatics

2. Course Prefix  
GIS

3. Course Number  
A351

4. Previous Course Prefix & Number  
GEO A167

5a. Credits/CEUs  
3

5b. Contact Hours  
(Lecture + Lab)  
(2+2)

6. Complete Course Title  
Remote Sensing

Abbreviated Title for Transcript (30 character)  
Remote Sensing

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
- ☑ Automatic Restrictions
- ☐ Other

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: 99/9999

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 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>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. See attached checksheet</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td></td>
<td></td>
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<td>3.</td>
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</table>

Initiator Name (typed): T.B. Quimby  
Initiator Signed Initials: _________  
Date: __________

13b. Coordination Email  
Date: 1/13/14  
submitted to Faculty Listserv:  
[uaa-faculty@lists.uaa.alaska.edu](mailto:uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison  
Date: 1/13/14

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 of image formation, electromagnetic spectrum, imaging systems, photo interpretation and image classification using image analysis software.

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

PHYS A124 and PHYS A124L with a minimum grade of C.

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

GIS A201

16c. Automatic Restriction(s)

- ☐ College
- ☐ Major
- ☐ Class
- ☐ Level

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

17. ☑ Mark if course has fees Std CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action

This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

<table>
<thead>
<tr>
<th>Initiator (faculty only)</th>
<th>Date</th>
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<tbody>
<tr>
<td>Gennady Gienko</td>
<td>_________</td>
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<table>
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<th>Initiator (TYPE NAME)</th>
<th>Date</th>
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<tbody>
<tr>
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<td>Dean/Director of School/College</td>
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<th>Department Chair</th>
<th>Date</th>
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<tbody>
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<th>College/School Curriculum Committee Chair</th>
<th>Date</th>
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Box 13a

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<th>Course Being Changed:</th>
<th>GIS A351 (formerly GEO A167)</th>
<th>Remote Sensing (formerly Remote Sensing and Image Analysis)</th>
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<td><strong>Impacted Program or Course</strong></td>
<td><strong>Date of Notification</strong></td>
<td><strong>Chair/Coordinator Contacted (not listerv)</strong>*</td>
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<tr>
<td>Natural Sciences BS</td>
<td>1/13/14</td>
<td>Khrys Duddleston</td>
</tr>
<tr>
<td>Geomatics BS</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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<tr>
<td>Geomatics AAS</td>
<td>1/13/14</td>
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<tr>
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<tr>
<td>Geographic Information Systems Minor</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
</tr>
</tbody>
</table>
I. **Date Initiated:** December 19, 2013  
**Date Revised:** January 12, 2014

II. **Course Information**

a. **College:** EN  
b. **Course prefix:** GIS  
c. **Course number:** A351  
d. **Number of credits and contact hours:** 3.0 (2+2)  
e. **Course title:** Remote Sensing  
f. **Grading Basis:** A-F  
g. **Implementation date:** Fall 2014  
h. **Cross listing:** None  
i. **Stacking:** None  
j. **Course Description:** Principles of image formation, electromagnetic spectrum, imaging systems, photo interpretation and image classification using image analysis software.  
k. **Course attributes:** None  
l. **Course registration prerequisites/restrictions:**  
   - Prerequisites: [PHYS A124 and PHYS A124L] with a minimum grade of C.  
   - Co-requisite: GIS A201  
m. **Course fees:** Yes, standard CoEng course fee

III. **Course Level Justification**

The course builds upon basic concepts of Geomatics from previous 100-level courses and fundamental physics. The course creates a solid foundation for more advanced work in area of image analysis.

IV. **Instructional Goals and Student Learning Outcomes:**

A. **Instructional Goals:**

   The instructor will:

   1. Provide overview of remote sensing processes  
   2. Explain methods of image formation  
   3. Explain principles of interaction of electromagnetic radiation with targets  
   4. Provide overview of modern remote sensing systems  
   5. Introduce basic techniques of image enhancement using industry standard software  
   6. Explain theory of image interpretation  
   7. Illustrate techniques of visual image interpretation
8. Illustrate methods and techniques to analyze remotely sensed image

B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Demonstrate understanding of the theory of remote sensing</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>B. Enhance remotely sensed images</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>C. Implement visual image interpretation</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>D. Use digital image processing software to enhance and classify images</td>
<td>Homework assignments, exams</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

   1.1. Introduction
   1.2. Electromagnetic spectrum
   1.3. Remote sensors

2. Elements of Photographic Systems
   2.1. Introduction
   2.2. History
   2.3. Cameras

3. Principles of Airphoto Interpretation
   3.1. Introduction
   3.2. Fundamentals of airphoto interpretation
   3.3. Recognition elements
   3.4. Stereoscopic viewing

4. Acquisition of Aerial Photographs
   4.1. Introduction
   4.2. Considerations
   4.3. Specification

5. Remote Sensing Sensors and Systems
   5.1. Overview
   5.2. Earth observation platforms
   5.3. Thermal sensors
   5.4. RADAR sensors
   5.5. LiDAR sensors
   5.6. Earth resource satellites
6. Digital Image Processing
   6.1. Introduction
   6.2. Image rectification
   6.3. Image enhancement

7. Multispectral Image Classification
   7.1. Principles of image classification
   7.2. Supervised and unsupervised classifications

8. Applications of Remote Sensing

VI. Suggested Text and Bibliography

A. Suggested Text:

B. 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>EN SOENGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. Division</td>
<td>choose one</td>
</tr>
<tr>
<td>1c. Department</td>
<td>Geomatics</td>
</tr>
</tbody>
</table>

| 2. Course Prefix | GIS |
| 3. Course Number | A366 |
| 4. Previous Course Prefix & Number | N/A |
| 5a. Credits/CEUs | 3 |
| 5b. Contact Hours (Lecture + Lab) | (2+2) |

<table>
<thead>
<tr>
<th>6. Complete Course Title</th>
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<tbody>
<tr>
<td>Abbreviated Title for Transcript (30 character)</td>
<td>Spatial Analysis</td>
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| 7. Type of Course | Academic |
| 8. Type of Action: | Add |

If a change, mark appropriate boxes:

- Prefix
- Credits
- Title
- Grading Basis
- Course Description
- Test Score Prerequisites
- Automatic Restrictions
- Class
- College
- Level
- Major
- Other

<table>
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<th>Max Credits</th>
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<th>10. Grading Basis</th>
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<td>NG</td>
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<th>semester/year</th>
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<tr>
<td>From: Fall/2014</td>
<td>To: 99/9999</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
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<th>Chair/Coordinator Contacted</th>
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<td></td>
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</table>

Initiator Name (typed): T.B. Quimby  
Initiator Signed Initials: _________  
Date: ____________

13b. Coordination Email | Date: 1/13/14  
submitted to Faculty Listserv: [uaa-faculty@lists.aaa.alaska.edu](mailto:uaa-faculty@lists.aaa.alaska.edu)

13c. Coordination with Library Liaison | Date: 1/13/14

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)  
Theoretical foundation for, and practical applications of, the statistical analysis of spatial data. Topics include characterization of spatial data, techniques for visualizing, exploring and modeling spatial data distributed as point patterns, continuous data, area data, and spatial interaction data.

16a. Course Prerequisite(s) (list prefix and number or test code and score)  
[GIS A301 and STAT A253] with a minimum grade of C.

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

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

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

17. Mark if course has fees Std CoEng fee

18. Mark if course is a selected topic course

19. Justification for Action  
This course is being added as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Caixia Wang  
Initiator (TYPE NAME)

<table>
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Initiator (faculty only)  
Caixia Wang  
Initiator (TYPE NAME)

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

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

Approved  
Disapproved  
Department Chair  
Date

Approved  
Disapproved  
College/School Curriculum Committee Chair  
Date

Approved  
Disapproved  
Provost or Designee  
Date

Disapproved  
Provost or Designee  
Date
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<tr>
<td>GIS A495</td>
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<td>Bart Quimby</td>
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I. Date Initiated: December 23, 2013  Date Revised: January 12, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GIS
   c. Course number: A366
   d. Number of credits and contact hours: 3.0 (2+2)
   e. Course title: Spatial Analysis
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Theoretical foundation for, and practical applications of, the statistical analysis of spatial data. Topics include characterization of spatial data, techniques for visualizing, exploring and modeling spatial data distributed as point patterns, continuous data, area data, and spatial interaction data.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisites: [GIS A301 and STAT A253] with a minimum grade of C.
   m. Course fees: Yes, standard CoEng course fee

III. Course Level Justification
This course provides students with advanced modeling and analysis techniques for spatial data.

IV. Instructional Goals and Student Learning Outcomes:

A. Instructional Goals:
   The instructor will:
   1. Explain techniques for the statistical analysis of spatial data
   2. Discuss practical applications using spatial and non-spatial statistics
   3. Discuss problems in spatial data sampling
B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Demonstrate the ability to identify appropriate analysis techniques for various geospatial data</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>B. Identify patterns in observed data</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>C. Formally describe patterns in observed data</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>D. Demonstrate the skills to assess patterns statistically</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>E. Demonstrate the ability to apply visualization techniques to explore geospatial data</td>
<td>Assignments, exams, project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Issues in Analyzing Spatial Data
2. General Concepts in Spatial Data Analysis
3. Methods for Point Pattern Analysis
4. Methods for Spatially Continuous Data Analysis
5. Methods for Area Data Analysis
6. Methods for Spatial Interaction Data

VI. Suggested Text and Bibliography

A. Suggested Texts:


B. Bibliography:


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

1a. School or College  
EN SOENGR

1b. Division  
choose one

1c. Department  
Geomatics

2. Course Prefix  
G

3. Course Number  
A367

4. Previous Course Prefix & Number  
N/A

5a. Credits/CEUs  
3

5b. Contact Hours  
(Lecture + Lab)  
(2+2)

6. Complete Course Title  
Image Analysis

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  
☒ Automatic Restrictions  
☐ Class  
☐ Level  
☐ College  
☐ Other  
(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:  99/9999

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 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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Initiator Name (typed):  T.B. Quimby  
Initiator Signed Initials:  
Date:

13b. Coordination Email  
Date:  1/13/14  
submitted to Faculty Listserv:  (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison  
Date:  1/13/14

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 of digital image processing, multi-temporal image analysis, change detection, and spatio-temporal geo-visualization.

16a. Course Prerequisite(s) (list prefix and number or test code and score)  
[ENGR A161 and STAT A253 and GIS A351] with a minimum grade of C.

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

16c. Automatic Restriction(s)

☒ College  
☐ Major  
☒ Class  
☐ Level

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

17. ☒ Mark if course has fees Std CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action  
This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

Initiator (faculty only)  
Gennady Gienko

Initiator (TYPE NAME)

☑ Approved  
☐ Disapproved

Date  
Dean/Director of School/College  
Date

☑ Approved  
☐ Disapproved

Date  
Undergraduate/Graduate Academic  
Date

☑ Approved  
☐ Disapproved

Date  
Provost or Designee  
Date

201
### Box 13a

<table>
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<th>Impacted Program or Course</th>
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<td>GIS A370</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
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</table>
COURSE CONTENT GUIDE

University of Alaska Anchorage, College of Engineering, Geomatics Dept.

I. Date Initiated: December 19, 2013 Date Revised: January 12, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GIS
   c. Course number: A367
   d. Number of credits and contact hours: 3.0 (2+2)
   e. Course title: Image Analysis
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Principles of digital image processing, multi-temporal image analysis, change detection, and spatio-temporal geo-visualization.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisites: [ENGR A161 and STAT A253 and GIS A351] with a minimum grade of C.
   m. Course fees: Yes, standard CoEng course fee

III. Course Level Justification

The course is built upon basic concepts of Geomatics from previous 200-level courses. The course creates solid foundation for advanced work in area of spatio-temporal image analysis, change detection, and geo-visualization.

IV. Instructional Goals and Student Learning Outcomes:

A. Instructional Goals:
   The instructor will:
   1. Provide an overview of digital image processing in Remote Sensing
   2. Explain basic theory of digital image formation
   3. Introduce fundamental methods of digital image processing
   4. Provide an overview of applications of image filtration in Remote Sensing
   5. Explain principles of morphological processing and geometric transforms
   6. Provide overview of multi-sensor data fusion
   7. Provide overview of multi-temporal data analysis
   8. Introduce change detection using visual image interpretation
9. Introduce change detection using image derived products and indices
10. Explain principles of geo-visualization of spatio-temporal changes

B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
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</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Demonstrate understanding of the theory of image processing in remote sensing</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>B. Implement basic elements of image processing using a programming language</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>C. Implement change detection using visual image interpretation</td>
<td>Homework assignments, projects, exams</td>
</tr>
<tr>
<td>D. Implement change detection using multispectral image classification</td>
<td>Homework assignments, projects, exams</td>
</tr>
<tr>
<td>E. Visualize changes in land use/land cover using GIS software</td>
<td>Homework assignments, projects, exams</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Introduction to Digital Image Processing
   1.1. Digital image characteristics
   1.2. Image formation
   1.3. Point operations in image processing
   1.4. Spatial filtering
   1.5. Image processing in frequency domain. Fourier transform
   1.6. Application of image filtration in Remote Sensing and GIS
   1.7. Morphological processing
   1.8. Geometric transformations

2. Change Detection
   2.1. Multi-temporal image analysis
   2.2. Multi-sensor image analysis
   2.3. Visual change detection
   2.4. Change detection using spectral differences and rationing
   2.5. Change detection using Normalized Difference Vegetation Index (NDVI)
   2.6. Change detection using Principal Component Analysis (PCA)
   2.7. Change detection using image classification

3. Geo-Visualization of Spatio-Temporal Changes
VI. Suggested Text and Bibliography

A. Suggested Text:


B. Bibliography:


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

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<tr>
<td>5b. Contact Hours</td>
<td>(Lecture + Lab) (2+2)</td>
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6. Complete Course Title
Land Information Systems and Legal Interpretations

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<th>7. Type of Course</th>
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| 8. Type of Action: | ☐ Add or ☑ Change or ☐ Delete |

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<th>9. Repeat Status No</th>
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<tr>
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Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: ___________
Date: ___________

13b. Coordination Email Date: 1/13/14
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/13/14

14. General Education Requirement

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<td>Social Sciences</td>
<td>Natural Sciences</td>
<td>Integrative Capstone</td>
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15. Course Description (suggested length 20 to 50 words)

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

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

16c. Automatic Restriction(s)

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

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only)

Gennady Gienko
Initiator (TYPE NAME)

[ ] Approved [ ] Disapproved
Date

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

Undergraduate/Graduate Academic
[ ] Approved [ ] Disapproved
Date

Board Chair
[ ] Approved [ ] Disapproved
Date

Provost or Designee
[ ] Approved [ ] Disapproved
Date
1a. School or College
EN SOENGR

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GIS

3. Course Number
A370

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(2+2)

6. Complete Course Title
GIS and Remote Sensing for Natural Resources
GIS for Natural Res

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

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: 99/9999

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 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>
<td>1. See attached checksheet</td>
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Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: _________ Date: __________

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

13c. Coordination with Library Liaison
Date: 1/13/14

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)
Introduces the principles and terminology of natural resources, landscape ecology and ecosystem management and develops students' analytical skills using spatial technologies consisting of geographic information systems (GIS), remote sensing, and global positioning systems (GPS) as tools to gain knowledge of landscape form and function.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
GIS A351 with a minimum grade of C.

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

16c. Automatic Restriction(s)
☐ College
☐ Major
☐ Class
☐ Level

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

17. ☒ Mark if course has fees Std CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only)
Gennady Gienko
Initiator (TYPE NAME)

☑ Approved
☐ Disapproved

Dean/Director of School/College
Date

Undergraduate/Graduate Academic
Board Chair
Date

Provost or Designee
Date
<table>
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<th>Course Being Changed:</th>
<th>GIS A370</th>
<th>GIS and Remote Sensing for Natural Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impacted Program or Course</td>
<td>Date of Notification</td>
<td>Chair/Coordinator Contacted</td>
</tr>
<tr>
<td>Environmental Sciences Minor</td>
<td>1/14/14</td>
<td>Dorn Van Dommelen</td>
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<tr>
<td>Natural Sciences BS</td>
<td>1/14/14</td>
<td>Khrys Duddleston</td>
</tr>
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<td>Geomatics BS</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
</tr>
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<td>Geographic Information Systems UC</td>
<td>1/13/14</td>
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</tr>
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<td>Geographic Information Systems Minor</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
</tr>
</tbody>
</table>
COURSE CONTENT GUIDE

University of Alaska Anchorage, College of Engineering, Geomatics Dept.

I. Date Initiated: January 10, 2014          Date Revised: January 14, 2014

II. Course Information

a. College: EN
b. Course prefix: GIS
c. Course number: A370
d. Number of credits and contact hours: 3.0 (2+2)
i. Course title: GIS and Remote Sensing for Natural Resources
e. Grading Basis: A-F
f. Implementation date: Fall 2014
g. Cross listing: None
h. Stacking None
i. Course Description: Introduces the principles and terminology of natural resources, landscape ecology and ecosystem management and develops students’ analytical skills using spatial technologies consisting of geographic information systems (GIS), remote sensing, and global positioning systems (GPS) as tools to gain knowledge of landscape form and function.
j. Course attributes: None
k. Course registration prerequisites/restrictions: Prerequisite: GIS A351 with a minimum grade of C.
l. Course fees: Yes, standard CoEng course fee

III. Course Level Justification

The course is built upon basic concepts of GIS, Remote Sensing and Image Processing from previous 100 and 200-level courses. The course creates solid foundation for applying GIS, image analysis, and GPS for Natural Resources.

IV. Instructional Goals and Student Learning Outcomes:

A. Instructional Goals:

The instructor will:

1. Define natural resources, and describe landscape functions and processes
2. Define and give examples of issues for natural resource managers
3. Describe and lead students through creation of a GIS database for a study area
4. Describe issues of scale and the quality/accuracy of spatial data
5. Explain interactions of electromagnetic radiation with the landscape
6. Describe attributes of soils, vegetation and animals that can be quantified using GIS or image analysis
7. Illustrate techniques of GIS analysis for natural resource issues
8. Illustrate methods and techniques to analyze remotely sensed images for use in natural resource management

B. Student Learning Outcomes & Assessment:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Demonstrate understanding of natural resources and NRM issues</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>B. Create data layers dealing with issues of scale and accuracy</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>C. Implement GIS analytical techniques</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td>D. Conduct various image analysis and classification techniques</td>
<td>Homework assignments, exams</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Introduction
   1.1. Natural resources, renewable versus non-renewable
   1.2. Fundamentals of landscape ecology
   1.3. GIS and remote sensing technology

2. Natural Resources and Humans
   2.1. Ecosystem functions
   2.2. Fundamentals of biogeography
   2.3. Data acquisition, scale and quality issues

3. Natural Resource Assessment
   3.1. Patches, corridors and the matrix
   3.2. Flows between Landscape Elements
   3.3. Manmade and Natural Disturbances
   3.4. Soils and Minerals

4. Modeling the surface of the earth
   4.1. Measuring elevation (survey, LIDAR, RADAR)
   4.2. Types of models
      4.2.1. Digital elevation models (DEM)
      4.2.2. Digital surface models (DSM)
      4.2.3. Triangulated irregular networks (TIN)
5. Remote Sensing Platforms
   5.1. Electromagnetic spectrum
   5.2. Scale and resolution
   5.3. Active versus passive sensors
   5.4. Earth observation satellites
   5.5. Earth resource satellites
   5.6. Thermal sensors
   5.7. RADAR sensors
   5.8. LiDAR sensors
   5.9. Aerial photography
   5.10. Plot photography

6. Orthorectification of Aerial Photography
   6.1. Introduction
   6.2. Internal versus external distortion
   6.3. Techniques for reducing/removing distortion

7. Analytical Techniques for Natural Resource Management
   7.1. Watershed analysis
      7.1.1. Delineation of watershed
      7.1.2. Use of Boolean masks to extract data
      7.1.3. Predicting flow using compactness ratio
      7.1.4. Analyzing channel characteristics
      7.1.5. Cross-section analysis
   7.2. Vegetative indices (VI)
      7.2.1. Overview and electromagnetic spectrum background
      7.2.2. Slope-based VI
      7.2.3. Distance-based VI
      7.2.4. Orthogonal transformation VI
   7.3. Animal use and movement
      7.3.1. Physiological drives
      7.3.2. Geostatistical point analysis
      7.3.3. Kernel density maps
      7.3.4. Resource modeling
   7.4. Time change analysis
      7.4.1. Overview (Trend, Seasonality, Noise)
      7.4.2. Pairwise comparisons
      7.4.3. Time series analysis
      7.4.4. Predictive modeling and assessment

8. Multispectral Image Classification
   8.1. Principles of image classification
   8.2. Supervised and unsupervised classifications
   8.3. Accuracy assessment
9. The Role of GIS in Decision Making
   9.1. Multi-Criteria Evaluation (MCE)
   9.2. Multi-Objective Land Allocation (MOLA)

VI. Suggested Text and Bibliography

A. Suggested Text:

B. Bibliography:

**Course Action Request**

**University of Alaska Anchorage**

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

<table>
<thead>
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<th>1a. School or College</th>
<th>1b. Division</th>
<th>1c. Department</th>
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<tr>
<td>EN SOENGR</td>
<td>choose one</td>
<td>Geomatics</td>
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<table>
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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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<td>GIS</td>
<td>A371</td>
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<td>(1+4)</td>
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6. Complete Course Title

GIS Applications I

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 Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
- ☐ Class ☐ Level ☐ College ☐ Major (please specify)
- ☐ Other

9. Repeat Status No

☐ # of Repeats

☐ Max Credits

10. Grading Basis

☒ A-F
☐ P/NP
☐ NG

11. Implementation Date

From: Fall/2014
To: 99/9999

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 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>Date of Coordination</th>
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</thead>
<tbody>
<tr>
<td>Geographic Information Systems UC</td>
<td>T.B. Quimby</td>
<td>N/A</td>
<td>T.B. Quimby</td>
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<td>Geomatics BS</td>
<td>N/A</td>
<td>T.B. Quimby</td>
<td></td>
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<td>3.</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Initiator Name (typed): T.B. Quimby

Initiator Signed Initials: ___________

Date: ___________

13b. Coordination Email

Date: 1/13/14

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

13c. Coordination with Library Liaison

Date: 1/13/14

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)

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

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

16c. Automatic Restriction(s)

☐ College ☐ Major ☐ Class ☐ Level

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action

This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

Initiator (faculty only)

Gennady Gienko

Initiator (TYPE NAME)

☐ Approved
☐ Disapproved

Date

Dean/Director of School/College

Date

Undergraduate/Graduate Academic

Date

Board Chair

Date

Provost or Designee

Date

Approved

Disapproved

Department Chair

Date

College/School Curriculum Committee Chair

Date

213
1a. School or College
EN SOENGR

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GIS

3. Course Number
A433

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(2+2)

6. Complete Course Title
Coastal Mapping
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
☐ Automatic Restrictions
☐ Class
☐ Level
☐ College
☐ Major
☐ Other
☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions
☐ General Education Requirement

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

10. Grading Basis
☒ A-F
☐ P/NP
☐ NG

11. Implementation Date
From: Fall/2014
To: 99/9999

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.

See attached checksheet

Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: ________ Date: __________

13b. Coordination Email
Date: 1/13/14
submitted to Faculty Listserv: uaa-faculty@lists.uaa.alaska.edu

13c. Coordination with Library Liaison
Date: 1/13/14

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 of coastal mapping. Spatial reasoning and information applications to coastal mapping projects.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
GIS A366 with a minimum grade of C.

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

16c. Automatic Restriction(s)
☐ College
☐ Major
☐ Class
☐ Level

17. ☒ Mark if course has fees Std CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is being updated as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only)
Gennady Gienko
Initiator (TYPE NAME)

Approved
Disapproved
Date
Dean/Director of School/College
Date

Approved
Disapproved
Date
Undergraduate/Graduate Academic Board Chair
Date

Approved
Disapproved
Date
Provost or Designee

1/13/14
## Box 13a

<table>
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<tr>
<th>Course Being Changed:</th>
<th>GIS A433</th>
<th>Coastal Mapping</th>
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<td>1/13/14</td>
<td>Khrys Duddleston</td>
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<td>Bart Quimby</td>
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</table>
COURSE CONTENT GUIDE

University of Alaska Anchorage, College of Engineering, Geomatics Dept.

I. Date Initiated: December 19, 2013 Date Revised: January 12, 2014

II. Course Information
   a. College: EN
   b. Course prefix: GIS
   c. Course number: A433
   d. Number of credits and contact hours: 3.0 (2+2)
   e. Course title: Coastal Mapping
   f. Grading Basis: A-F
   g. Implementation date: Fall 2014
   h. Cross listing: None
   i. Stacking: None
   j. Course Description: Principles of coastal mapping. Spatial reasoning and information applications to coastal mapping projects.
   k. Course attributes: None
   l. Course registration prerequisites/restrictions:
      Prerequisite: GIS A366 with a minimum grade of C.
   m. Course fees: Yes, standard CoEng course fee

III. Course Level Justification

   The course is built upon basic concepts of Geomatics from previous 300-level courses. The course creates solid foundation for integration of geomatics methods for coastal mapping.

IV. Instructional Goals and Student Learning Outcomes:

   A. Instructional Goals:
      The instructor will:
      1. Provide an overview of coastal processes and changes
      2. Introduce modern technologies for coastal data collection and mapping
      3. Discuss public databases of coastal zone spatial information
      4. Provide an overview of multi-temporal and multi-sensor data analysis for coastal mapping
      5. Explain how to analyze data layers over time for change detection in the coastal zone
      6. Explain and demonstrate using various GIS tools for coastal analysis and mapping
**B. Student Learning Outcomes & Assessment:**

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td><strong>A.</strong> Demonstrate understanding of the concepts, challenges and applications in coastal zone mapping</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td><strong>B.</strong> Access and use public databases of coastal zone spatial information</td>
<td>Homework assignments, exams</td>
</tr>
<tr>
<td><strong>C.</strong> Use basic GIS tools for coastal data analysis</td>
<td>Homework assignments, projects, exams</td>
</tr>
<tr>
<td><strong>D.</strong> Implement change detection in coastal areas using various geospatial data</td>
<td>Homework assignments, projects, exams</td>
</tr>
<tr>
<td><strong>E.</strong> Discuss accuracy and uncertainty in data and derived products</td>
<td>Homework assignments, projects, exams</td>
</tr>
</tbody>
</table>

**V. Typical Course Outline**

1. **Introduction: Challenges of the Coastal Zone**

2. **Physical Ocean**
   2.1. Salt water
      2.1.1. Hydrologic cycle
      2.1.2. Salinity
      2.1.3. Geographic characteristics of sea water
      2.1.4. Sea level and sea level change
   2.2. Marine geomorphology
      2.2.1. Sediments and sedimentation
      2.2.2. Long-shore drift
      2.2.3. Nearshore processes
      2.2.4. Island formation
      2.2.5. Oceanic trenches
   2.3. Water movement
      2.3.1. Currents
      2.3.2. Tides
      2.3.3. Waves
      2.3.4. Tsunamis
      2.3.5. Upwelling and downwelling
      2.3.6. Water movement, weather and climate
      2.3.7. El Niño and La Niña
   2.4. Ocean environments and biodiversity
      2.4.1. Oceanic ecosystems, their functioning and biota
      2.4.2. Island ecosystems
2.4.3. Benthic ecosystems
2.4.4. Sea ice ecosystems
2.4.5. Conservation and management of oceanic ecosystems and biodiversity

3. Sensing and Mapping the Marine Environment
   3.1. Maritime measurement
   3.2. Measurement of distance and location at sea
   3.3. Field methods of data collection
   3.4. Problems in data collection at sea
   3.5. Hydrographic surveying
   3.6. Nautical charts vs. topographic maps
   3.7. Aerial photography and the ocean and coastal zone
   3.8. Remote sensing and the ocean and coastal zone

4. GIS Data for Coastal Mapping Applications
   4.1. Datums, horizontal and vertical
   4.2. Bathymetry
   4.3. Topography
   4.4. Infrastructure
   4.5. Public databases
   4.6. Integration of ocean and coastal GIS data

5. GIS and Remote Sensing techniques for Coastal Mapping
   5.1. GIS mapping of the ocean and the coastal zone
   5.2. Surface representations and hydrography
   5.3. Surface modeling and analysis
   5.4. Watershed analysis
   5.5. Water levels, waves, currents and sea level rise
   5.6. Coastal erosion
   5.7. Mapping inundation
   5.8. Change detection
   5.9. Joining datasets at the shoreline
   5.10. Accuracy and uncertainty

6. Practical Applications
   6.1. Viewing significant maritime processes, biota, uses, and issues in Southcentral Alaska
   6.2. Field exercises with nautical charts
   6.3. Cross-sections and surface models
   6.4. Building a coastal map
   6.5. Map coastal inundation using GIS
   6.6. Monitoring changes in coastal area
   6.7. Designing and engineering mapping products
   6.8. Data collection and design supporting a coastal engineering project
   6.9. Permit map for National Environmental Policy Act (NEPA) compliance
VI. Suggested Text and Bibliography

A. Suggested Text:


B. Bibliography:


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

1a. School or College
EN SOENGR

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GIS

3. Course Number
A458

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(2+2)

6. Complete Course Title
Spatial Data Management

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
☒ Automatic Restrictions
☒ Other

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

10. Grading Basis
☒ A-F
☐ P/NP
☐ NG

11. Implementation Date
From: Fall/2014
To: 99/9999

12. Cross Listed with
☐ Stacked with

Cross-Listed Coordination Signature

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Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: __________ Date: __________

13b. Coordination Email
Date: 1/13/14
submitted to Faculty Listserv: uaa-faculty@lists.ualaska.edu

13c. Coordination with Library Liaison
Date: 1/13/14

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)
Geospatial database technology underlying geographic information systems. Topics include spatial data models, querying, implementation of relational and spatial operators, and system architecture for geospatial databases.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
GIS A366 with a minimum grade of C.

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

16c. Automatic Restriction(s)
☐ College
☐ Major
☐ Class
☐ Level

17. ☒ Mark if course has fees Std CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is being added as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only) Date
Caixia Wang

Initiator (TYPE NAME)

Approved
Disapproved
Dean/Director of School/College
Date

Approved
Disapproved
Undergraduate/Graduate Academic
Date

Approved
Disapproved
Board Chair

Approved
Disapproved
Provost or Designee
Date

220
<table>
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<tr>
<th>Course Being Changed:</th>
<th>GIS A458</th>
<th>Spatial Data Management (formerly Design and Management of Spatial Information)</th>
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<td>Date of Notification</td>
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<tr>
<td>Natural Sciences BS</td>
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<td>Khrys Duddleston</td>
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<td>Geomatics BS</td>
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<td>Bart Quimby</td>
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<td>Geographic Information Systems UC</td>
<td>1/13/14</td>
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<tr>
<td>Geographic Information Systems Minor</td>
<td>1/13/14</td>
<td>Bart Quimby</td>
</tr>
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</table>


I. **Date Initiated**: December 23, 2013  **Date Revised**: January 12, 2014

II. **Course Information**

a. **College**: EN
b. **Course prefix**: GIS
c. **Course number**: A458
d. **Number of credits and contact hours**: 3.0 (2+2)
e. **Course title**: Spatial Data Management
f. **Grading Basis**: A-F
g. **Implementation date**: Fall 2014
h. **Cross listing**: None
i. **Stacking**: None
j. **Course Description**: Geospatial database technology underlying geographic information systems. Topics include spatial data models, querying, implementation of relational and spatial operators, and system architecture for geospatial databases.
k. **Course attributes**: None
l. **Course registration prerequisites/restrictions**: Prerequisite: GIS A366 with a minimum grade of C.
m. **Course fees**: Yes, standard CoEng course fee

III. **Course Level Justification**

This course provides students with important concepts of database application development. It develops an understanding of mechanics of a database management system.

IV. **Instructional Goals and Student Learning Outcomes**:

A. **Instructional Goals.**

The instructor will:
1. Discuss databases in general and the relational database model
2. Demonstrate and explain querying
3. Explain characterization of spatial database and its spatial operators
4. Demonstrate and explain how to design spatial databases
B. Student Learning Outcomes & Assessments:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Typical Assessment Methods</th>
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</thead>
<tbody>
<tr>
<td>Upon successful completion of this course a student will be able to:</td>
<td></td>
</tr>
<tr>
<td>A. Design a spatial database</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>B. Query spatial databases</td>
<td>Assignments, exams, project</td>
</tr>
<tr>
<td>C. Develop spatial operators</td>
<td>Assignments, exams, project</td>
</tr>
</tbody>
</table>

V. Typical Course Outline

1. Introduction to Databases
2. The Relational Model
3. Structured Query Language (SQL)
4. ER Modeling
5. Spatial Databases
6. Spatial Operators
7. Network Model
8. Indexes and Access Methods
9. Query Processing

VI. Suggested Text and Bibliography

A. Suggested Texts:


B. Bibliography:


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

1a. School or College
EN SOENGR

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GIS

3. Course Number
A460

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(0+9)

6. Complete Course Title
GIS Senior Project

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 Description ☐ Course Prerequisites
☐ Contact Hours ☐ Registration Restrictions ☐ Cross-Listed/Stacked ☐ Course Prerequisites
☐ Repeat Status ☐ General Education Requirement ☐ Co-requisites
☐ Other ☐ Class ☐ Level ☐ College ☐ Major ☐ (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: 99/9999

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 in table. If more than three entries, submit a separate table. A template is available at www.aaa.alaska.edu/governance.

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Initiator Name (typed): T.B. Quimby Initiator Signed Initials: _________ Date: __________

13b. Coordination Email Date: 1/13/14
submitted to Faculty Listserv: (uaa-faculty@lists.aaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/13/14

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)

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

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

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

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

17. Mark if course has fees

18. Mark if course is a selected topic course

19. Justification for Action
This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

Initiator (faculty only)
Gennady Gienko Initiator (TYPE NAME)

☑ 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
## Course Action Request

**University of Alaska Anchorage**

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

1a. School or College
   - EN SOENGR

1b. Division
   - choose one

1c. Department
   - Geomatics

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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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<td>(2+2)</td>
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6. Complete Course Title
   - Integration of Geomatics Technologies

<table>
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<tr>
<th>Abbreviated Title for Transcript (30 character)</th>
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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
- Automatic Restrictions
- Class
- Level
- College
- Major
- Other

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: 99/9999

12. Cross Listed with
    - Stacked with

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>Initiator Name (typed): T.B. Quimby</th>
<th>Initiator Signed Initials: _________</th>
<th>Date: __________</th>
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13b. Coordination Email
    - Date: 1/13/14
    - submitted to Faculty Listserv: (uea-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
    - Date: 1/13/14

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)

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

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

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

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

17. Mark if course has fees

18. Mark if course is a selected topic course

19. Justification for Action
    - This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only)

Gennady Gienko

Initiator (TYPE NAME)

[Approval Forms]

<table>
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<td>Board Chair</td>
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<td>Date</td>
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## Box 13a

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<th>Integration of Geomatics Technologies</th>
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<td>Geographic Information Systems Minor</td>
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<td>Bart Quimby</td>
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</table>
1a. School or College
EN SOENGR

1b. Division
choose one

1c. Department
Geomatics

2. Course Prefix
GIS

3. Course Number
A471

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
4

5b. Contact Hours
(Lecture + Lab)
(1+6)

6. Complete Course Title
GIS Applications II

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 Number ☐ Contact Hours ☐ Repeat Status ☐ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites ☐ Co-requisites ☐ Registration Restrictions
☐ Test Score Prerequisites ☐ General Education Requirement
☐ Automatic Restrictions ☐ Class ☐ Level ☐ College ☐ Major
☐ Other ☐ (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: 99/9999

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 in table. If more than three entries, submit a separate table. A template is available at www.aaa.alaska.edu/governance.

Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: _________ Date: __________

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

Date: 1/13/14

13c. Coordination with Library Liaison
Date: 1/13/14

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)

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

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

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

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

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action

This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program’s constituents.

Initiator (faculty only) Gennady Gienko
Initiator (TYPE NAME)

Approved ☒ Disapproved ☐ Date

Dean/Director of School/College
Date

Undergraduate/Graduate Academic
Date

Board Chair
Date

Provost or Designee
Date

Gennady Gienko
Initiator (TYPE NAME)

Approved ☒ Disapproved ☐ Date

Department Chair
Date

College/School Curriculum Committee Chair
Date

Approved ☒ Disapproved ☐ Date

Approved ☒ Disapproved ☐ Date

Approved ☒ Disapproved ☐ Date

Approved ☒ Disapproved ☐ Date
### 1a. School or College
EN SOENGR

### 1b. Division
choose one

### 1c. Department
Geomatics

### 2. Course Prefix
GIS

### 3. Course Number
A490

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

### 5a. Credits/CEUs
1-6

### 5b. Contact Hours
(Lecture + Lab)
(0-6+0-12)

#### 6. Complete Course Title
Selected Advanced Topics in GIS

Abbreviated Title for Transcript (30 character)

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

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

If a change, mark appropriate boxes:
- Prefix
- Credits
- Title
- Grading Basis
- Course Description
- Test Score Prerequisites
- Automatic Restrictions
- Other

#### 9. Repeat Status No

# of Repeats

Max Credits

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

#### 11. Implementation Date

From: Fall/2014
To: 99/9999

#### 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 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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<td>T.B. Quimby</td>
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<tr>
<td>Geomatics BS</td>
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<td>T.B. Quimby</td>
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<td>Geographic Information Systems Minor</td>
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Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: _________
Date:________________

#### 13b. Coordination Email
Date: 1/13/14
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

#### 13c. Coordination with Library Liaison
Date: 1/13/14

#### 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)

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

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

#### 16c. Automatic Restriction(s)
- [ ] College
- [ ] Major
- [ ] Class
- [ ] Level

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

#### 17. Mark if course has fees

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

#### 19. Justification for Action
This course is being deleted as part of a redesign of all the Geomatics department curriculum. The redesign is driven by a need to streamline the program and to meet the needs of the program's constituents.

Initiator (faculty only)
Gennady Gienko
Initiator (TYPE NAME)
Approved
Disapproved

Dean/Director of School/College
Approved
Disapproved
Date

Undergraduate/Graduate Academic
Approved
Disapproved
Date

Board Chair
Approved
Disapproved
Date

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

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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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<td>GIS</td>
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6. Complete Course Title  
Internship in GIS  
Abbreviated Title for Transcript (30 character)

7. Type of Course  
(xs) 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
- Automatic Restrictions
- Class
- Level
- College
- Major
- Other

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: 99/9999

12. ( ) Cross Listed with  ( ) Stacked with

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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13c. Coordination with Library Liaison  Date: 1/13/14

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)

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

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

16c. Automatic Restrictions(s)

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19. Justification for Action

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<th>Date:</th>
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<td>Gennady Gienko</td>
<td>/initiator TYPE NAME</td>
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<th>Provost or Designee Date</th>
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Introduction

The Geomatics faculty have undertaken an effort to redesign the curriculum for the AAS and BS degrees in Geomatics and the UC and Minor in Geographic Information Systems over the past semester. This has been necessary due, in part, to issues with prerequisite changes, workload issues, and duplication of material in various courses.

The project involved initial discussions with the faculty in August and the Geomatics Advisory Board in September. This was followed by an industry survey which solicited information about the existing degrees and certificates and the need for additional degrees and certificates. Once the survey was completed the faculty met with industry and student representatives and the Geomatics Advisory Board to discuss the results.

Preliminary discussions about specific reforms were discussed in faculty meetings during the remainder of the semester. Several perspectives were considered including existing faculty expertise, known adjunct expertise, faculty workloads, and industry feedback. The week following final exams in December 2013, the majority of the faculty (Gienko, Hollingsworth, and Wang, with support by Quimby) met all day, every day, to work through the curricular redesign. This document lays out the current state of that work.

The Bachelors of Science in Geomatics

The central focus of the department is the Bachelor’s degree. As it currently stands, the degree has two concentrations: Surveying and Geographic Information Systems (GIS). Faculty have also received feedback from two firms in town about the need for a more software development oriented emphasis. It was found that a third concentration could be added without increasing the current course load commitment of the faculty so the new proposal includes a third “developer” concentration.

The result has been a redesigned degree. The significant changes include:

- The renaming of the GIS concentration to be “Geospatial Science”
- The addition of the “Geo-developer” concentration
- A reduction of overall credits for each concentration
- A stronger separation of surveying and geospatial concentrations
- A revision of course content to eliminate unnecessary duplication
- A revision of the mathematics requirements
- A revision of course prerequisites
- Revising course credits to three credits per course in most cases
- Renumbering and renaming many courses to correspond to changes in content, particularly in the GIS Courses.
- Outsourcing the Geomatics Professional Development courses by requiring BA A300, Organizational Theory, in their place.
- The addition of a second semester of Physics
• The addition of ESM A450, Economic Analysis and Operations, as a co-requisite with the Capstone course
• A redesign of the capstone course, GEO A460, to include more explicit expectations for projects as well as a lecture component to include related topics.

The reduction in credits was achieved by separating the concentrations more than they were previously—actually increasing the depth in each of the concentrations. This means that the surveying concentration students are not required to take as many GIS courses as before and the Geospatial students are not required to take as many surveying courses as were previously required. In addition, two drawing courses (GEO A157, Analytical and Digital Cartography and GEO A248, Digital Terrain Cartography) were combined into one CAD for Surveyors course—there was significant duplication between the two existing courses. The boundary law courses were also reduced to three credits each.

The basic mathematics requirement has not changed. The students are still required to take pre-calculus and applied calculus. In addition, the existing GEO A146, Surveying Computations, course has been strengthened and renamed and an additional geomatics computation course has been added with the series now being: GEO A146, Geomatics Computations I, and GEO A246, Geomatics Computations II. The existing GEO A365, Geomatics Adjustments and Analysis has been renumbered and renamed and a new prerequisite course has been added to make a new series: GEO A265, Spatial Data Adjustments I, and GEO A366, Spatial Data Adjustments II.

Revising the courses to be three credits each, and redistributing their content as needed, was necessary to balance faculty workloads more easily. The university standard is three credit courses with faculty workloads consisting of either nine or twelve—depending on type of faculty appointment—credits per semester. Three credit courses make it possible to balance the workloads more effectively while still meeting the university workload requirements. A workload analysis is provided in Appendix C.

The decision to outsource the professional development courses was made when it was found that there was an adequate course available outside the department. Any geomatics specific content can be covered in the lecture portion of the capstone course. This move frees up the geomatics faculty to focus on needed technical topics while the professional practices are taught by faculty who focus their research on these issues.

Similarly, the use of ESM A450, Economic Analysis and Operations, instead of creating our own similar course, gives the students the business background required by accreditation and recommended by our own industry survey. Any geomatics specific information can be supplemented through the lecture component of the capstone course.

A second semester of physics was added to the curriculum so that the students are exposed to the physics of optics, which occurs in the second semester of the physics sequence. This move should enhance several of the required GEO and GIS courses. This move only added one credit to the degree as the students are required to take seven credits of natural science meet the general education requirements. Previously, they could chose from a wide variety of natural science courses to meet this requirement.

One of the messages received from the industry survey and advisory board discussions was the need for graduates to have better leadership and teamwork skills. As a result, we’ve entered into discussions with the College of Business and Public Policy (CBPP) about the possibility to create a freshman level general
education course to introduce these skills early in the program so that the skills can be emphasized in
the major courses throughout the curriculum. This idea was enthusiastically however more time is
required for its development. When, and if, the course is developed, we will make it a specified Social
Science GER course for the major.

One enticing feature of the new curriculum is that students can easily obtain the breadth of the old
degree by choosing their elective courses to include courses required in the other concentrations. They
can even complete two, or all three, of the concentrations with the addition of only a few courses above
the minimum required for the degree. This makes the degree much more flexible in meeting the
educational objectives of the students.

The Associates of Applied Science in Geomatics

One message we received from the industry survey and advisory board is that there is still a need for the
AAS in Geomatics. There was a desire expressed by industry that the degree be a “2+2” degree with the
AAS being the first two years of the Geomatics. This is problematic in that the first two years of the BS
have a rather intense mathematics requirement that is not to be required of the AAS students. Also,
many of the courses needed by the AAS, which is primarily a surveying degree, are in the last two years
of the BS degree.

To meet that challenge, the AAS degree has been reconfigured to focus on the courses which have the
lower math requirement. All the courses in newly configured AAS degree do apply to the new BS
degree, however, a student who completes the AAS first will have to backtrack some to pick up the
applied calculus course and second geomatics computations course as well as the lower level course for
which these course are prerequisite.

Another interesting feature is the new AAS degree is completely included in the BS degree. This means
that anyone who completes the surveying concentration in the BS degree is also entitled to the AAS
degree if they wish to apply for it.

The Undergraduate Certificate in Geographic Information Systems

The reworking of courses made it necessary to revisit the UC in GIS. The faculty took the time to rework
the certificate into a more coherent set of courses. Unfortunately, they were not able to fit the degree
into two years due to course sequencing and timing of the course offerings.

The Geographic Information Systems Minor

As with the UC, it was necessary to rework the minor into a more coherent set of courses utilizing the
courses developed for the new BS in Geomatics. This minor requires many credits that also double as
general education courses an which may be applicable to other degrees, so that the additional work is
not as large as the total number of credits would imply.
**Remaining Work**

As a result of discussion with our industry partners, there are plans in the work for both an OEC in Surveying and a Post-Baccalaureate Certificate in Geographic Information Systems utilizing the new set of courses. This work will be presented at a later date.

**Transition Plans**

The program faculty are sensitive to the problems created for students by these massive changes. To assist in this, a transition plan has been developed for each of the degrees. These have been provided to students to help them navigate the changes.
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
EN SOENGR

1b. Department
Geomatics

2. Complete Program Title/Prefix
Minor, Geographic Information Systems

3. Type of Program
Choose one from the appropriate drop down menu:
Undergraduate: Minor
Graduate: CHOOSE ONE

This program is a Gainful Employment Program:
☐ Yes or ☒ No

4. Type of Action:
PROGRAM
☐ Add
☒ Change
☐ Delete

PREFIX
☐ Add
☐ Change
☐ Inactivate

5. Implementation Date (semester/year)
From: 09/2014 To: 99/999

6a. Coordination with Affected Units
Department, School, or College: ENGR
Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: _________
Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu)
Date: 1/13/14

6c. Coordination with Library Liaison
Date: 1/13/14

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 existing curriculum was difficult to navigate and contained some duplication. This update was produced after extensive coordination with our advisory board and industry representatives to more closely align with their needs.

Initiator (faculty only)
Gennady Gienko
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
Minor, Geographic Information Systems (GIS)

Program Student Learning Outcomes

Students completing the Minor in Geographic Information Systems (GIS) will be able to:

1. Supplement their major education with professional application of GIS.
2. Create graphical presentations and maps using geospatial information
3. Analyze and manage geospatial data relative to your discipline or profession.

1. Students majoring in another subject who wish to minor in Geographic Information Systems must complete the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR A161</td>
<td>Engineering Practices II</td>
<td>3</td>
</tr>
<tr>
<td>GIS A101</td>
<td>Introduction to GIS</td>
<td>3</td>
</tr>
<tr>
<td>GIS A201</td>
<td>Intermediate GIS</td>
<td>3</td>
</tr>
<tr>
<td>GIS A301</td>
<td>Spatial Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>GIS A366</td>
<td>Spatial Analysis</td>
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</tr>
<tr>
<td>GIS A458</td>
<td>Spatial Data Management</td>
<td>3</td>
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</tbody>
</table>

Total: 18 credits
Minor, Geographic Information Systems (GIS)

Program Student Learning Outcomes

Students completing the Minor in Geographic Information Systems (GIS) will be able to:

1. Supplement their major education with professional application of GIS.
2. Create graphical presentations and maps using geospatial information.
3. Analyze and manage geospatial data relative to your discipline or profession.

1. Students majoring in another subject who wish to minor in Geographic Information Systems must complete a minimum of 18 credits selected from the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Intermediate GIS</td>
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<td>GIS A301</td>
<td>Spatial Data Structures</td>
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<td>GEO A167</td>
<td>Remote Sensing and Image Analysis (4)</td>
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<td>GIS A268</td>
<td>Elements of Geographic Information Systems (GIS) (4)</td>
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<td>GIS A366</td>
<td>Spatial Information Analysis and Modeling (3)</td>
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<td>GIS A367</td>
<td>GIS and Remote Sensing (3)</td>
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<td>GIS A369</td>
<td>Land Information Systems (3)</td>
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<td>GIS A370</td>
<td>GIS and Remote Sensing for Natural Resources (3)</td>
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<td>GIS A433</td>
<td>Coastal Mapping (3)</td>
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<tr>
<td>GIS A458</td>
<td>Design and Management of Spatial Information (3)Spatial Data Management</td>
<td>3</td>
</tr>
<tr>
<td>GIS A468</td>
<td>Integration of Geomatic Technologies (3)</td>
<td></td>
</tr>
<tr>
<td>GIS A490</td>
<td>Selected Advanced Topics in GIS (1-6)</td>
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### Program/Prefix Action Request
**University of Alaska Anchorage**
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

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<th>2. Complete Program Title/PREFIX</th>
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<td>Undergraduate Certificate, Geographic Information Systems</td>
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This program is a Gainful Employment Program: ☐ Yes or ☒ No

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Initiator Name (typed): T.B. Quimby
Initiator Signed Initials: _________

Date: __________

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<tr>
<th>6c. Coordination with Library Liaison</th>
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Initiator (faculty only)

Gennady Gienko
Initiator (TYPE NAME)

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Undergraduate Certificate, Geographic Information Systems (GIS)

Program Student Learning Outcomes
Students completing the Undergraduate Certificate in Geographic Information Systems (GIS) will be able to:

1. Create graphical presentations and maps using geospatial information
2. Create, analyze and manage geospatial data
3. Process and analyze remotely sensed imagery.

Admission Requirements
Satisfy the Admission to Certificate and Associate’s Degree Programs Requirements in Chapter 7.

Course Requirements
Certain courses require prerequisites or faculty permission. Call (907) 786-1972 for further information.

Major Requirements
In order to receive an Undergraduate Certificate in GIS, students must achieve a grade of C or higher in all courses applied to the certificate.

1. Complete 8 credits of Physics:
   PHYS A123 Basic Physics I (3)
   PHYS A123L Basic Physics I Laboratory (1)
   or
   PHYS A211 General Physics I (3)
   PHYS A211L General Physics I Laboratory (1)

   And

   PHYS A124 Basic Physics II (3)
   PHYS A124L Basic Physics II Laboratory (1)
   or
   PHYS A212 General Physics II (3)
   PHYS A212L General Physics II Laboratory (1)

2. Complete the following required courses (23 credits):
   GIS A101 Introduction to GIS 3
   GEO A351 Remote Sensing 3
   GEO A460 Geomatics Capstone Project 3
   GIS A201 Intermediate GIS 3
   GIS A301 Spatial Data Structures 3
   GIS A366 Spatial Information Analysis and Modeling 3
   GIS A367 Image Analysis 3
   GIS A458 Spatial Analysis 3

3. Complete 3 credits from the following elective courses: 3
GEO A354  City and Regional Planning (3)
GEO A433  Hydrographic Surveying (3)
GIS A369  Land Information Systems (3)
GIS A370  GIS and Remote Sensing for Natural Resources (3)
GIS A433  Coastal Mapping (3)
GIS A490  Selected Advanced Topics in GIS (1-6)

4. A total of 34 credits are required for the Undergraduate Certificate in GIS.
Undergraduate Certificate, Geographic Information Systems (GIS)

Program Student Learning Outcomes

Students completing the Undergraduate Certificate in Geographic Information Systems (GIS) will be able to:

1. Create graphical presentations and maps using geospatial information
2. Create, analyze and manage geospatial data
3. Process and analyze remotely sensed imagery.

Admission Requirements

Satisfy the Admission to Certificate and Associate’s Degree Programs Requirements in Chapter 7.

Course Requirements

Certain courses require prerequisites or faculty permission. Call (907) 786-1972 for further information.

Major Requirements

In order to receive an Undergraduate Certificate in GIS, students must achieve a grade of C or higher in all courses applied to the certificate.

1. Complete 8 credits of Physics:
   PHYS A123  Basic Physics I (3)
   PHYS A123L  Basic Physics I Laboratory (1)
   or
   PHYS A211  General Physics I (3)
   PHYS A211L  General Physics I Laboratory (1)

   And

   PHYS A124  Basic Physics II (3)
   PHYS A124L  Basic Physics II Laboratory (1)
   or
   PHYS A212  General Physics II (3)
   PHYS A212L  General Physics II Laboratory (1)

1.2. Complete the following required courses (23 credits):
   GEO A137GIS A101  Principles of MappingIntroduction to GIS  3
   GEO A167A351  Remote Sensing and Image Analysis 43
   GEO A460  Geomatics Design Capstone Project 3
   GIS A266A201  Elements of Geographic InformationIntermediate GIS Systems (GIS) 43
   GIS A301  Spatial Data Structures 3
   GIS A366  Spatial Information Analysis and Modeling 3
   GIS A367  GIS and Remote SensingImage Analysis 3
   GIS A458  Design and ManagementSpatial Analysis of Spatial Information 3

2.3. Complete 9 credits from the following elective courses: 93
GEO A354 City and Regional Planning (3)
GEO A433 Hydrographic Surveying (3)
GEO A490 Selected Advanced Topics in Geomatics (1-6)
GIS A295 Internship in Geographic Information
____________ Systems I (3)
____________ or
GIS A495 Internship in Geographic Information
____________ Systems II (3)
GIS A369 Land Information Systems (3)
GIS A370 GIS and Remote Sensing for Natural Resources (3)
GIS A371 GIS Applications I (3)
GIS A433 Coastal Mapping (3)
GIS A468 Integration of Geomatics Technologies (3)
GIS A471 GIS Applications II (4)
GIS A490 Selected Advanced Topics in GIS (1-6)

3.4. A maximum of 3 credits of Internship (GIS A295 or GIS A495) and 3 credits of Advanced Topics in Geomatics (GEO A490) or Advanced Topics in GIS (GIS A490) can be counted toward the Certificate in GIS. Faculty approval of the GEO A490 or GIS A490 topic is necessary for application of the course to the certificate program.

4.5. A total of 32-34 credits are required for the Undergraduate Certificate in GIS.
1a. School or College  
EN SOENGR

1b. Department  
Geomatics

2. Complete Program Title/Prefix
Associate of Applied Science, Geomatics

3. Type of Program
Choose one from the appropriate drop down menu:
Undergraduate: or  
Graduate:  
Associate of Applied Science
This program is a Gainful Employment Program:
☐ Yes  or  ☒ No

4. Type of Action:
PROGRAM  
☐ Add  
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Dean/Director of School/College  
Date

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Disapproved  
Undergraduate/Graduate Academic Board Chair  
Date

Approved  
Disapproved  
Provost or Designee  
Date
**Associate of Applied Science, Geomatics**

**Program Student Learning Outcomes**

Students completing the Associate of Applied Science degree in Geomatics will be able to:

1. Operate industry standard field surveying equipment
2. Keep surveying records
3. Perform basic surveying computations
4. Produce surveying drawings
5. Apply knowledge of basic boundary law in the field
6. Utilize basic Geographic Information Systems in an engineering context.

**Admission Requirements**

Satisfy the Admission to Undergraduate Certificate and Associate Degree Programs Requirements in Chapter 7.

**General University Requirements**

Complete the Associate of Applied Science General Degree Requirements located at the beginning of this chapter. Some of the major requirements will also fulfill Associate of Applied Science degree general requirements. Students should coordinate choices carefully with their academic advisor in the Department of Geomatics.

**Academic Progress**

A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. ‘Satisfactory grade’ means a grade of C or better, as this is the usual requirement for prerequisites in Geomatics courses (GEO and GIS). Failure to earn a grade of C or better on the second attempt may result in removal from the Geomatics program.

**Major Requirements**

1. Complete 8 credits in Physics: 8
   
   PHYS A123 Basic Physics I (3)
   PHYS A123L Basic Physics I Laboratory (1)
   or
   PHYS A211 General Physics I (3)
   PHYS A211L General Physics I Laboratory (1)

   And

   PHYS A124 Basic Physics II (3)
   PHYS A124L Basic Physics II Laboratory (1)
   or
   PHYS A212 General Physics II (3)
   PHYS A212L General Physics II Laboratory (1)

2. Complete 3 credits from the following science electives: 3
   
   BIOL A115 Fundamentals of Biology (4)
   BIOL/GEOL A178 Fundamentals of Oceanography (3)
   ENVI A211 Environmental Science: Systems and Processes (3)
   GEOG A111 Earth Systems: Elements of Physical Geography (3)
   GEOL A111 Physical Geography (4)
3. Complete the following required courses (43 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA A300</td>
<td>Organizational Theory</td>
<td>3</td>
</tr>
<tr>
<td>ENGL A212</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGR A161</td>
<td>Engineering Practices II</td>
<td>3</td>
</tr>
<tr>
<td>GEO A146</td>
<td>Geomatics Computations I</td>
<td>3</td>
</tr>
<tr>
<td>GEO A156</td>
<td>Fundamentals of Surveying</td>
<td>3</td>
</tr>
<tr>
<td>GEO A157</td>
<td>CAD for Surveyors</td>
<td>3</td>
</tr>
<tr>
<td>GEO A266</td>
<td>Advanced Surveying</td>
<td>3</td>
</tr>
<tr>
<td>GEO A267</td>
<td>Boundary Law I</td>
<td>3</td>
</tr>
<tr>
<td>GIS A101</td>
<td>Introduction to GIS</td>
<td>3</td>
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<tr>
<td>MATH A109</td>
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<td>PEP A112</td>
<td>First Aid and CPR for Professionals (1)</td>
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</tr>
<tr>
<td>PHIL A305</td>
<td>Professional Ethics</td>
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</tbody>
</table>

† MATH A107 College Algebra and MATH A108 Trigonometry (both courses) may be substituted for MATH A109 Precalculus.

4. A total of 60-61 credits are required for the degree.
Associate of Applied Science, Geomatics

Program Student Learning Outcomes

Students completing the Associate of Applied Science degree in Geomatics will be able to:

1. Operate industry standard field surveying equipment
2. Keep surveying records
3. Perform basic surveying computations
4. Produce surveying drawings
5. Apply knowledge of basic boundary law in the field
6. Utilize basic Geographic Information Systems in an engineering context

Admission Requirements

Satisfy the Admission to Undergraduate Certificate and Associate Degree Programs Requirements in Chapter 7.

General University Requirements

Complete the Associate of Applied Science General Degree Requirements located at the beginning of this chapter. Some of the major requirements will also fulfill Associate of Applied Science degree general requirements. Students should coordinate choices carefully with their academic advisor in the Department of Geomatics.

Academic Progress

A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. ‘Satisfactory grade’ means a grade of C or better, as this is the usual requirement for prerequisites in Geomatics courses (GEO and GIS). Failure to earn a grade of C or better on the second attempt may result in removal from the Geomatics program.

Major Requirements

1. Complete 48 credits in Physics:
   - PHYS A123 Basic Physics I (3)
   - PHYS A123L Basic Physics I Laboratory (1)
   - PHYS A211 General Physics I (3)
   - PHYS A211L General Physics I Laboratory (1)
   - PHYS A124 Basic Physics II (3)
   - PHYS A124L Basic Physics II Laboratory (1)
   - PHYS A212 General Physics II (3)
   - PHYS A212L General Physics II Laboratory (1)

2. Complete 3 credits from the following science electives:
   - BIOL A115 Fundamentals of Biology (4)
   - BIOL/GEOL A178 Fundamentals of Oceanography (3)
   - ENVI A211 Environmental Science: Systems and Processes (3)
   - GEOG A111 Earth Systems: Elements of Physical Geography (3)
2.3. Complete the following required courses (50-43 credits):

- GEOL A111 Physical Geography (4)
- GEOL A115 Environmental Geology (3)

- CSE A102 Introduction to Computer Systems 1
- BA A300 Organizational Theory 3
- ENGL A212 Technical Writing 3
- ENGR A161 Engineering Practices II 3
- GEO A137 Principles of Mapping 3
- GEO A146 Surveying Geomatics Computations 1 3
- GEO A155 A156 Fundamentals of Surveying 3
- GEO A157 Analytical and Digital Cartography/CAD for Surveyors 3
- GEO A158 Geomatics Computer Fundamentals 1
- GEO A167 Remote Sensing and Image Analysis 4
- GEO A248 Digital Terrain Cartography 3
- GEO A256 Municipal and Civil Geomatics 3
- GEO A257 Elements of Photogrammetry 3
- GEO A266 Advanced Surveying 3
- GEO A267 Boundary Law I 43
- GIS A101 Introduction to GIS 3
- GIS A201 Intermediate GIS 3
- GIS A351 Remote Sensing 3
- GIS A268 Elements of Geographic Information Systems (GIS) 4
- MATH A109 Precalculus † 6
- PEP A110 Remote First Aid (1) 1

or

- PEP A112 First Aid and CPR for Professionals (1)
- PHIL A305 Professional Ethics 3

† MATH A107 College Algebra and MATH A108 Trigonometry (both courses) may be substituted for MATH A109 Precalculus.

3.4. A total of 60-61 credits are required for the degree. Electives to total of 63 credits.
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>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EN SOENGR</td>
<td>Geomatics</td>
<td></td>
</tr>
</tbody>
</table>

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

3. Type of Program
Choose one from the appropriate drop down menu: Undergraduate: or Graduate: 
Bachelor of Science or CHOICE ONE

This program is a Gainful Employment Program:  
☐ Yes or ☒ No

4. Type of Action:  
PROGRAM  
☐ Add  
☒ Change  
☐ Delete  

PREFIX  
☐ Add  
☐ Change  
☐ Inactivate

5. Implementation Date (semester/year)
From: 09/2014  
To: 99/999

6a. Coordination with Affected Units
Department, School, or College: ENGR
Initiator Name (typed): T.B. Quimby  
Initiator Signed Initials: _________
Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu)  
Date: 1/13/14

6c. Coordination with Library Liaison  
Date: 1/13/14

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 existing curriculum was difficult to navigate and contained some duplication. This update was produced after extensive coordination with our advisory board and industry representatives to more closely align with their needs.

Initiator (faculty only)  
Gennady Gienko  
Initiator (TYPE NAME)  
Date
☐ Approved  
☐ Disapproved  
Dean/Director of School/College  
Date

☐ Approved  
☐ Disapproved  
Undergraduate/Graduate Academic Board Chair  
Date

☐ Approved  
☐ Disapproved  
Provost or Designee  
Date
Bachelor of Science, Geomatics

Educational Objectives and Program Student Learning Outcomes

Program Educational Objectives

The UAA Bachelor of Science, Geomatics program has the following program educational objectives.

Within five years of graduation, graduates of the Geomatics program will have achieved the following.

1. Graduates who are pursuing careers in the surveying area will have attempted the AELS Board’s Fundamentals of Surveying examination.
2. Graduates who are pursuing careers in non-surveying areas will have attempted equivalent professional certification or registration, e.g., CP, GISP, as appropriate for their career path.
3. Obtain membership in one or more professional organizations relevant to their career of choice.
4. Will be employed in the fields within the geomatics disciplines, including: surveying of various types, mapping and cartography, GIS/LIS, remote sensing, geodesy, photogrammetry or hydrographic surveying.
5. Will continue their professional development by participating in professional development courses or sessions, or complete higher education courses.
6. Will teach at least one workshop or training session, make one conference presentation, or publish one article relevant to their career.

Program Student Learning Outcomes

In keeping with the program educational objectives, it is expected that graduates of the UAA Geomatics program will have:

1. An ability to apply knowledge of mathematics, statistics, and general physics;
2. An ability to collect, analyze and interpret data in all of the recognized surveying and mapping areas;
3. An ability to identify, formulate, and design a geomatics system, component or process to meet desired needs;
4. An ability to function on multidisciplinary as well as on interdisciplinary teams;
5. An ability to think critically and to solve geomatics problems creatively and constructively;
6. An understanding of professional and ethical responsibility;
7. An ability to communicate effectively;
8. The broad education necessary to understand the impact of geomatics solutions in a global and societal context;
9. A recognition of the need for, and ability to engage in, lifelong learning;
10. A knowledge of contemporary issues in professional practice;
11. An ability to use the techniques, skills and modern geomatics tools necessary for geomatics practice; and
12. An ability to apply knowledge in all six areas of surveying and mapping:
   a. Field surveying and methods;
   b. Photogrammetric mapping, image interpretation and remote sensing;
   c. Surveying calculation and data adjustment;
   d. Geodetic coordinates and astronomy;
   e. Cartographic representation, projections, and map production;
   f. Computer-based multipurpose cadastre, geographic information systems.

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7.

Academic Progress

A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. ‘Satisfactory grade’ means a grade of C or better, as this is the usual requirement for prerequisites in Geomatics courses (GEO and GIS). Failure to earn a grade of C or better on the second attempt may result in removal from the Geomatics program.
Graduation Requirements

D. General University Requirements

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

E. General Education Requirements

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

F. Major Requirements

1. Complete 8 credits in Physics from one of the following course pairs: 8
   PHYS A123  Basic Physics I (3)
   PHYS A123L Basic Physics I Laboratory (1)
   or
   PHYS A211  General Physics I (3)
   PHYS A211L General Physics I Laboratory (1)

   And

   PHYS A124  Basic Physics II (3)
   PHYS A124L Basic Physics II Laboratory (1)
   or
   PHYS A212  General Physics II (3)
   PHYS A212L General Physics II Laboratory (1)

2. Complete 3 credits from the following science electives: 3
   BIOL A115  Fundamentals of Biology (4)
   BIOL/GEOL A178  Fundamentals of Oceanography (3)
   ENVI A211  Environmental Science: Systems and Processes (3)
   GEOG A111  Earth Systems: Elements of Physical Geography (3)
   GEOL A111  Physical Geography (4)
   GEOL A115  Environmental Geology (3)

3. Complete the following (13 credits):
   MATH A109  Precalculus † 6
   MATH A272  Applied Calculus * 3
   STAT A253  Applied Statistics for the Sciences 4

† MATH A107 College Algebra and MATH A108 Trigonometry (both) may be substituted for MATH A109 Precalculus.

* MATH A200 Calculus I may be substituted for MATH A272 Applied Calculus.

4. Complete all of the following (54 credits):
   BA/JUST A241  Business Law I 3
   BA A300  Organizational Theory 3
   ENGL A212  Technical Writing 3
   ENGR A161  Engineering Practices II 3
   ESM A450  Economic Analysis and Operations 3
   GEO A146  Geomatics Computations I 3
5. Complete the specified credits in one of the concentration areas:

**Surveying Concentration**

a. Complete the following (19 credits):

- GEO A157 CAD for Surveyors 3
- GEO A256 Engineering Surveying 3
- GEO A266 Advanced Surveying 3
- GEO A366 Spatial Data Adjustments II 3
- GEO A369 Cadastral Surveys 3
- GEO A457 Boundary Law II 3
- PEP A110 Remote First Aid (1)
  or 1
- PEP A112 First Aid and CPR for Professionals (1)

b. Complete 6 credits from the following Geomatics electives:

- GEO A354 City and Regional Planning (3)
- GEO A355 Land Development and Design 3
- GEO A410 Airborne LiDAR Surveying (3)
- GEO A420 High Density Spatial Analysis (3)
- GEO A433 Hydrographic Surveying (3)
- GEO A490 Selected Advanced Topics in Geomatics (1-6)
- GIS A301 Spatial Data Structures (3)
- GIS A366 Spatial Analysis (3)
- GIS A367 Image Analysis (3)
- GIS A369 Land Information Systems (3)
- GIS A433 Coastal Mapping (3)
- GIS A458 Spatial Data Management (3)
- GIS A490 Selected Advanced Topics in GIS (1-6)

**Geospatial Concentration**

c. Complete the following (18 credits):

- GEO A410 Airborne LiDAR Surveying (3)
GEO A420  High Density Spatial Data Analysis (3)
GIS A301  Spatial Data Structures (3)
GIS A366  Spatial Analysis (3)
GIS A367  Image Analysis (3)
GIS A458  Spatial Data Management (3)

d. Complete 6 credits from the following:  6
CSCE A201  Computer Programming I (4)
CSCE A202  Object-Oriented Programming (3)
CSCE A360  Database Systems (3)
GEO A157  CAD for Surveyors (3)
GEO A256  Engineering Surveying (3)
GEO A266  Advanced Surveying (3)
GEO A354  City and Regional Planning (3)
GEO A355  Land Development and Design (3)
GEO A365  Spatial Data Adjustments II (3)
GEO A433  Hydrographic Surveying (3)
GEO A490  Selected Advanced Topics in Geomatics (1-6)
GIS A369  Land Information Systems (3)
GIS A433  Coastal Mapping (3)
GIS A490  Selected Advanced Topics in GIS (1-6)
PEP A110  Remote First Aid (1)
or
PEP A112  First Aid and CPR for Professionals (1)

Developer Concentration
a. Complete the following (25 credits)
CSCE A201  Computer Programming I (4)
CSCE A202  Object-Oriented Programming (3)
CSCE A360  Database Systems (3)
GEO A420  High Density Spatial Data Analysis (3)
GIS A301  Spatial Data Structures (3)
GIS A366  Spatial Analysis (3)
GIS A367  Image Analysis (3)
GIS A458  Spatial Data Management (3)

6. A total of 120-121 credits are required for the degree of which 42 must be upper division.
Bachelor of Science, Geomatics

Educational Objectives and Program Student Learning Outcomes

Program Educational Objectives
The UAA Bachelor of Science, Geomatics program has the following program educational objectives.
Within five years of graduation, graduates of the Geomatics program will have achieved the following.

1. Graduates who are pursuing careers in the surveying area will have attempted the AELS Board’s Fundamentals of Surveying examination.
2. Graduates who are pursuing careers in non-surveying areas will have attempted equivalent professional certification or registration, e.g., CP, GISP, as appropriate for their career path.
3. Obtain membership in one or more professional organizations relevant to their career of choice.
4. Will be employed in the fields within the geomatics disciplines, including: surveying of various types, mapping and cartography, GIS/LIS, remote sensing, geodesy, photogrammetry or hydrographic surveying.
5. Will continue their professional development by participating in professional development courses or sessions, or complete higher education courses.
6. Will teach at least one workshop or training session, make one conference presentation, or publish one article relevant to their career.

Program Student Learning Outcomes
In keeping with the program educational objectives, it is expected that graduates of the UAA Geomatics program will have:

1. An ability to apply knowledge of mathematics, statistics, and general physics;
2. An ability to collect, analyze and interpret data in all of the recognized surveying and mapping areas;
3. An ability to identify, formulate, and design a geomatics system, component or process to meet desired needs;
4. An ability to function on multidisciplinary as well as on interdisciplinary teams;
5. An ability to think critically and to solve geomatics problems creatively and constructively;
6. An understanding of professional and ethical responsibility;
7. An ability to communicate effectively;
8. The broad education necessary to understand the impact of geomatics solutions in a global and societal context;
9. A recognition of the need for, and ability to engage in, lifelong learning;
10. A knowledge of contemporary issues in professional practice;
11. An ability to use the techniques, skills and modern geomatics tools necessary for geomatics practice; and
12. An ability to apply knowledge in all six areas of surveying and mapping:
   a. Field surveying and methods;
   b. Photogrammetric mapping, image interpretation and remote sensing;
   c. Surveying calculation and data adjustment;
   d. Geodetic coordinates and astronomy;
   e. Cartographic representation, projections, and map production;
   f. Computer-based multipurpose cadastral, geographic information systems.

Admission Requirements
Complete the Admission to Baccalaureate Programs Requirements in Chapter 7.

Academic Progress
A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. ‘Satisfactory grade’ means a grade of C or better, as this is the usual requirement for prerequisites in Geomatics courses (GEO and GIS). Failure to earn a grade of C or better on the second attempt may result in removal from the Geomatics program.
Graduation Requirements

A. General University Requirements

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

B. General Education Requirements

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

C. Major Requirements

1. Complete 48 credits in Physics from one of the following course pairs:
   - PHYS A123 Basic Physics I (3)
   - PHYS A123L Basic Physics I Laboratory (1)
   - or
   - PHYS A211 General Physics I (3)
   - PHYS A211L General Physics I Laboratory (1)

   And

   - PHYS A124 Basic Physics II (3)
   - PHYS A124L Basic Physics II Laboratory (1)
   - or
   - PHYS A212 General Physics II (3)
   - PHYS A212L General Physics II Laboratory (1)

2. Complete 3 credits from the following science electives:
   - BIOL A115 Fundamentals of Biology (4)
   - BIOL/GEOL A178 Fundamentals of Oceanography (3)
   - ENVI A211 Environmental Science: Systems and Processes (3)
   - GEOG A111 Earth Systems: Elements of Physical Geography (3)
   - GEOL A111 Physical Geography (4)
   - GEOL A115 Environmental Geology (3)

2.3. Complete the following (21 13 credits):
   - CSE A102 Introduction to Computer Systems 1
   - ENGL A212 Technical Writing 3
   - ENGR A161 Engineering Practices II 3
   - GEO A158 Geomatics Computer Fundamentals 1
   - MATH A109 Precalculus † 6
   - MATH A272 Applied Calculus * 3
   - STAT A253 Applied Statistics for the Sciences 4

† MATH A107 College Algebra and MATH A108 Trigonometry (both) may be substituted for MATH A109 Precalculus.

* MATH A200 Calculus I may be substituted for MATH A272 Applied Calculus.

2.4. Complete all of the following (24 54 credits):
   - BA/JUST A241 Business Law I 3
   - BA A300 Organizational Theory 3
   - ENGL A212 Technical Writing 3
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<td>ESM A450</td>
<td>Economic Analysis and Operations</td>
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<td>GEO A137</td>
<td>Principles of Mapping</td>
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<td>GEO A146</td>
<td>Surveying Computations Geomatics Computations I</td>
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<td>Digital Terrain Cartography</td>
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<td>GEO A246</td>
<td>Geomatics Computations II</td>
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<td>GEO A256</td>
<td>Municipal and Civil Geomatics</td>
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<td>GEO A257-A357</td>
<td>Elements of Photogrammetry</td>
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<td>Advanced Surveying</td>
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<td>Geodesy and Map Projections</td>
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<td>GEO A466</td>
<td>Geopositioning</td>
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<td>GIS A201</td>
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<td>GIS A251</td>
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<td>GIS A366</td>
<td>Spatial Information Analysis and Modeling</td>
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<td>Integration of Geomatics Technologies</td>
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<td>PHIL A305</td>
<td>Professional Ethics</td>
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</tbody>
</table>

4.5. Complete at least 11 credits of the specified credits in one of the emphasis concentration areas:

**Surveying Emphasis Concentration**

a. Complete the following (4-19 credits):

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
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<tr>
<td>GEO A157</td>
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<td>GEO A256</td>
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<td>Cadastral Surveys</td>
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<td>GEO A433</td>
<td>Hydrographic Surveying</td>
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<td>GEO A457</td>
<td>Boundary Law II</td>
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<tr>
<td>PEP A110</td>
<td>Remote First Aid (1)</td>
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<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEP A112</td>
<td>First Aid and CPR for Professionals (1)</td>
<td></td>
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</tbody>
</table>

255
b. Complete 29 credits from the following Geomatics electives:

GEO A354 City and Regional Planning (3)
GEO A355 Land Development and Design (3)
GEO A358 Programming for Digital Cartography (3)
GEO A410 Airborne LiDAR Surveying (3)
GEO A420 High Density Spatial Analysis (3)
GEO A433 Hydrographic Surveying (3)
GEO A459 Geodetic Geomatics (3)
GEO A467 Analytical and Digital Photogrammetry (3)
GEO A490 Selected Advanced Topics in Geomatics (1-6)
GIS A301 Spatial Data Structures (3)
GIS A366 Spatial Analysis (3)
GIS A367 GIS and Remote Sensing Image Analysis (3)
GIS A369 Land Information Systems (3)
GIS A371 GIS Applications I (3)
GIS A433 Coastal Mapping (3)
GIS A458 Design and Management of Spatial Data Management (3)
GIS A471 GIS Applications II (4)
GIS A490 Selected Advanced Topics in GIS (1-6)

**Geographic Information Systems (GIS) Emphasis Geospatial Concentration**

a. Complete the following (3-18 credits):

GEO A410 Airborne LiDAR Surveying (3)
GEO A420 High Density Spatial Data Analysis (3)
GIS A301 Spatial Data Structures (3)
GIS A366 Spatial Analysis (3)
GIS A367 Image Analysis (3)
GIS A458 Design and Management of Spatial Data Management (3)
GIS A471 GIS Applications II (4)

b. Complete 6 credits from the following:

CSCE A201 Computer Programming I (4)
CSCE A202 Object-Oriented Programming (3)
CSCE A360 Database Systems (3)
GEO A157 CAD for Surveyors (3)
GEO A256 Engineering Surveying (3)
GEO A266 Advanced Surveying (3)
GEO A354 City and Regional Planning (3)
GEO A355 Land Development and Design (3)
GEO A358 Programming for Digital Cartography (3)
GEO A365 Spatial Data Adjustments II (3)
GEO A433 Hydrographic Surveying (3)
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<td>GEO A467</td>
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<tr>
<td>GEO A490</td>
<td>Selected Advanced Topics in Geomatics (1-6)</td>
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<td>GIS A367</td>
<td>GIS and Remote Sensing (3)</td>
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<td>GIS A369</td>
<td>Land Information Systems (3)</td>
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<tr>
<td>GIS A370</td>
<td>GIS and Remote Sensing for Natural Resources (3)</td>
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<td>GIS A371</td>
<td>GIS Applications I (3)</td>
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<tr>
<td>PEP A110</td>
<td>Remote First Aid (1)</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>PEP A112</td>
<td>First Aid and CPR for Professionals (1)</td>
</tr>
</tbody>
</table>

**Developer Concentration**

a. Complete the following (25 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE A201</td>
<td>Computer Programming I (4)</td>
</tr>
<tr>
<td>CSCE A202</td>
<td>Object-Oriented Programming (3)</td>
</tr>
<tr>
<td>CSCE A360</td>
<td>Database Systems (3)</td>
</tr>
<tr>
<td>GEO A420</td>
<td>High Density Spatial Data Analysis (3)</td>
</tr>
<tr>
<td>GIS A301</td>
<td>Spatial Data Structures (3)</td>
</tr>
<tr>
<td>GIS A366</td>
<td>Spatial Analysis (3)</td>
</tr>
<tr>
<td>GIS A367</td>
<td>Image Analysis (3)</td>
</tr>
<tr>
<td>GIS A458</td>
<td>Spatial Data Management (3)</td>
</tr>
</tbody>
</table>

"A total of 131-120-121 credits are required for the degree of which 42 must be upper division."
### 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>
</tr>
</thead>
<tbody>
<tr>
<td>1b. Division</td>
<td>ASSC Division of Social Science</td>
</tr>
<tr>
<td>1c. Department</td>
<td>GES</td>
</tr>
<tr>
<td>2. Course Prefix</td>
<td>ENVI</td>
</tr>
<tr>
<td>3. Course Number</td>
<td>370</td>
</tr>
<tr>
<td>4. Previous Course Prefix &amp; Number</td>
<td></td>
</tr>
<tr>
<td>5a. Credits/CEUs</td>
<td>3</td>
</tr>
<tr>
<td>5b. Contact Hours (Lecture + Lab)</td>
<td>(3+0)</td>
</tr>
<tr>
<td>6. Complete Course Title</td>
<td>Environmental Field Methods</td>
</tr>
<tr>
<td>7. Type of Course</td>
<td>Academic</td>
</tr>
<tr>
<td>8. Type of Action:</td>
<td>Add</td>
</tr>
<tr>
<td>9. Repeat Status No</td>
<td># of Repeats</td>
</tr>
<tr>
<td>10. Grading Basis</td>
<td>A-F</td>
</tr>
<tr>
<td>11. Implementation Date</td>
<td>semester/year</td>
</tr>
<tr>
<td>12. Cross Listed with</td>
<td></td>
</tr>
<tr>
<td>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 <a href="http://www.uaa.alaska.edu/governance">www.uaa.alaska.edu/governance</a>.</td>
<td></td>
</tr>
<tr>
<td>13b. Coordination Email</td>
<td>Date:</td>
</tr>
<tr>
<td>13c. Coordination with Library Liaison</td>
<td>Date:</td>
</tr>
<tr>
<td>14. General Education Requirement</td>
<td>Mark appropriate box:</td>
</tr>
<tr>
<td>15. Course Description (suggested length 20 to 50 words)</td>
<td>Methods of data collection and basic analysis for environmental studies and other science majors. Will focus on the development of quantitative skills and tools used in science professions, with a particular emphasis on field-based data collection techniques. Course will utilize a hands-on approach that combines outdoor field labs with classroom-based analysis and group presentations.</td>
</tr>
<tr>
<td>16a. Course Prerequisite(s) (list prefix and number or test code and score)</td>
<td>ENVI A211 and ENVI A211L</td>
</tr>
<tr>
<td>16b. Co-requisite(s) (concurrent enrollment required)</td>
<td>STAT A252 or STAT A253</td>
</tr>
<tr>
<td>16c. Automatic Restriction(s)</td>
<td>College</td>
</tr>
<tr>
<td>16d. Registration Restriction(s) (non-codable)</td>
<td>Completion of basic college-level skills (Tier I) and sophomore standing</td>
</tr>
<tr>
<td>17. Mark if course has fees</td>
<td></td>
</tr>
<tr>
<td>18. Mark if course is a selected topic course</td>
<td></td>
</tr>
<tr>
<td>19. Justification for Action</td>
<td>Course will fill current gap in major where students graduating with a bachelor's degree in Environmental Studies do not have an opportunity to learn environmental field methods or analysis techniques required for employment in the profession.</td>
</tr>
</tbody>
</table>

**Initiator Name (typed):**

**Initiator Signed Initials:**

**Date:**

**Initiator (faculty only):**

**Initiator (TYPE NAME):**

**Date:**

**Approved**

**Disapproved**

**Dean/Director of School/College**

**Date:**

**Undergraduate/Graduate Academic**

**Date:**

**Board Chair**

**Date:**

**Provost or Designee**

**Date:**
Department of Geography & Environmental Studies
ENVI A370: Environmental Field Methods
Course Content Guide

Date: 29 October 2013

I. Course Information
   A. College: Arts and Sciences
   B. Course Prefix: ENVI
   C. Course Number: A370
   D. Credits/Contact: 3 credits, 3+0
   E. Course Title: Environmental Field Methods
   F. Grading Basis: A-F
   G. Implementation Date: Fall 2014
   H. Cross-listed/Stacked: N/A
   I. Course Description: Methods of data collection and basic analysis for environmental studies and other science majors. Will focus on the development of quantitative skills and tools used in science professions, with particular emphasis on field-based data collection techniques. Course will utilize a hands-on approach that combines outdoor field labs with classroom-based analysis and group presentations.
   J. Course Prerequisites: ENVI A211 and ENVI A211L
   K. Course Co-requisites: STAT A252 or STAT A253
   L. Other Restrictions: Sophomore standing
   M. Registration Restrictions: Completion of basic college-level skills (Tier I)
   N. Course Fees: $50

II. Instructional Goals and Student Learning Outcomes
   A. Instructional Goals. The instructor will:
      1. Define terms and methods typically used to describe the results of environmental field studies in the primary literature for the environmental studies profession.
      2. Provide students with exposure to a suite of sampling designs and analysis methods that are frequently used in environmental field studies.
      3. Instill in students an understanding of the importance of appropriate study design (particularly with respect to spatial and temporal scale) in advance of environmental data collection.
      4. Prepare realistic field study scenarios that enable students to practice their critical thinking and problem solving skills while applying knowledge gained via goals 1-3.
      5. Provide students with opportunities to collect and analyze environmental data from their local environment, thereby increasing their understanding of southcentral Alaskan ecosystems.
      6. Develop students’ understanding of Microsoft Excel, a useful data manipulation and analysis tool, as well as provide exposure to other common tools and equipment used by the environmental studies profession.
      7. Provide students with opportunities to enhance their interpersonal communication and writing skills by requiring that lab exercises be completed in teams and with written, professional reports or group presentations.
B. Student Learning Outcomes and Assessment Methods

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name and define important terms related to environmental field sampling and analysis.</td>
<td>Classroom discussions, exams</td>
</tr>
<tr>
<td>Compare and contrast the use of common field sampling designs in environmental studies.</td>
<td>Classroom discussions, exams</td>
</tr>
<tr>
<td>Articulate the importance of appropriately scaled sampling design for environmental field studies.</td>
<td>Classroom discussions, exams</td>
</tr>
<tr>
<td>Formulate an appropriate approach to data collection and analysis for a given environmental field scenario in southcentral Alaska.</td>
<td>Classroom discussions, written assignments, oral presentations, exams</td>
</tr>
<tr>
<td>Use Microsoft Excel to input, organize, and analyze environmental field data.</td>
<td>Written assignments, oral presentations</td>
</tr>
<tr>
<td>Work in teams to prepare professional reports or presentations detailing results of class exercises.</td>
<td>Written assignments, oral presentations, peer reviews</td>
</tr>
</tbody>
</table>

III. Course Level Justification

This course introduces students to the use of standard sampling designs and statistical methods to collect and analyze environmental field data. It assumes students have a working understanding of hypothesis formulation, scientific data collection procedures, data summarizing techniques, and introductory statistics. Students would acquire these skills in the 100- and 200-level ENVI and STAT courses required for enrollment in this course.

IV. Course Outline

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Labs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction: hypotheses, metrics, sampling design, space &amp; time</td>
<td>Operationalizing variables; Excel practice</td>
</tr>
<tr>
<td>2</td>
<td>Sampling diversity &amp; abundance: linear designs</td>
<td>Biodiversity transects</td>
</tr>
<tr>
<td>3</td>
<td>Sampling diversity &amp; abundance: points</td>
<td>Bird point counts &amp; mistnetting</td>
</tr>
<tr>
<td>4</td>
<td>Sampling diversity &amp; abundance: area designs</td>
<td>Forest inventory</td>
</tr>
<tr>
<td>5</td>
<td>Wetland and aquatic sampling</td>
<td>Wetland habitat assessment – FIELD TRIP</td>
</tr>
<tr>
<td>6</td>
<td>Measuring yields</td>
<td>Maximum sustained yield: timber or fish</td>
</tr>
<tr>
<td>7</td>
<td>Defining environmental context</td>
<td>Ecological site characterization</td>
</tr>
<tr>
<td>8</td>
<td>Measuring human impacts</td>
<td>Recreation impact assessment</td>
</tr>
<tr>
<td>9</td>
<td>Mid-term exam; data entry &amp; proofing</td>
<td>Excel spreadsheet design &amp; manipulation</td>
</tr>
<tr>
<td>10-11</td>
<td>Statistical background for environmental science</td>
<td>Sampling: accuracy, precision, and bias</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Probability and statistical confidence</td>
</tr>
<tr>
<td>12</td>
<td>Basic data analysis techniques</td>
<td>Comparing means and variance</td>
</tr>
<tr>
<td>13</td>
<td>Wildlife population dynamics</td>
<td>Excel-based population dynamics</td>
</tr>
<tr>
<td>14</td>
<td>Maps: compass use, projections, GPS data, GIS analysis</td>
<td>Topo maps &amp; compass; GIS application</td>
</tr>
<tr>
<td>15</td>
<td>Library research methods; final exam</td>
<td>Library research for final presentation</td>
</tr>
<tr>
<td>Finals</td>
<td>Final project presentations</td>
<td></td>
</tr>
</tbody>
</table>

Course Content Guide
ENVI A370
2
VI. Suggested Texts
There are no suggested texts for this course; instructor will provide introductory powerpoint
presentations and lab handouts for weekly exercises. No textbook exists that will cover the desired
material at the desired depth for this course.

VII. Bibliography

Enger, E.D., B.F. Smith, and K.E. Lionberger. 2013. Field and laboratory exercises in environmental

Murdoch, T. 1996. The streamkeeper’s field guide: watershed inventory and stream monitoring
methods. Adopt-A-Stream Foundation, Everett, WA.

Render, I. 2011. Ten skills and competencies for science majors. Collegiate Employment Research
Skills-and-Competencies-for-Science-Majors.pdf>

Reynolds, H.L., E.S. Brondizio, and J.M. Robinson, eds. 2010. Teaching environmental literacy
across campus and across the curriculum. Indiana University Press, Bloomington, IN.

Wagner, T., and R. Sanford. 2010. Environmental science: active learning laboratories and applied
Date: 19 December 2013

To: College of Arts and Sciences, Course and Curriculum Committee
   Undergraduate Academic Board
   Faculty Senate

From: Dorn Van Dommelen, International Studies

The International studies program in the College of Arts and Sciences is proposing a number of changes to its B.A. major. These changes are being made in response to a student survey on the degree program and faculty interest in major development that would better prepare students for post-graduate employment that required certain “applied” skills, particularly in the social sciences.

The most significant change to the major program will be the removal of four specific regional tracks, to be replaced by one, general regional track and an “applied global studies” track. This track would prepare students to find employment in governmental, inter-governmental, or non-governmental agencies or organizations, particularly those that demand a background in social science, health, and ESL instruction. In addition, the major will now require an international/intercultural experience.

Less significant changes include a number of small changes in course selections within the social science and humanities selections and the expansion of the capstone category to require two courses, one in the humanities and one in the social sciences. In addition, language requirements within the major will be tightened.

The changes to the major have also necessitated the removal of one program outcome and the addition of another. Accordingly, a revised educational effectiveness plan has been developed.

These changes were approved by the International Studies Curriculum Committee.
<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>1b. Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS CAS</td>
<td>International Studies</td>
</tr>
</tbody>
</table>

2. Complete Program Title/Prefix

International Studies

3. Type of Program

Choose one from the appropriate drop down menu:
- Undergraduate: Bachelor of Arts
- Graduate: CHOOSE ONE

This program is a Gainful Employment Program: □ Yes or □ No

4. Type of Action:

- PROGRAM
  - Add
  - Change
  - Delete
- PREFIX
  - Add
  - Change
  - Inactivate

5. Implementation Date (semester/year)

From: Fall 2014 To: Fall 9999

6a. Coordination with Affected Units

Department, School, or College: ANTH, HS, PS, ENGL, JPC, SOC, ECON, EDFN, GEOG, ENVI

Initiator Name (typed): Dorn Van Dommelen
Initiator Signed Initials: ____________

Date: ________________

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

Date: 19 Dec 13

6c. Coordination with Library Liaison

Date: 19 Dec 13

7. Title and Program Description - Please attach the following:

- □ Cover Memo
- □ Catalog Copy in Word using the track changes function

8. Justification for Action

Student demand and faculty desire for more "applied" curriculum, particularly in the social sciences. See also the cover memo.

Initiator (faculty only)

Dorn Van Dommelen
Initiator (TYPE NAME)

Date

□ Approved
□ Disapproved

Dean/Director of School/College

Date

□ Approved
□ Disapproved

Undergraduate/Graduate Academic Board Chair

Date

□ Approved
□ Disapproved

Provost or Designee

Date
The International Studies program at UAA prepares students to be global citizens in an interdependent world. International and intercultural understanding and competency are essential in all aspects of life and work, and this program seeks to prepare students to be contributing members of the international community.

The interdisciplinary Bachelor of Arts in International Studies provides students with the analytical skills and cross-cultural sensitivities required of informed, global citizens. Core courses introduce students to different modes of enquiry and understanding and provide the foundation for a comparative approach to issues across regions, societies, and cultures. The program includes a regional track that focuses the student on a particular language and region or an applied global studies track that prepares students to pursue professional opportunities in international development, education, and health. Two program capstone courses require students to apply acquired analytical skills and modes of enquiry across regions, societies, and cultures in a comparative examination of various topics.

To further develop their global competence, students majoring in International Studies must participate in study abroad experience or another international/intercultural experience.

Students who complete a bachelor’s of International Studies will gain an understanding of the challenges and complexities of cross-cultural interactions in an increasingly interconnected world.

**Student Learning Outcomes**

The specific education outcomes that support program objectives are to produce graduates who will be able to:

- Demonstrate cross-cultural understanding through language study.
- Demonstrate critical thinking about values, attitudes, and practices in an international context.
- Demonstrate an ability to analyze international issues and challenges and apply integrative multi-disciplinary tools to describe and explain them.
- Demonstrate effective written communication.

**Honors in International Studies**

Students majoring in International Studies are eligible to graduate with honors if they satisfy the following requirements:

1. Meet the requirements for Graduation with Honors as listed in Chapter 7, Academic Standards and Regulations.
2. Meet the requirements for a Bachelor of Arts in International Studies.
3. Maintain a grade point average of 3.80 or above in courses applicable to the degree requirements.
4. Complete the program capstone course (GEOG A390A, HIST A390A, or PHIL A400) with an honor grade (A).

**Bachelor of Arts, International Studies**

**Admission Requirements**

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

**Graduation Requirements**

Students must complete the following graduation requirements:
A. **General University Requirements**

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

B. **General Education Requirements**

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

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

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

D. **Major Requirements**

*Note 1: Courses which may be used to meet GER and/or CAS BA requirements are designated by an asterisk (*) after their numbers. Courses in the GER lists for Tier 2 social sciences and humanities requirements may be used to fulfill both International Studies requirements and GER Tier 2 requirements in social sciences and humanities.*

*Note 2: Topics, selected topics, studies in, and senior seminar courses, i.e., courses with changing topics and content and approved for a particular semester are posted on the International Studies Website under “Courses and Registration.”*

1. **Complete 21 credits of required core courses**

   **Introductory Survey** 3

   (May be used to fulfill both an International Studies degree requirement and the Tier 2 GER social sciences requirement.)

   GEOG/INTL A101* Local Places/Global Regions: An Introduction to Geography (3)

   **Social Sciences Selection** 6

   (Courses below that are also listed in the list for Tier 2 GER social sciences may be used to fulfill both an International Studies degree requirement and the Tier 2 GER social sciences requirement.)

   EDFN A304* Comparative Education (3)
   HS A230* Introduction to Global Health (3)
   JUST A365 Comparative Justice Systems (3)
   PS A102* Introduction to Political Science (3)
   PS A301 Comparative Political Economy (3)

   **Humanities and Fine Arts Selection** 6

   ART A262* History of Western Art II (3)
   ENGL A202* Masterpieces of World Literature II (3)
   ENGL A440 Topics in Comparative Literature (3)
   JPC A404 Global Media and Communications Systems (3)
   PHIL A212* History of Philosophy II (3)
   PHIL A313* Eastern Philosophy and Religion (3)
   PHIL A314* Western Religions (3)
   THR A312* Representative Plays II (3)

   **Capstone Course Selection** 6

   Choose one of the following capstone courses in the Humanities:
   HIST A390A* Themes in World History (3)
   PHIL A400* Ethics, Community, and Society (3)
   ENGL A343 Modern and Contemporary Literature (3)

   Take one of the following capstone courses in the Social Sciences:
   ANTH A465 Culture and Globalization (3)
2. Choose a single emphasis language from among the languages offered at UAA and complete at least two semester of 200-level language studies or above in that language. Students in the Regional Studies Track must choose a language appropriate to one of the approved regions of study. 8

3. Complete 20 credits as specified in one of the tracks below

**Regional Studies Track**

Complete 12 credits, from at least two subjects, of approved upper division electives related to one of the approved regions of study – Europe, Russia, North East Asia, Comparative Regions (contact Director of International Studies for list of approved courses and regions).

**Applied Global Studies Track**

Complete 12 credits from the following selectives, choosing at least 6 credits from List A:

- **List A:**
  - ECON A337 Development Economics (3)
  - ECON A363 International Economics (3)
  - ENVI A490 Topics in Environment and Society (3)(with approved topic: International Environmental Issues)
  - PS A321 International Relations (3)
  - PS A323 International Organizations (3)
  - PS A424 International Law (3)
  - SOC A307 Demography (3)

- **List B:**
  - BA A487 International Management (3)
  - EDFN A301 Foundations of Literacy and Language Development (3)
  - EDFN A478 Issues in Alaska Native Education, K-12 (3)
  - ENGL A450 Linguistics and English Language Teaching (3)
  - GEOG A375 Spatial Analysis (3)
  - HS A326 Introduction to Epidemiology (3)
  - HS A345 Planning and Implementation of Health Education Programs (3)
  - HS/HUMS A420 Introduction to Program Evaluation (3)
  - PS/SOC A361 Social Science Research Methods (3)
  - SOC A362 Social Science Statistics (3)

4. **International/Intercultural Experience**

All International Studies students are required to engage in an international or intercultural experience related to their program of study and the desired student learning outcomes of the program. Students are required to complete this requirement through a study abroad program, short-term study abroad, or an international internship or service-learning project. Students are required to submit a proposed plan to complete this requirement no later than the end of the junior year. The plan is approved by the Director of International Studies. Note: This experience may be completed locally. International travel is not required.
4. A total of 120 credits is required for the degree, of which 42 credits must be upper division, and 46 credits must be earned to meet the requirements of the major as specified above.

**Minor, International North Pacific Studies**

Students majoring in another subject and wishing to minor in International North Pacific Studies must:

1. Complete the following courses: 9
   - INTL A315* Canada: Nation and Identity (3)
   - INTL/HIST/PS A325* Northeast Asia in 21st Century (3)
   - HIST A330 Russia in East Asia (3)

2. Complete 8 credits of one of the following languages: Chinese, Japanese, Russian. 8

3. Complete one elective course from a list of approved courses related to Canada, Northeast Asia, or Russia. 3

A total of 20 credits are required for the minor.

**Minor, Canadian Studies**

Students majoring in another subject and wishing to minor in Canadian Studies must:

1. Complete the following course: 3
   - INTL A315* Canada: Nation and Identity

2. Complete 8 credits of French. 8

3. Complete three elective courses from a list of approved courses related to Canada. 9

A total of 20 credits are required for the minor.

**FACULTY**

Michihiro Ama, Assistant Professor, mama@uaa.alaska.edu
Raymond Anthony, Associate Professor, ranthon1@uaa.alaska.edu
Rachel Ball, Assistant Professor, rball11@uaa.alaska.edu
Allan Barnes, Professor, arbarnes@uaa.alaska.edu
Elizabeth Dennison, Professor, ejdennison@uaa.alaska.edu
Dalee Dorough, Assistant Professor, dsdorough@uaa.alaska.edu
Paul Dunscomb, Associate Professor, pedunscomb@uaa.alaska.edu
David Edgecombe, Professor, dpedgecombe@uaa.alaska.edu
Nelta Edwards, Associate Professor, nmvedwards@uaa.alaska.edu
Patricia Fagan, Associate Professor, pcfagan@uaa.alaska.edu
Kristin Hanson, Adjunct Instructor, khanson@uaa.alaska.edu
Hiroko Harada, Professor, hharada@uaa.alaska.edu
Lee Huskey, Professor, tlhuskey@uaa.alaska.edu
Timothy Jester, Associate Professor, AFTEG@uaa.alaska.edu
Susan Kalina, Professor, smkalina@uaa.alaska.edu
Gunnar Knapp, Professor, Gunnar.Knapp@uaa.alaska.edu
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Rebecca Maseda, Assistant Professor, rmesedagarcia@uaa.alaska.edu
Francisco Miranda, Associate Professor, fnmiranda2@uaa.alaska.edu
John Mouracade, Associate Professor, jmmouracade@uaa.alaska.edu
James Muller, Professor, jwmuller@uaa.alaska.edu
William Myers, Associate Professor, wmyers@uaa.alaska.edu
Nancy Nix, Assistant Professor, nanix@uaa.alaska.edu
Sudarsan Rangarajan, Associate Professor, srangarajan@uaa.alaska.edu
Kelly Shannon, Assistant Professor, kelly.shannon@uaa.alaska.edu
Landry Signe, Assistant Professor, lsigne@uaa.alaska.edu
Audrey Taylor, Assistant Professor, artaylor@uaa.alaska.edu
Dorn Van Dommelen, Professor, dvandommelen@uaa.alaska.edu
Toby Widdicombe, Professor, rtwiddicombe@uaa.alaska.edu
David Yesner, Professor, dryessner@uaa.alaska.edu
The International Studies program at UAA prepares students to be global citizens in an interdependent world. International and intercultural understanding and competency are essential in all aspects of life and work, and this program seeks to prepare students to be contributing members of the international community.

The interdisciplinary Bachelor of Arts in International Studies provides students with the analytical skills and cross-cultural sensitivities required of informed, global citizens. Core courses introduce students to different modes of enquiry and understanding and provide the foundation for a comparative approach to issues across regions, societies, and cultures. The program includes a regional track that focuses the student on a particular language and region or an applied global studies track that prepares students to pursue professional opportunities in international development, education, and health. Coursework in a specific track focuses the student on a particular language and region. The program capstone requires two program capstone courses require students to apply acquired analytical skills and modes of enquiry across regions, societies, and cultures in a comparative examination of various topics.

To further develop their global competence, students majoring in International Studies will have the option to participate in study abroad experience or another international/intercultural experience or an approved internship. Students must petition to fulfill major requirements with study abroad or internship credits.

Students who complete a bachelor’s of International Studies will gain an understanding of the challenges and complexities of cross-cultural interactions in an increasingly interconnected world. Students will experience different ways of viewing and questioning the world as expressed in primary sources, as well as the complexities of a specific area (Russia, Northeast Asia, Europe, Canada) informed by multiple perspectives.

Student Learning Outcomes

The specific education outcomes that support program objectives are to produce graduates who will be able to:

- Demonstrate cross-cultural understanding through language study.
- Demonstrate critical thinking about values, attitudes, and practices in an international context.
- Demonstrate an ability to analyze international issues and challenges and apply integrative multi-disciplinary tools to describe and explain them.
- Demonstrate effective written communication.

Honors in International Studies

Students majoring in International Studies are eligible to graduate with honors if they satisfy the following requirements:

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2. Meet the requirements for a Bachelor of Arts in International Studies.
3. Maintain a grade point average of 3.80 or above in courses applicable to the degree requirements.
4. Complete the program capstone course (GEOG A390A, HIST A390A, or PHIL A400) with an honor grade (A).

Bachelor of Arts, International Studies

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.
Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

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

B. General Education Requirements

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

C. College of Arts and Sciences Requirements

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

D. Major Requirements

Note 1: Courses which may be used to meet GER and/or CAS BA requirements are designated by an asterisk (*) after their numbers. Courses in the GER lists for Tier 2 social sciences and humanities requirements may be used to fulfill both International Studies requirements and GER Tier 2 requirements in social sciences and humanities.

Note 2: Topics, selected topics, studies in, and senior seminar courses, i.e., courses with changing topics and content and approved for a particular semester are posted on the International Studies Website under “Courses and Registration.”

1. Complete 18-21 credits of required core courses

   Introductory Survey  3
   (May be used to fulfill both an International Studies degree requirement and the Tier 2 GER social sciences requirement.)
   GEOG/
   INTL A101* Local Places/Global Regions: An
   Introduction to Geography (3)

   Social Sciences Selection  6
   (Courses below that are also listed in the list for Tier 2 GER social sciences may be used to fulfill both an International Studies degree requirement and the Tier 2 GER social sciences requirement.)
   ANTH A250* The Rise of Civilization (3)
   EDFN A304* Comparative Education (3)
   HS A230* Introduction to Global Health (3)
   JUST A365 Comparative Justice Systems (3)
   PS A102* Introduction to Political Science (3)
   PS A301 Comparative Political Economy (3)
   PS A321 International Relations (2)

   Humanities and Fine Arts Selection  6
   ART A262* History of Western Art II (3)
   ENGL A202* Masterpieces of World
   Literature II (3)
   ENGL A440 Topics in Comparative Literature (3)
   ENGL A312 Modern and Contemporary
   Literature (3)
   IPC A104 Global Media and Communications Systems (3)
   PHIL A212* History of Philosophy II (3)
   PHIL A313* Eastern Philosophy and Religion (3)
   PHIL A314* Western Religions (3)
   THR A312* Representative Plays II (3)

2. Choose one of the following capstone courses in the Humanities:
GEOG A390A* Topics in Global Geography (3)
HIST A390A* Themes in World History (3)
PHIL A400* Ethics, Community, and Society (3)
ENGL A343 Modern and Contemporary Literature (3)

Take one of the following capstone courses in the Social Sciences:
ANTH A465 Culture and Globalization (3)
GEOG A390A* Topics in Global Geography (3)
SOC A380 Sociology of Globalization (3)

2. Choose a single emphasis language from among the languages offered at UAA and complete at least two semester of 200-level language studies or above in that language. Students in the Regional Studies Track must choose a language appropriate to one of the approved regions of study. Complete four semesters of college-level language appropriate to track (101-102, 201-202, or higher).

3. Complete 2012 credits as specified in one of the tracks below

Regional Studies Track
Complete 12 credits, from at least two subjects, of approved upper division electives related to one of the approved regions of study – Europe, Russia, North East Asia, Comparative Regions (contact Director of International Studies for list of approved courses and regions).

Applied Global Studies Track
Complete 12 credits from the following selectives, choosing at least 6 credits from List A:

List A:
ECON A337 Development Economics (3)
ECON A363 International Economics (3)
ENVI A490 Topics in Environment and Society (3)(with approved topic: International Environmental Issues)
PS A321 International Relations (3)
PS A323 International Organizations (3)
PS A424 International Law (3)
SOC A307 Demography (3)

List B:
BA A487 International Management (3)
EDFN A301 Foundations of Literacy and Language Development (3)
EDFN A478 Issues in Alaska Native Education, K-12 (3)
ENGL A450 Linguistics and English Language Teaching (3)
GEOG A375 Spatial Analysis (3)
HS A326 Introduction to Epidemiology (3)
HS A345 Planning and Implementation of Health Education Programs (3)
HS/HUMS A420 Introduction to Program Evaluation (3)
PS/SOC A361 Social Science Research Methods (3)
SOC A362 Social Science Statistics (3)

4. International/Intercultural Experience
All International Studies students are required to engage in an international or intercultural experience related to their program of study and the desired student learning outcomes of the program. Students are required to complete this...
requirement through a study abroad program, short-term study abroad, or an international internship or service-learning project. Students are required to submit a proposed plan to complete this requirement no later than the end of the junior year. The plan is approved by the Director of International Studies. Note: This experience may be completed locally. International travel is not required.

**Russia Track (Language: Russian)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST A330</td>
<td>Russia in East Asia</td>
<td>3</td>
</tr>
<tr>
<td><strong>Russia Elective Course Selection</strong></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>ANTH A434</td>
<td>Peoples and Cultures of Northeast Asia</td>
<td>3</td>
</tr>
<tr>
<td>ART A492</td>
<td>Art History Seminar (with approved topic)</td>
<td>3</td>
</tr>
<tr>
<td>GEOG A341</td>
<td>The Slavic World</td>
<td>3</td>
</tr>
<tr>
<td>HIST A422</td>
<td>Medieval Russian History</td>
<td>3</td>
</tr>
<tr>
<td>HIST A424</td>
<td>Imperial Russian History</td>
<td>3</td>
</tr>
<tr>
<td>HIST A425</td>
<td>History of the Soviet Union</td>
<td>3</td>
</tr>
<tr>
<td>HIST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RUSS A477*</td>
<td>Post-Soviet Culture and Society</td>
<td>3</td>
</tr>
<tr>
<td>HIST A477</td>
<td>Senior Seminar</td>
<td>(3)</td>
</tr>
<tr>
<td>HIST A488</td>
<td>Studies in Modern Europe</td>
<td>(with approved topic) (3)</td>
</tr>
<tr>
<td>PS A492*</td>
<td>Senior Seminar in Politics</td>
<td>(3)</td>
</tr>
<tr>
<td>RUSS A390</td>
<td>Selected Topics in Advanced</td>
<td>(3)</td>
</tr>
<tr>
<td>RUSS A480A</td>
<td>Selected Topics in Russian</td>
<td>(1-3)</td>
</tr>
<tr>
<td>RUSS A690B</td>
<td>Selected Topics: Russian Culture in Translation</td>
<td>(1-3)</td>
</tr>
<tr>
<td>THR A491</td>
<td>Selected Topics in Performance</td>
<td>(with approved topic) (3)</td>
</tr>
<tr>
<td>THR A492*</td>
<td>Senior Seminar</td>
<td>(3)</td>
</tr>
<tr>
<td><strong>Any course with the appropriate focus and approved by academic petition for the category. For example, a topics course that focuses on Russia. (3)</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Northeast Asia Track (Language: Chinese or Japanese)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTL A335</td>
<td>Northeast Asia in 21st Century</td>
<td>3</td>
</tr>
<tr>
<td><strong>Northeast Asia Elective Course Selection</strong></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>ANTH A434</td>
<td>Peoples and Cultures of Northeast Asia</td>
<td>(3)</td>
</tr>
<tr>
<td>ART A466</td>
<td>Asian Art</td>
<td>(3)</td>
</tr>
</tbody>
</table>
HIST A320 The Rise, Fall, and Reinvention of the Samurai (3)
HIST A321 Modern China (3)
HIST A322 Modern Japan (3)
HIST A323 Communist China (3)
HIST A320 Russia in East Asia (3)
HIST A477 Senior Seminar (with approved content) (3)
JPN A310 Selected Topics in Advanced Japanese (with approved topic) (3)
PHIL A313* Eastern Philosophy and Religion (3)
PS A407* Senior Seminar in Politics (with approved topic) (3)
THR A492* Senior Seminar (with approved topic) (3)
Any course with the appropriate focus and approved by academic petition for the category.
For example, a topics course that focuses on China or Japan (3).

Europe Track (Language: French, German, or Spanish)

HIST A316 Twentieth Century Europe (3)
European Elective Course Selection (9)
ART A362 History of Modern Art (3)
ART A363 History of Contemporary Art (3)
ECON
HIST A360 Modern Economic History (3)
ENCL A313 Modern and Contemporary Literature (3) (if not taken as a core course)
ENCL A440 Topics in Comparative Literature (with approved topic) (3)
FREN A310 Selected Topics: Literary Trends and Traditions (with approved topic) (3)
FREN A472 Studies of Literature and Culture (with approved topic) (3)
GEOG A314 The Slavic World (3)
GER A310 Selected Topics: Literary Trends and Traditions (with approved topic) (3)
GER A407 Selected Topics in German Literature (with approved topic) (3)
HIST A314 Nineteenth Century Europe (3)
HIST A411 History of Modern Germany (3)
HIST A477 Senior Seminar (with approved topic) (3)
HIST A488 Studies in Modern Europe (3)
PHIL A314* Western Religions (3)
PS A311* Comparative Politics (3)
PS A333* History of Political Philosophy II: Modern (3)
SPAN A432 Studies in Literature and Culture (Selected Topics) (with approval topic) (2)
SPAN A490 Selected Topics in Hispanic Culture and Civilization (with approval topic) (3)
THR A412* History of Theatre II (with approved topic) (3)
THR A492* Senior Seminar (with approved topic) (3)

Any course with the appropriate focus and approved by academic petition for the category. For example, a topics course that focuses on Europe (3)

**Canada Track (Language: French)**

INTL A315* Canada: Nation and Identity 3

**Canada Elective Course Selection** 9
ANTH A416 Arctic Archeology (3)
ANTH A435 Northwest Coast Cultures (3)
ANTH A437 Eskimo Adaptations (3)
ANTH A439 Athabaskan Adaptations (3)
ENGL A365* National Literatures in English (with approval topic) (2)
ENGL A371 Narrative Nonfiction (with approved content) (3)
FREN A432 Studies in Literature and Culture (with approval topic) (3)
GEOG A443 Northwest Passage: The Changing Canadian North (3)
GEOG/HIST A345 Across this Land: The Historical Geography of North America (3)
HIST A330 Russia in East Asia (3)
THR A492* Senior Seminar (with approved topic) (3)

Any course with the appropriate focus and approved by academic petition for the category. For example, a topics course that focuses on Canada (3)

4. A total of 120 credits is required for the degree, of which 42 credits must be upper division, and 46 credits must be earned to meet the requirements of the major as specified above.

**Minor, International North Pacific Studies**

Students majoring in another subject and wishing to minor in International North Pacific Studies must:

1. Complete the following courses: 9
   - INTL A315* Canada: Nation and Identity (3)
   - INTL/HIST/PS A325* Northeast Asia in 21st Century (3)
   - HIST A330 Russia in East Asia (3)

2. Complete 8 credits of a language appropriate to the Canada, Northeast Asia, or Russia track of the Bachelor of Arts in International Studies, one of the following languages: Chinese, Japanese, Russian. 8
3. Complete one elective course from a list of approved courses related to Canada, Northeast Asia, or Russia track of the Bachelor of Arts in International Studies. 3

A total of 20 credits are required for the minor.

**Minor, Canadian Studies**

Students majoring in another subject and wishing to minor in Canadian Studies must:

1. Complete the following course:
   
   **INTL A315* Canada: Nation and Identity**

2. Complete 8 credits of a language appropriate to the Canada track of the Bachelor of Arts in International StudiesFrench. 8

3. Complete three elective courses from a list of approved courses related to Canada track of the Bachelor of Arts in International Studies. 9

A total of 20 credits are required for the minor.

**FACULTY**

Susan Kalina, Chair/Professor, AFSMK@uaa.alaska.edu
Michitaka Ama, Assistant Professor, mumai@uaa.alaska.edu, Maku@uaa.alaska.edu
Rachel Anthony, Associate Professor, rant@uaa.alaska.edu
Allan Barnes, Professor, ABARBBarnes@uaa.alaska.edu
Jacqueline Casem, Assistant Professor, JACAS@uaa.alaska.edu
Robert Coveney, Professor, RFCov@uaa.alaska.edu
Elizabeth Denning, Professor, EDDenning@uaa.alaska.edu
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Kristin Hanson, Adjunct Instructor, KHA@uaa.alaska.edu
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William Myers, Associate Professor, WMyers@uaa.alaska.edu
Nancy Nix, Assistant Professor, nanix@uaa.alaska.edu
Sudarsan Pangaraj, Associate Professor, SPAR Jay@uaa.alaska.edu
Kelly Shannon, Assistant Professor, KellyShan@uaa.alaska.edu
# 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>ASSC Division of Social Science</td>
<td>PSY</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>PSY</td>
<td>A200</td>
<td>N/A</td>
<td>3.0</td>
<td>(Lecture + Lab) (3+0)</td>
</tr>
</tbody>
</table>

### Complete Course Title
**Introduction to Behavior Analysis**

**Abbreviated Title for Transcript (30 character):** Intro to Behavior Analysis

<table>
<thead>
<tr>
<th>7. Type of Course</th>
<th>8. Type of Action:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic</td>
<td>Add</td>
</tr>
</tbody>
</table>

### Contact Hours
- (Lecture + Lab) (3+0)

### Repeat Status No
- # of Repeats: No
- Max Credits: 3.0

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

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

### Cross Listed with
- Stacked with

### Course Description
An introduction to the principles of behavior analysis used to understand and change behavior. Students will learn how behavioral scientists observe, measure, and change behavior to help people live healthy, productive lives.

### Course Prerequisite(s) (list prefix and number or test code and score)
N/A

### Co-requisite(s) (concurrent enrollment required)
N/A

### Registration Restriction(s) (non-codable)
N/A

### Mark if course has fees
- Mark if course is a selected topic course

### Justification for Action
Adding course. PSY A200 will serve as a prerequisite for PSY A400 (Strategies of Behavior Change), and will serve as a foundation for later coursework in the Behavior Analysis concentration that prepares students to apply for professional certification and/or to work in many social service agencies.

---

**Initiator Name (typed): Veronica Howard**

**Initiator Signed Initials:**

**Date:**

---

**Initiator (faculty only) Veronica Howard**

**Initiator (TYPE NAME)**

- Approved
- Disapproved

**Date:**

---

**Dean/Director of School/College**

- Approved
- Disapproved

**Date:**

---

**Undergraduate/Graduate Academic Board Chair**

- Approved
- Disapproved

**Date:**

---

**Provost or Designee**

- Approved
- Disapproved

**Date:**

---

**277**
I. **Initiation Date:** January 22, 2014

II. **Curriculum Action Request**
1. **College:** College of Arts and Sciences
2. **Course Title:** Introduction to Behavior Analysis
3. **Course Prefix:** PSY A200
4. **Credit Hours:** 3 + 0
5. **Contact Time:** 3
6. **Grading Information:** A - F
7. **Course Description:** An introduction to the principles of behavior analysis used to understand and change behavior. Students will learn how behavioral scientists observe, measure, and change behavior to help people live healthy, productive lives.
8. **Status of course relative to degree or certification program:**
   Required for concentration in Behavior Analysis
9. **Course Fees:** None
10. **Coordination:** UAA faculty list-serve
11. **Cross-listed/Stacked:** N/A
12. **Course Prerequisites:** N/A
13. **Course Co-requisites:** N/A
14. **Other Restrictions:** N/A
15. **Registration Restrictions:** N/A

III. **Course Activities**
Lecture and classroom-based activities.

IV. **Course Level Justification**
The course requires no prerequisite knowledge of the field of psychology and can be relevant to a wide range of potential career paths.

V. **Instructional Goals and Student Learning Outcomes**
A. **Instructional Goals.**
   The instructor will:
   1. Describe the philosophical assumptions of behavior analysis.
   2. Describe and define the basic principles of behavior analysis, such as reinforcement, punishment, and stimulus control.
   3. Describe research methods and data analysis used in behavior analysis.
B. Student Learning Outcomes.

<table>
<thead>
<tr>
<th>Upon successful completion of the course, the student will be able to:</th>
<th>The student learning outcome will be assessed by one or more of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe the philosophical assumptions of behavior analysis.</td>
<td>Graded in-class activities, quizzes, and/or tests.</td>
</tr>
<tr>
<td>Describe and define the basic principles of behavior analysis, such as reinforcement, punishment, and stimulus control.</td>
<td>Graded in-class activities, quizzes, and/or tests.</td>
</tr>
<tr>
<td>Describe research methods and data analysis used in behavior analysis.</td>
<td>Graded in-class activities, quizzes, and/or tests.</td>
</tr>
</tbody>
</table>

VI. Topic Course Outline


1. Overview of Behavior Analysis
   a. Philosophy
      i. Lawfulness of behavior
      ii. Determinism
      iii. Parsimony
      iv. Pragmatism
   b. Differences between respondent and operant conditioning
   c. Distinctions between types of behavior analysis
      i. Methodological versus radical behaviorism
      ii. Conceptual analysis of behavior
      iii. Experimental analysis of behavior
      iv. Applied behavior analysis
      v. Behavioral service delivery (e.g., Positive Behavioral Support)

2. Defining, observing, and evaluating behavior
   a. Environmental (as opposed to Mentalistic) explanations of behavior
   b. Methods of observation
      i. Outcome
      ii. Event
      iii. Interval
      iv. Time-sample
   c. Basic experimental designs in behavior analysis
      i. Comparison Design
      ii. Reversal Design
      iii. Multiple-baseline Design
   d. Visual analysis of behavioral data
      i. Level
      ii. Trend
      iii. Variability
   e. Reliability and social validity
3. Reinforcement
   a. Types of reinforcement (i.e., positive and negative reinforcement)
   b. Classes of reinforcing stimuli
      i. Primary
      ii. Conditioned
      iii. Generalized
   c. Principles of effective reinforcement
      i. Deprivation
      ii. Immediacy
      iii. Size
      iv. Contingency
   d. Extinction
   e. Differential reinforcement
   f. Shaping
   g. Basic schedules of reinforcement
      i. Interval-Based Schedules
      ii. Ratio-Based Schedules
      iii. Extinction
   h. Behavioral contrast, momentum, and matching

4. Punishment
   a. Types of Punishment
      i. Positive and negative punishment
      ii. The role of escape and avoidance
   b. Principles of effective punishment
   c. Classes of punishing stimuli
      i. Primary
      ii. Conditioned
      iii. Generalized
   d. Ethical Considerations when Using Punishment
      i. An intervention of last resort
      ii. Alternatives to the use of punishment

5. Stimulus Control
   a. Stimulus discrimination
   b. Generalization training
   c. Programming and fading
   d. Imitation
   e. Instructions and rule governed behavior
      i. Pliance
      ii. Tracking

VII. Suggested Texts


VIII. Bibliography and Resources


*Seminal article in the field.*
1a. School or College  
AS CAS

1b. Division  
ASSC Division of Social Science

1c. Department  
PSY

2. Course Prefix  
PSY

3. Course Number  
A400

4. Previous Course Prefix & Number  
A445

5a. Credits/CEUs  
3.0

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

6. Complete Course Title  
Strategies of Behavior Change

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  ☒ Course Number  ☐ Credits  ☐ Contact Hours  ☐ Title  ☐ Repeat Status  ☐ Grading Basis  ☒ Cross-Listed/Stacked  ☐ Test Score Prerequisites  ☐ Course Prerequisites  ☐ Co-requisites  ☐ Registration Restrictions  ☐ 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: Fall/2014  To: Fall/9999

12. ☐ Cross Listed with  
☒ Stacked with PSY A600  
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.

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Courtesy</td>
<td>December 1, 2013</td>
<td>Claudia Lampman</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initiator Name (typed): Veronica Howard  
Initiator Signed Initials: _________  
Date: __________________

13b. Coordination Email  
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)  
Date: December 2, 2013

13c. Coordination with Library Liaison  
Date: December 2, 2013

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 exploration of the principles, strategies, and clinical applications of behavior analysis. Topics will include methods to improve desirable behavior and decrease problem behavior, methods to evaluate behavior change and program effectiveness, and development of comprehensive behavioral programs.

16a. Course Prerequisite(s) (list prefix and number or test code and score)  
(PSY A200 or PSY A355) with a grade of C or higher.

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

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

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

17. ☐ Mark if course has fees  

18. ☐ Mark if course is a selected topic course  

19. Justification for Action  
We are changing the course number so the course can be stacked and adding prerequisites as part of the concentration in Behavior Analysis.

Initiator (faculty only)  
Veronica Howard  
Initiator (TYPE NAME)  

☑ Approved  ☐ Disapproved  
Date: __________________  
Dean/Director of School/College  
Date: __________________

☑ Approved  ☐ Disapproved  
Date: __________________  
Undergraduate/Graduate Academic  
Board Chair  
Date: __________________

☑ Approved  ☐ Disapproved  
Date: __________________  
Provost or Designee  
Date: __________________

CARDINALITY

282
University of Alaska Anchorage
Course Content Guide

I. Initiation Date: January 22, 2014

II. Curriculum Action Request
   1. **College:** College of Arts and Sciences
   2. **Course Title:** Strategies of Behavior Change
   3. **Course Prefix:** PSY A400
   4. **Credit Hours:** 3 + 0
   5. **Contact Time:** 3
   6. **Grading Information:** A - F
   7. **Course Description:** An exploration of the principles, strategies, and clinical applications of behavior analysis. Topics will include methods to improve desirable behavior and decrease problem behavior, methods to evaluate behavior change and program effectiveness, and development of comprehensive behavioral programs.
   8. **Status of course relative to degree or certification program:** Required for concentration in Behavior Analysis
   9. **Course Fees:** None
   10. **Coordination:** UAA faculty list-serve
   11. **Cross-listed/Stacked:** Stacked with PSY A600
   12. **Course Prerequisites:** (PSY A200 or PSY A355) with a grade of C or higher
   13. **Course Co-requisites:** N/A
   14. **Other Restrictions:** N/A
   15. **Registration Restrictions:** N/A

III. Course Activities
    Lecture and classroom-based activities.

IV. Course Level Justification
    The course requires an understanding of the principles of behavior analysis gained in PSY A200 or PSY A355.

V. Instructional Goals and Student Learning Outcomes
   A. Instructional Goals. The instructor will:
      1. Review the philosophical assumptions of behavior analysis.
      2. Describe and define the strategies of behavior change, such as methods to identify the function of problem behavior, strategies to increase and teach new behavior, decrease problematic or dangerous behavior, and strategies to improve independent self-care for clients.
      3. Describe research methods and data analysis used in behavior analysis.
      4. Describe ethical conduct guidelines for behavior analysts.
B. Student Learning Outcomes.

<table>
<thead>
<tr>
<th>Upon successful completion of the course, the student will be able to:</th>
<th>The student learning outcome will be assessed by one or more of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correctly graph and analyze behavioral data.</td>
<td>Graded in-class activities, quizzes, and/or tests.</td>
</tr>
<tr>
<td>Define and describe advanced principles and basic strategies of behavior change (e.g., reinforcement, punishment, shaping, fading, programming, Premack principle).</td>
<td>Graded in-class activities, quizzes, and/or tests.</td>
</tr>
<tr>
<td>Describe and demonstrate advanced strategies of behavioral methodology and treatment (e.g., functional analyses, alternating treatment designs, errorless learning, token economies, behavioral contracts, incidental teaching, teaching functional communication)</td>
<td>Graded in-class activities, quizzes, and/or tests.</td>
</tr>
<tr>
<td>Discriminate between ethical and non-ethical conduct by behavior analytic service providers.</td>
<td>Graded in-class activities, case studies, quizzes, and/or tests.</td>
</tr>
</tbody>
</table>

VI. Topic Course Outline

*Note: Course content is designed to primarily teach Basic Behavior Analytic Skills as described by the Behavior Analysis Certification Board (BACB) ®. These skills are outlined in the BACB Fourth Edition Task List:* http://www.bacb.com/Downloadfiles/TaskList/BACB_Fourth_Edition_Task_List.pdf

1. Reviewing the behavioral strategy
   a. Introduction to behavior analysis
      i. Lawfulness of behavior
      ii. Selectionism (i.e., phylogenetic, ontogenetic, cultural)
      iii. Determinism
      iv. Empiricism
      v. Parsimony
      vi. Pragmatism
   b. Distinctions between respondent and operant conditioning
   c. Distinctions between types of behavior analysis
      i. Methodological versus radical behaviorism
      ii. Conceptual analysis of behavior
      iii. Experimental analysis of behavior
      iv. Applied behavior analysis
      v. Behavioral service delivery (e.g., positive behavior support)

2. Selecting, defining, and measuring behavior
   a. Social validity
   b. Mentalistic versus objective behavior
   c. Topographic versus functional behavior
   d. Methods of observation

3. Evaluating and analyzing behavior change
   a. Reliability
   b. Single-subject designs
c. Threats to internal and external validity

4. Reinforcement Strategies
   a. Reinforcement
   b. Differential reinforcement procedures (i.e., DRO, DRA, DRI, DRL, DRH)
   c. Premack Principle

5. Teaching New Behavior
   a. Schedules of reinforcement that promote learning
   b. Errorless learning
   c. Shaping

6. Introduction to Functional Analysis Methodology

7. Punishment
   a. Punishment by aversive stimulation
   b. Response cost
   c. Time out versus time in
   d. Ethical considerations of punishment

8. Decreasing behavior using non-aversive strategies
   a. Differential reinforcement
   b. Behavioral contrast, momentum, and induction
   c. Matching law

9. Antecedent strategies
   a. Chaining
   b. Programming
   c. Fading

10. Introduction to Skinner’s Verbal Behavior
    a. Skinner/Chomsky debate
    b. Echoics
    c. Mands
    d. Tacts
    e. Intraverbals

11. Special applications of behavior analysis
    a. Contingency contracts
    b. Token economies
    c. Group contingencies
    d. Self-management
    e. Positive behavior support

12. Promoting generalization and maintenance of behavior change
    a. Schedules of reinforcement that maintain responding
    b. Programming for maintenance and generalization of behavior
c. Programming for the survival of a behavior analytic programming

13. Ethical considerations for behavior analysts
   a. Responsible conduct of a behavior analyst
   b. The behavior analyst’s responsibility to clients
   c. Responsible conduct when assessing behavior
   d. The behavior analyst and the individual behavior change program

VII. Suggested Texts


VIII. Bibliography and Resources


Articles published in *Journal of Applied Behavior Analysis*.

*Seminal works in the field.*
Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College
   AS CAS

1b. Division
   ASSC Division of Social Science

1c. Department
   PSY

2. Course Prefix
   PSY

3. Course Number
   A600

4. Previous Course Prefix & Number
   N/A

5a. Credits/CEUs
   3.0

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

6. Complete Course Title
   Introduction to Strategies of Behavior Change
   Strategies of Behavior Change
   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
- College
- Major
- Other (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:  Fall/9999

12. ☐ Cross Listed with
    ☐ Stacked with
    PSY A400
    Cross-Listed Coordination
    Signature

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

13b. Coordinator Name

13c. Coordinator Date

13d. Coordinator Email

13e. Coordinator Contact

13f. Coordinator Initials

13g. Date

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 the principles, strategies, and clinical applications of behavior analysis. Topics will include methods to improve desirable behavior and decrease problem behavior, methods to evaluate behavior change and program effectiveness, and development of comprehensive behavioral programs.
   Special note: PSY A600 cannot be taken for credit if PSY A400 was previously taken for credit.

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

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

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
   We are adding this course as an elective for graduate students who are pursing degrees in helping related professions (e.g., psychology, social work, human services).
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<td>Veronica Howard</td>
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<th>Provost or Designee</th>
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University of Alaska Anchorage  
Course Content Guide

I. Initiation Date: January 22, 2014

II. Curriculum Action Request
1. College: College of Arts and Sciences
2. Course Title: Introduction to Strategies of Behavior Change
3. Course Prefix: PSY A600
4. Credit Hours: 3 + 0
5. Contact Time: 3
6. Grading Information: A - F
7. Course Description: An introduction to the principles, strategies, and clinical applications of behavior analysis. Topics will include methods to improve desirable behavior and decrease problem behavior, methods to evaluate behavior change and program effectiveness, and development of comprehensive behavioral programs.

   Special note: PSY A600 cannot be taken for credit if PSY A400 was previously taken for credit.

8. Status of course relative to degree or certification program: Elective
9. Course Fees: None
10. Coordination: UAA faculty list-serve
11. Cross-listed/Stacked: Stacked with PSY A400
12. Course Prerequisites: N/A
13. Course Co-requisites: N/A
14. Other Restrictions: N/A
15. Registration Restrictions: Graduate standing

III. Course Activities
Lecture and classroom-based activities, including substantive contribution to class discussion and coordination of a class topic discussion activity.

IV. Instructional Goals and Student Learning Outcomes
A. Instructional Goals. The instructor will:
1. Review the philosophical assumptions of behavior analysis.
2. Describe and define the strategies of behavior change, such as methods to identify the function of problem behavior, strategies to increase and teach new behavior, decrease problematic or dangerous behavior, and strategies to improve independent self-care for clients.
3. Describe research methods and data analysis used in behavior analysis.
4. Describe ethical conduct guidelines for behavior analysts.
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<td>Describe and demonstrate advanced strategies of behavioral methodology and treatment (e.g., functional analyses, alternating treatment designs, errorless learning, token economies, behavioral contracts, incidental teaching, teaching functional communication)</td>
<td>Graded in-class activities, quizzes, and/or tests as well as developing discussion topics based on primary sources and leading a lecture on a class topic.</td>
</tr>
<tr>
<td>Discriminate between ethical and non-ethical conduct by behavior analytic service providers.</td>
<td>Graded in-class activities, case studies, quizzes, and/or tests.</td>
</tr>
<tr>
<td>Critically analyze primary source material.</td>
<td>Term paper, class presentations, and/or leading a lecture on a class topic.</td>
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V. Topic Course Outline

Note: Course content is designed to primarily teach Basic Behavior Analytic Skills as described by the Behavior Analysis Certification Board (BACB) ®. These skills are outlined in the BACB Fourth Edition Task List: [http://www.bacb.com/Downloadfiles/TaskList/BACB_Fourth_Edition_Task_List.pdf](http://www.bacb.com/Downloadfiles/TaskList/BACB_Fourth_Edition_Task_List.pdf)

1. Reviewing the behavioral strategy
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      ii. Selectionism (i.e., phylogenetic, ontogenetic, cultural)
      iii. Determinism
      iv. Empiricism
      v. Parsimony
      vi. Pragmatism
   b. Distinctions between respondent and operant conditioning
   c. Distinctions between types of behavior analysis
      i. Methodological versus radical behaviorism
      ii. Conceptual analysis of behavior
      iii. Experimental analysis of behavior
      iv. Applied behavior analysis
      v. Behavioral service delivery (e.g., positive behavior support)

2. Selecting, defining, and measuring behavior
   a. Social validity
   b. Mentalistic versus objective behavior
   c. Topographic versus functional behavior
   d. Methods of observation
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   b. Single-subject designs
   c. Threats to internal and external validity

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   a. Reinforcement
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   a. Schedules of reinforcement that promote learning
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   c. Shaping

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   c. Time out versus time in
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    b. Token economies
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VI. Suggested Texts  


VII. Bibliography and Resources  


Articles published in *Journal of Applied Behavior Analysis*.

*Seminal works in the field.*
1a. School or College  
AS CAS  

1b. Division  
ASSC Division of Social Science  

1c. Department  
PSY  

2. Course Prefix  
PSY  

3. Course Number  
A455  

4. Previous Course Prefix & Number  
N/A  

5a. Credits/CEUs  
3.0  

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

6. Complete Course Title  
Interventions for Challenging Behavior  
Challenging Behavior  
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  ☒ Title  ☐ Repeat Status  ☐ Grading Basis  ☐ Cross-Listed/Stacked  ☐ Test Score Prerequisites  ☐ Co-requisites  ☐ 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  
From: Fall/2014  To: Fall/9999  

12. ☐ Cross Listed with  
☒ Stacked with  PSY 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.  

<table>
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<tr>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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<td>1. courtesy</td>
<td>December 1, 2013</td>
<td>Claudia Lampman</td>
</tr>
<tr>
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</table>

Initiator Name (typed): Veronica Howard  
Initiator Signed Initials: __________  
Date: __________  

13b. Coordination Email  
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)  
Date: December 2, 2013  

13c. Coordination with Library Liaison  
Date: December 2, 2013  

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 exploration of strategies used to treat challenging and dangerous behavior such as delinquency, eating disorders, aggression, self-injury, and substance use. Course will present an overview of neurodevelopmental, neurocognitive and other disorders that commonly produce challenging behavior and the role of family and community supports in community-based behavioral treatment.  

16a. Course Prerequisite(s) (list prefix and number or test code and score)  
PSY A400 with a grade of B or higher.  

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

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

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

17. ☐ Mark if course has fees  

18. ☐ Mark if course is a selected topic course  

19. Justification for Action  
Course content is being revised to emphasize evidence-based behavioral treatment to be used as an upper division selective in the Behavior Analysis concentration.  

Initiator (faculty only)  
Veronica Howard  
Initiator (TYPE NAME)  

☐ Approved  ☐ Disapproved  
Date  
Dean/Director of School/College  
Date  

☐ Approved  ☐ Disapproved  
Date  
Undergraduate/Graduate Academic Board Chair  
Date  

☐ Approved  ☐ Disapproved  
Date  
Provost or Designee  
Date  

293
I. Initiation Date: January 22, 2014

II. Curriculum Action Request
1. College: College of Arts and Sciences
2. Course Title: Interventions for Challenging Behavior
3. Course Prefix: PSY A455
4. Credit Hours: 3 + 0
5. Contact Time: 3
6. Grading Information: A - F
7. Course Description: An exploration of strategies used to treat challenging and dangerous behavior such as delinquency, eating disorders, aggression, self-injury, and substance use. Course will present an overview of neurodevelopmental, neurocognitive and other disorders that commonly produce challenging behavior and the role of family and community supports in community-based behavioral treatment.
8. Status of course relative to degree or certification program: Selective for concentration in Behavior Analysis
9. Course Fees: None
10. Coordination: UAA faculty list-serve
11. Cross-listed/Stacked: Stacked with PSY A655
12. Course Prerequisites: PSY A400 with a grade of B or higher
13. Course Co-requisites: N/A
14. Other Restrictions: N/A
15. Registration Restrictions: N/A

III. Course Activities
Lecture and classroom-based activities.

IV. Course Level Justification
The course requires an understanding and ability to apply principles of behavior analysis learned in PSY A400.

V. Instructional Goals and Student Learning Outcomes
A. Instructional Goals. The instructor will:
1. Describe the impact of biological, psychological and environmental factors that may set the occasion for challenging behavior, and describe effective behavioral interventions for managing these behaviors.
2. Describe neurodevelopmental, neurocognitive, and other disorders that produce challenging behavior including etiology and associated behavior patterns.
3. Provide learning experiences that illustrate how to effectively work with the families and other caregivers of individuals with neurodevelopmental and non-developmental disorders to improve client outcomes.
B. Student Learning Outcomes.

<table>
<thead>
<tr>
<th>Upon successful completion of the course, the student will be able to:</th>
<th>The student learning outcome will be assessed by one or more of the following:</th>
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<tbody>
<tr>
<td>Describe the biopsychosocial factors that contribute to challenging behavior.</td>
<td>Graded in-class activities, quizzes, and/or exams</td>
</tr>
<tr>
<td>Describes and designs behavioral interventions to manage problem behavior associated with disorders.</td>
<td>Graded in-class activities, written papers, quizzes, and/or exams</td>
</tr>
<tr>
<td>Specifies disorders that produce challenging behavior including etiology and associated behavior patterns.</td>
<td>Graded in-class activities, written papers, class presentations, quizzes, and/or exams</td>
</tr>
<tr>
<td>Describe how to effectively work with families and teams to improve client outcomes.</td>
<td>Graded in-class activities, written paper, and/or exams</td>
</tr>
</tbody>
</table>

VI. Topic Course Outline

1. History of treatment for disorders producing challenging behavior
   a. Medical model versus community based treatment
   b. Legislation and policy regarding treatment
   c. Ethical issues

2. Etiology and characteristics of disorders commonly presenting challenging behavior
   a. Neurodevelopmental disorders (e.g., autism spectrum disorder, attention-deficit hyperactivity disorder, fetal alcohol spectrum disorder)
   b. Neurocognitive disorders (e.g., dementia, Alzheimer’s Disease)
   c. Non-developmental disorders (e.g., phobia, substance use disorder, traumatic brain injury)

3. Assessment procedures
   a. Indirect assessment (e.g., screening tools, client/caregiver interview)
   b. Descriptive analysis
   c. Functional Assessment
   d. Functional Analysis

4. Treatment of challenging behavior
   a. Delinquency
   b. Eating disorders (e.g., pica, ruminative vomiting, obesity, and food refusal)
   c. Substance use
   d. Self-injury
   e. Aggression

5. Evidence-based behavior management approaches
   a. Choosing appropriate treatment
      i. Review best available scientific evidence for interventions
      ii. Critically evaluate the evidence regarding effectiveness, efficacy, and side effects of interventions
iii. Educate clients about risks and benefits of alternative interventions and combinations of interventions (including potential interference with behavior analytic intervention)

iv. Educate other professionals and organizations (e.g., school districts, government, insurance companies) about risks and benefits of alternative interventions and combinations of interventions

b. Behavior analytic treatment
i. Behavior analytic versus non-behavior analytic interventions
ii. Strategies to promote acceptable and preferred behavior (e.g., differential reinforcement, shaping, prompts and programming, token economies)
iii. Strategies to decrease dangerous or disruptive behavior (e.g., extinction, punishment, behavioral contracts)

6. Systems and support
   a. Person centered planning
   b. Working with families (the family-centered approach)
   c. Working within treatment teams Training caregivers and other professionals
   d. Designing effective treatment
      i. Setting considerations
      ii. Goodness of fit

7. Ethical Behavior
   a. Appropriate conduct of the treatment professional
   b. Operating within the scope of competence

VII. Suggested Texts


VIII. Bibliography and Resources


*Seminal article in the field.*
### Course Action Request

**University of Alaska Anchorage**

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

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Initiator Name (typed): Veronica Howard  Initiator Signed Initials:  Date: ______________

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

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<td>An introduction to the strategies used to treat challenging and dangerous behavior such as delinquency, eating disorders, aggression, self-injury, and substance use. Course will present an overview of neurodevelopmental, neurocognitive and other disorders that commonly produce challenging behavior and the role of family and community supports in community-based behavioral treatment.</td>
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| 17. ☑ Mark if course has fees | 18. ☑ Mark if course is a selected topic course |

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<th>19. Justification for Action</th>
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<td>We are adding this course as an elective for graduate students who are pursing degrees in helping related professions (e.g., psychology, social work, human services).</td>
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|                                           |      | Approved           |      |
|                                           |      | Disapproved        |      |
I. Initiation Date: January 22, 2014

II. Curriculum Action Request
1. College: College of Arts and Sciences
2. Course Title: Introduction to Interventions for Challenging Behavior
3. Course Prefix: PSY A655
4. Credit Hours: 3 + 0
5. Contact Time: 3
6. Grading Information: A - F
7. Course Description: An introduction to the strategies used to treat challenging and dangerous behavior such as delinquency, eating disorders, aggression, self-injury, and substance use. Course will present an overview of neurodevelopmental, neurocognitive and other disorders that commonly produce challenging behavior and the role of family and community supports in community-based behavioral treatment.

Special note: PSY A655 cannot be taken for credit if PSY A455 was previously taken for credit.

8. Status of course relative to degree or certification program: Elective
9. Course Fees: None
10. Coordination: UAA faculty list-serve
11. Cross-listed/Stacked: Stacked with PSY A455
12. Course Prerequisites: PSY A600
13. Course Co-requisites: N/A
14. Other Restrictions: N/A
15. Registration Restrictions: Graduate standing

III. Course Activities
Lecture and classroom-based activities, including substantive contribution to class discussion and coordination of a class topic discussion activity.

IV. Instructional Goals and Student Learning Outcomes
A. Instructional Goals. The instructor will:
1. Describe the impact of biological, psychological and environmental factors that may set the occasion for challenging behavior, and describe effective behavioral interventions for managing these behaviors.
2. Describe neurodevelopmental, neurocognitive, and other disorders that produce challenging behavior including etiology and associated behavior patterns.
3. Provide learning experiences that illustrate how to effectively work with the families and other caregivers of individuals with neurodevelopmental and non-development disorders to improve client outcomes.
B. Student Learning Outcomes.

<table>
<thead>
<tr>
<th>Upon successful completion of the course, the student will be able to:</th>
<th>The student learning outcome will be assessed by one or more of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe the biopsychosocial factors that contribute to challenging behavior.</td>
<td>Graded in-class activities, quizzes, and/or exams</td>
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<tr>
<td>Describe and design behavioral interventions to manage problem behavior associated with disorders.</td>
<td>Graded in-class activities, quizzes, and/or tests as well as developing discussion topics based on primary sources and leading a lecture on a class topic.</td>
</tr>
<tr>
<td>Specify disorders that produce challenging behavior including etiology and associated behavior patterns.</td>
<td>Graded in-class activities, written papers, class presentations, quizzes, and/or exams</td>
</tr>
<tr>
<td>Describe how to effectively work with families and teams to improve client outcomes.</td>
<td>Graded in-class activities, written paper, and/or exams</td>
</tr>
<tr>
<td>Critically analyze primary source material.</td>
<td>Term paper, class presentations, and/or leading a lecture on a class topic.</td>
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</tbody>
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V. Topic Course Outline

1. History of treatment for disorders producing challenging behavior
   a. Medical model versus community based treatment
   b. Legislation and policy regarding treatment
   c. Ethical issues

2. Etiology and characteristics of disorders commonly presenting challenging behavior
   a. Neurodevelopmental disorders (e.g., autism spectrum disorder, attention-deficit hyperactivity disorder, fetal alcohol spectrum disorder)
   b. Neurocognitive disorders (e.g., dementia, Alzheimer’s Disease)
   c. Non-developmental disorders (e.g., phobia, substance use disorder, traumatic brain injury)

3. Assessment procedures
   a. Indirect assessment (e.g., screening tools, client/caregiver interview)
   b. Descriptive analysis
   c. Functional Assessment
   d. Functional Analysis

4. Treatment of challenging behavior
   a. Delinquency
   b. Eating disorders (e.g., pica, ruminative vomiting, obesity, and food refusal)
   c. Substance use
   d. Self-injury
   e. Aggression

5. Evidence-based behavior management approaches
   a. Choosing appropriate treatment
i. Review best available scientific evidence for interventions
ii. Critically evaluate the evidence regarding effectiveness, efficacy, and side effects of interventions
iii. Educate clients about risks and benefits of alternative interventions and combinations of interventions (including potential interference with behavior analytic intervention)
iv. Educate other professionals and organizations (e.g., school districts, government, insurance companies) about risks and benefits of alternative interventions and combinations of interventions

b. Behavior analytic treatment
i. Behavior analytic versus non-behavior analytic interventions
ii. Strategies to promote acceptable and preferred behavior (e.g., differential reinforcement, shaping, prompts and programming, token economies)
iii. Strategies to decrease dangerous or disruptive behavior (e.g., extinction, punishment, behavioral contracts)

6. Systems and support
a. Person centered planning
b. Working with families (the family-centered approach)
c. Working within treatment teams Training caregivers and other professionals
d. Designing effective treatment
   i. Setting considerations
   ii. Goodness of fit

7. Ethical Behavior
a. Appropriate conduct of the treatment professional
b. Operating within the scope of competence

VI. Suggested Texts


VII. Bibliography and Resources


*Seminal article in the field.*
Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College
   AS CAS

1b. Division
   ASSC Division of Social Science

1c. Department
   PSY

2. Course Prefix
   PSY

3. Course Number
   A474

4. Previous Course Prefix & Number
   N/A

5a. Credits/CEUs
   3.0

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

6. Complete Course Title
   Behavioral Treatment of Autism Spectrum Disorder

7. Type of Course
   Academic

8. Type of Action:
   Add
   or
   Change
   or
   Delete

9. Repeat Status
   # of Repeats
   Max Credits

10. Grading Basis
    A-F
    P/NP
    NG

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

12. Cross Listed with
    PSY A674

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.

13b. Coordination Email
    Date: December 2, 2013
    submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
    Date: December 2, 2013

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 advanced exploration of Autism Spectrum Disorder, including etiology, impact of the disorder on behavior, treatment options, and the role of family and community supports. Course will emphasize community-based behavioral treatment and early intensive behavioral intervention.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
    PSY A400 with a grade of B or higher.

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

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

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

17. Mark if course has fees

18. Mark if course is a selected topic course

19. Justification for Action
   Adding course to address needed workforce development of Autism Spectrum Disorder treatment professionals in Alaska. PSY A474 will be an upper division elective for the Psychology BA and BS degrees, and will be a selective for the Behavior Analysis concentration that prepares students to apply for professional certification and/or to work in many social service agencies.
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</table>
I. Initiation Date: January 22, 2014

II. Curriculum Action Request
1. College: College of Arts and Sciences
2. Course Title: Behavioral Treatment of Autism Spectrum Disorder
3. Course Prefix: PSY A474
4. Credit Hours: 3 + 0
5. Contact Time: 3
6. Grading Information: A - F
7. Course Description: An advanced exploration of Autism Spectrum Disorder, including etiology, impact of the disorder on behavior, treatment options, and the role of family and community supports. Course will emphasize community-based behavioral treatment and early intensive behavioral intervention.
8. Status of course relative to degree or certification program: Selective for concentration in Behavior Analysis
9. Course Fees: None
10. Coordination: UAA faculty list-serve
11. Cross-listed/Stacked: Stacked with PSY A674
12. Course Prerequisites: PSY A400 with a grade of B or higher
13. Course Co-requisites: N/A
14. Other Restrictions: N/A
15. Registration Restrictions: N/A

III. Course Activities
Lecture and classroom-based activities

IV. Course Level Justification
The course requires an understanding and ability to apply the principles of behavior analysis learned in PSY A400.

V. Instructional Goals and Student Learning Outcomes
A. Instructional Goals. The instructor will:
1. Describe the etiology and diagnosis of Autism Spectrum Disorder.
2. Describe the impact of Autism Spectrum Disorder on behavior, including communication, social behavior, cognitive/academic performance, and motor skills.
4. Describe how to effectively work with the families and caregivers of individuals diagnosed with Autism Spectrum Disorder to improve client outcomes.
B. Student Learning Outcomes.

<table>
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<td>Explain the etiology and diagnostic criteria of Autism Spectrum Disorder.</td>
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<td>Describe the impact of Autism Spectrum Disorder on behavior, including communication, social behavior, cognitive/academic performance, and motor skills.</td>
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<td>Specify and demonstrate common behavioral treatment strategies for addressing skill deficits and problem behavior in Autism Spectrum Disorder.</td>
<td>Graded in-class role play, class presentations, and/or case studies</td>
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<td>Describe how to effectively work with families and caregivers of individuals diagnosed with Autism Spectrum Disorder to improve client outcomes.</td>
<td>Graded in-class activities, written paper, and/or exams</td>
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VI. Topic Course Outline


1. History and culture of people with Autism Spectrum Disorder (ASD)
   a. Key historical events in the community of people diagnosed with ASD
   b. Current and local cultural conditions influencing treatment choices for ASD
   c. Myths, fads, and controversies in the treatment of ASD
   d. Movements, legislation, educational, and legal issues affecting people with ASD

2. Critical aspects of ASD
   a. Sensory differences
   b. Communication differences
   c. Social skill differences
   d. Common comorbid conditions

3. Diagnostic and assessment procedures
   a. Diagnostic criteria
   b. Screening tools
   c. Assessments
      i. Assessment of Basic Language and Learning Skills (ABLLS)
      ii. Verbal Behavioral Milestones Assessment and Placement Program (VB-MAPP)
      iii. Functional Assessment of behavior

4. Evidence-based behavior management approaches
   a. Choosing appropriate treatment
      i. Reviewing best available scientific evidence for interventions
      ii. Critically evaluating the evidence regarding effectiveness, efficacy, and side effects of interventions
iii. Educating clients about risks and benefits of alternative interventions and/or combinations of interventions (including potential interference with behavior analytic intervention)
iv. Educating other professionals and organizations (e.g., school districts, government, insurance companies) about risks and benefits of alternative interventions and/or combinations of interventions

b. Behavior analytic treatment
   i. Behavior analytic versus non-behavior analytic interventions
   ii. Behavioral strategies to teach skills
   iii. Behavioral strategies to decrease dangerous or disruptive behavior

5. Systems and support
   a. Working with families
   b. Family and caregiver training
   c. Working with treatment teams
   d. Training paraprofessionals
   e. Person centered planning
   f. Designing effective treatment
      i. Setting considerations
      ii. Goodness of fit

6. Ethical Behavior
   a. Appropriate conduct of the treatment professional
   b. Operating within the scope of competence

VII. Suggested Texts


VIII. Bibliography and Resources


*Seminal works in the field.*
Introduction to the Behavioral Treatment of Autism Spectrum Disorder
Intro to Beh Tx of Autism ASD
Abbreviated Title for Transcript (30 character)
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I. Initiation Date: January 22, 2014

II. Curriculum Action Request
   1. College: College of Arts and Sciences
   2. Course Title: Introduction to the Behavioral Treatment of Autism Spectrum Disorder
   3. Course Prefix: PSY A674
   4. Credit Hours: 3 + 0
   5. Contact Time: 3
   6. Grading Information: A - F
   7. Course Description: An introduction to Autism Spectrum Disorder, including etiology, impact of the disorder on behavior, treatment options, and the role of family and community supports. Course will emphasize community-based behavioral treatment and early intensive behavioral intervention.

   Special note: PSY A674 cannot be taken for credit if PSY A474 was previously taken for credit.

   8. Status of course relative to degree or certification program: Elective
   9. Course Fees: None
   10. Coordination: UAA faculty list-serve
   11. Cross-listed/Stacked: Stacked with PSY A474
   12. Course Prerequisites: PSY A600
   13. Course Co-requisites: N/A
   14. Other Restrictions: N/A
   15. Registration Restrictions: Graduate standing

III. Course Activities
Lecture and classroom-based activities, including substantive contribution to class discussion and coordination of a class topic discussion activity.

IV. Instructional Goals and Student Learning Outcomes
A. Instructional Goals. The instructor will:
   1. Describe the etiology and diagnosis of Autism Spectrum Disorder.
   2. Describe the impact of Autism Spectrum Disorder on behavior, including communication, social behavior, cognitive/academic performance, and motor skills.
   4. Describe how to effectively work with the families and caregivers of individuals diagnosed with Autism Spectrum Disorder to improve client outcomes.
B. Student Learning Outcomes.

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<td>Specify and demonstrate common behavioral treatment strategies for addressing skill deficits and problem behavior in Autism Spectrum Disorder.</td>
<td>Graded in-class role play, case studies, class presentations, and as well as developing discussion topics based on primary sources.</td>
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<td>Describe how to effectively work with families and caregivers of individuals diagnosed with Autism Spectrum Disorder to improve client outcomes.</td>
<td>Graded in-class activities, written paper, and/or exams.</td>
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<td>Critically analyze primary source material.</td>
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V. Topic Course Outline


1. History and culture of people with Autism Spectrum Disorder (ASD)  
   a. Key historical events in the community of people diagnosed with ASD  
   b. Current and local cultural conditions influencing treatment choices for ASD  
   c. Myths, fads, and controversies in the treatment of ASD  
   d. Movements, legislation, educational, and legal issues affecting people with ASD

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   a. Sensory differences  
   b. Communication differences  
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   d. Common comorbid conditions

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   a. Diagnostic criteria  
   b. Screening tools  
   c. Assessments  
      i. Assessment of Basic Language and Learning Skills (ABLLS)  
      ii. Verbal Behavioral Milestones Assessment and Placement Program (VB-MAPP)  
      iii. Functional Assessment of behavior

4. Evidence-based behavior management approaches
Choosing appropriate treatment
   i. Reviewing best available scientific evidence for interventions
   ii. Critically evaluating the evidence regarding effectiveness, efficacy, and side effects of interventions
   iii. Educating clients about risks and benefits of alternative interventions and/or combinations of interventions (including potential interference with behavior analytic intervention)
   iv. Educating other professionals and organizations (e.g., school districts, government, insurance companies) about risks and benefits of alternative interventions and/or combinations of interventions

Behavior analytic treatment
   i. Behavior analytic versus non-behavior analytic interventions
   ii. Behavioral strategies to teach skills
   iii. Behavioral strategies to decrease dangerous or disruptive behavior

Systems and support
   a. Working with families
   b. Family and caregiver training
   c. Working with treatment teams
   d. Training paraprofessionals
   e. Person centered planning
   f. Designing effective treatment
      i. Setting considerations
      ii. Goodness of fit

Ethical Behavior
   a. Appropriate conduct of the treatment professional
   b. Operating within the scope of competence

Suggested Texts


VII. Bibliography and Resources


*Seminal works in the field.*
## Course Action Request

**University of Alaska Anchorage**

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

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<th>1a. School or College</th>
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<th>1c. Department</th>
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<td>AS CAS</td>
<td>ASSC Division of Social Science</td>
<td>PSY</td>
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### Course Information

<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>
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### Complete Course Title

**Organizational Behavior Management**

**Org. Behavior Management**

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

### Type of Course

- Academic
- Preparatory/Development
- Non-credit
- CEU
- Professional Development

### Type of Action

- Add
- Change
- Delete

### General Education Requirement

Mark appropriate box:

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

### Course Description

An exploration of the field of organizational psychology known as organizational behavior management. Topics will include implementation science, and effective consultation strategies.

### Course Prerequisite(s)

- PSY A400 with a grade of B or higher.

### Co-requisite(s)

N/A

### Other Restriction(s)

- College
- Major
- Class
- Level

### Mark if course has fees

Mark if course is a selected topic course

### Justification for Action

PSY A476 will be an upper division elective for the Psychology BA and BS degrees and will be a selective for the concentration in Behavior Analysis that prepares students to apply for professional certification and/or to work in many social service agencies.

---

Initiator Name (typed): **Veronica Howard**

Initiator Signed Initials: _________

Date: ____________

---

Initiator (faculty only):

Initiator (TYPE NAME)

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Provost or Designee

Date: ____________

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Dean/Director of School/College

Date: ____________

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Undergraduate/Graduate Academic

Date: ____________

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Board Chair

Date: ____________

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Provost or Designee

Date: ____________
University of Alaska Anchorage
Course Content Guide

I. Initiation Date: January 22, 2014

II. Curriculum Action Request
1. College: College of Arts and Sciences
2. Course Title: Organizational Behavior Management
3. Course Prefix: PSY A476
4. Credit Hours: 3 + 0
5. Contact Time: 3
6. Grading Information: A - F
7. Course Description: An exploration of the field of organizational psychology known as organizational behavior management. Topics will include effective staff training and support strategies, performance management, organizational system analysis, and behavior-based safety, implementation science, and effective consultation strategies.

8. Status of course relative to degree or certification program: Selective for concentration in Behavior Analysis

9. Course Fees: None
10. Coordination: UAA faculty list-serve
11. Cross-listed/Stacked: Stacked with PSY A676
12. Course Prerequisites: PSY A400 with a grade of B or higher
13. Course Co-requisites: N/A
14. Other Restrictions: N/A
15. Registration Restrictions: N/A

III. Course Activities
Lecture and classroom-based activities.

IV. Course Level Justification
The course requires an understanding and ability to apply the principles of behavior analysis developed in PSY A400.

V. Instructional Goals and Student Learning Outcomes
A. Instructional Goals. The instructor will:
   1. Describe how principles of behavior analysis can be applied to the behavior of employees to improve workplace functioning (e.g., performance management, behavioral systems analysis, and behavior-based safety).
   2. Describe empirically supported strategies for training teachers, caregivers, and staff.
   3. Describe how outcomes are measured in organizational behavior management interventions.
   4. Introduce students to research on implementation science and program survival, and describe the role of a behavioral consultant.

B. Student Learning Outcomes.
Upon successful completion of the course, the student will be able to:

<table>
<thead>
<tr>
<th>Specify similarities and differences between performance management, behavioral systems analysis, and behavior-based safety.</th>
<th>Graded in-class activities, quizzes, and/or exams</th>
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<tbody>
<tr>
<td>Describe and design effective training programs.</td>
<td>Graded in-class activities, case studies, quizzes, and/or exams</td>
</tr>
<tr>
<td>Describe how outcomes are measured in organizational behavior management (OBM) interventions.</td>
<td>Graded in-class activities, quizzes, and/or exams</td>
</tr>
<tr>
<td>Describe what implementation science is and how it can inform interventions that will sustain in the working environment.</td>
<td>Graded in-class activities, quizzes, and/or exams</td>
</tr>
</tbody>
</table>

VI. Topic Course Outline

1. Fundamentals of Organizational Behavior Management (OBM)
   a. Performance Management
   b. Behavioral Systems Analysis
   c. Behavior-Based Safety

2. Performance Management
   a. The ABCs of workplace behavior
      i. Antecedent interventions (e.g., job aids, task clarification, training)
      ii. Workplace behavior (e.g., defining success, pinpointing key behaviors)
      iii. Consequence Interventions (e.g., feedback, reinforcement in the workplace)
   b. Selecting, defining, and measuring behavior in the workplace
      i. Selecting meaningful behavior to change (i.e., goal setting, pinpointing, PIC/NIC© Analysis)
      ii. Methods of observation used in OBM interventions
      iii. Experimental designs and experimental control
      iv. Balancing the needs of organizations and employees

3. Changing staff behavior
   a. Staff behavior change methods
      i. Performance-based training versus competency-based training
      ii. Antecedent strategies used to improve staff performance
      iii. Consequent strategies used to improve staff performance
      iv. Most effective interventions to improve staff performance
   b. Maintaining staff performance

4. Implementation Science
   a. Conducting interventions within the community
   b. Measuring environmental readiness for change
   c. Stages of implementation
   d. Defining intervention core components
   e. Defining evidence-based interventions
   f. Strategies that foster adoption and survival of interventions
5. Effective consultation strategies
   a. Building rapport
   b. Training clients (e.g., parents, paraprofessionals, managers)
   c. Gaining buy-in

VII. Suggested Texts


VIII. Bibliography and Resources


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<th>1a. School or College</th>
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<th>1c. Department</th>
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<th>4. Previous Course Prefix &amp; Number</th>
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<th>5b. Contact Hours (Lecture + Lab)</th>
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6. Complete Course Title
Introduction to Organizational Behavior Management
Intro to OBM

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
- ☐ Other

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

10. Grading Basis
☐ A-F
☐ P/NP
☐ NG

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

12. ☐ Cross Listed with
☐ Stacked with PSY A476

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).

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 the field of organizational psychology known as organizational behavior management. Topics will include effective staff training and support strategies, performance management, organizational system analysis, and behavior-based safety, implementation science, and effective consultation strategies.

Special note: PSY A676 cannot be taken for credit if PSY A476 was previously taken for credit.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
PSY A600

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

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
We are adding this course as an elective for graduate students who are pursuing degrees in helping related professions (e.g., psychology, social work, human services).
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<td>Veronica Howard</td>
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</table>
I. Initiation Date: January 22, 2014

II. Curriculum Action Request
1. College: College of Arts and Sciences
2. Course Title: Introduction to Organizational Behavior Management
3. Course Prefix: PSY A676
4. Credit Hours: 3 + 0
5. Contact Time: 3
6. Grading Information: A - F
7. Course Description: An introduction to the field of organizational psychology known as organizational behavior management. Topics will include effective staff training and support strategies, performance management, organizational system analysis, and behavior-based safety, implementation science, and effective consultation strategies.
8. Status of course relative to degree or certification program: Selective for concentration in Behavior Analysis
9. Course Fees: None
10. Coordination: UAA faculty list-serve
11. Cross-listed/Stacked: Stacked with PSY A476
12. Course Prerequisites: PSY A600
13. Course Co-requisites: N/A
14. Other Restrictions: N/A
15. Registration Restrictions: Graduate standing

III. Course Activities
Lecture and classroom-based activities, including substantive contribution to class discussion and coordination of a class topic discussion activity.

IV. Instructional Goals and Student Learning Outcomes
A. Instructional Goals. The instructor will:
   1. Describe how principles of behavior analysis can be applied to the behavior of employees to improve workplace functioning (e.g., performance management, behavioral systems analysis, and behavior-based safety).
   2. Describe empirically supported strategies for training teachers, caregivers, and staff.
   3. Describe how outcomes are measured in organizational behavior management interventions.
   4. Introduce students to research on implementation science and program survival, and describe the role of a behavioral consultant.
B. Student Learning Outcomes.

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</tr>
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<td>Describe and design effective training programs.</td>
<td>Graded in-class activities, case studies, quizzes, development of discussion topics based on primary sources, and/or exams.</td>
</tr>
<tr>
<td>Describe how outcomes are measured in organizational behavior management (OBM) interventions.</td>
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<tr>
<td>Describe what implementation science is and how it can inform interventions that will sustain in the working environment.</td>
<td>Graded in-class activities, quizzes, development of discussion topics based on primary sources, and/or exams.</td>
</tr>
<tr>
<td>Critically analyze primary source material.</td>
<td>Term paper, class presentations, and/or leading a lecture on a class topic.</td>
</tr>
</tbody>
</table>

V. Topic Course Outline

1. Fundamentals of Organizational Behavior Management (OBM)
   a. Performance Management
   b. Behavioral Systems Analysis
   c. Behavior-Based Safety

2. Performance Management
   a. The ABCs of workplace behavior
      i. Antecedent interventions (e.g., job aids, task clarification, training)
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      iv. Balancing the needs of organizations and employees

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5. Effective consultation strategies
   a. Building rapport
   b. Training clients (e.g., parents, paraprofessionals, managers)
   c. Gaining buy-in

VI. Suggested Texts


VII. Bibliography and Resources


### 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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<th>2. Course Prefix</th>
<th>3. Course Number</th>
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<th>5a. Credits/CEUs</th>
<th>5b. Contact Hours</th>
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<td>PSY</td>
<td>A478</td>
<td>N/A</td>
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#### 6. Complete Course Title
**Advanced Applications of Behavior Analysis**

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

#### 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: Fall/9999

#### 12. Cross Listed with
- [ ]

#### 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>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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<td>1. Courtesy</td>
<td>December 1, 2013</td>
<td>Claudia Lampman</td>
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Initiator Name (typed): Veronica Howard

Initiator Signed Initials: __________ Date: __________

#### 13b. Coordination Email

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

**Date:** December 2, 2013

#### 13c. Coordination with Library Liaison

Date: December 2, 2013

**Date:**

#### 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 exploration of topics in behavior analysis. This course will emphasize the role of the behavior analyst as a scientist-practitioner. Topics will include the philosophical history of behaviorism, modern behavioral research, and study of applications of behavior analysis to socially relevant issues. Special note: This course is of particular value for students preparing for graduate education in behavioral science.

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

- PSY A400 with a grade of B or higher

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

N/A

#### 16c. Other Restriction(s)

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

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

#### 17. Mark if course has fees

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

#### 19. Justification for Action

Course will be added as an upper division elective in the Behavior Analysis concentration.

**Initiator (faculty only):**

Veronica Howard

Initiator (TYPE NAME):

- [ ] Approved
- [ ] Disapproved

**Initiator Date:**

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**Signature:**

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337
I. **Initiation Date:** January 22, 2014

II. **Curriculum Action Request**
   1. **College:** College of Arts and Sciences
   2. **Course Title:** Advanced Applications of Behavior Analysis
   3. **Course Prefix:** PSY A478
   4. **Credit Hours:** 3 + 0
   5. **Contact Time:** 3
   6. **Grading Information:** A - F
   7. **Course Description:** Advanced exploration of topics in behavior analysis. This course will emphasize the role of the behavior analyst as a scientist-practitioner. Topics will include the philosophical history of behaviorism, modern behavioral research, and application of behavior analysis to socially relevant problems. Special note: This course is of particular value for graduate students or those preparing for graduate education in behavioral science.
   8. **Status of course relative to degree or certification program:** Selective for the concentration in Behavior Analysis
   9. **Course Fees:** None
   10. **Coordination:** UAA faculty list-serve
   11. **Cross-listed/Stacked:** Stacked with PSY A678
   12. **Course Prerequisites:** PSY A400 with a minimum grade of B
   13. **Course Co-requisites:** N/A
   14. **Other Restrictions:** N/A
   15. **Registration Restrictions:** N/A

III. **Course Activities**
Lecture and classroom-based activities.

IV. **Course Level Justification**
The course requires an understanding of principles of behavior analysis learned in PSY A400.

V. **Instructional Goals and Student Learning Outcomes**
A. **Instructional Goals.** The instructor will:
   1. Explain the philosophical assumptions of behavior analysis and guide class discussion on assigned readings.
   2. Explain the importance of science in clinical practice.
   3. Describe the role of the behavior analyst as a scientist-practitioner.
   4. Describe advanced topics in behavior analysis and guide class discussion on assigned readings.
B. Student Learning Outcomes.

<table>
<thead>
<tr>
<th>Upon successful completion of the course, the student will be able to:</th>
<th>The student learning outcome will be assessed by one or more of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain the philosophical assumptions of behavior analysis.</td>
<td>Graded in-class activities, quizzes, and/or tests.</td>
</tr>
<tr>
<td>Describe the role of the behavior analyst as a scientist-practitioner and explain the importance of science in clinical practice.</td>
<td>Graded in-class activities, quizzes, case studies, written papers, and/or tests.</td>
</tr>
<tr>
<td>Explain advanced topics such as matching law and behavioral economics, behavior analysis in education, and the behavioral philosophy relating to private events like thoughts and feelings.</td>
<td>Graded in-class activities, quizzes, class presentations, written papers, and/or tests.</td>
</tr>
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VI. Topic Course Outline

*Course content should change to reflect contemporary issues in behavioral science.*

1. Advanced exploration of behavioral philosophy
   a. Determinism
   b. Selectionism
2. The Behavior Analyst as a scientist-practitioner
   a. Rationale for understanding basic principles and concepts
   b. Translational research
   c. Implementation Science
3. Choice making
   a. Matching law
   b. Behavioral economics
   c. Quantitative models of choice
   d. Self-control and impulsivity
4. Treatment of maladaptive behavior with non-disordered populations
   a. Substance use disorders
   b. Gambling
   c. Obesity
5. Behavioral views of private events
   a. Consciousness
   b. Relational Frame Theory
   c. Acceptance and Commitment Therapy
6. Behavioral animal training
   a. Treating problem behavior in pet animals
   b. Training for detection tasks (e.g., disease, drugs, physical hazards)
7. Behavior analysis in education
   a. Direct Instruction
   b. Personalized Systems of Instruction
   c. Interteaching
8. Promotion of treatment integrity in behavioral interventions
   a. Implementation Science
   b. Translational research
VII. **Suggested Texts**
Selected readings to be provided by the instructor.

VIII. **Bibliography and Resources**


*Seminal works in the field
### Course Action Request

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

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<td>3.0</td>
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#### 6. Complete Course Title

Applications of Behavior Analysis  
Applications of Beh Analysis

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

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<th>7. Type of Course</th>
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| 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

(please specify)

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

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<td>To: Fall/9999</td>
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| 12. | ☐ Cross Listed with | ☑ Stacked with | PSY A478 |

### 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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Initiator Name (typed): Veronica Howard  
Initiator Signed Initials: __________  
Date: _________________

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### 13c. Coordination with Library Liaison

<table>
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### 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 exploration of topics in behavior analysis. This course will emphasize the role of the behavior analyst as a scientist-practitioner. Topics will include the philosophical history of behaviorism, modern behavioral research, and study of applications of behavior analysis to socially relevant issues.

Special note: PSY A678 cannot be taken for credit if PSY A478 was previously taken for credit.

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

PSY A600

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

### 16c. Other Restriction(s)

| ☐ College | ☐ Major | ☐ Class | ☐ Level |

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

- Graduate standing

### 17. ☐ Mark if course has fees

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

### 19. Justification for Action

We are adding this course as an elective for graduate students who are pursing degrees in helping related professions (e.g., psychology, social work, human services).
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<th>Dean/Director of School/College</th>
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University of Alaska Anchorage  
Course Content Guide

I. Initiation Date: January 22, 2014

II. Curriculum Action Request
1. College: College of Arts and Sciences
2. Course Title: Applications of Behavior Analysis
3. Course Prefix: PSY A678
4. Credit Hours: 3 + 0
5. Contact Time: 3
6. Grading Information: A - F
7. Course Description: An exploration of topics in behavior analysis. This course will emphasize the role of the behavior analyst as a scientist-practitioner. Topics will include the philosophical history of behaviorism, modern behavioral research, and application of behavior analysis to socially relevant problems. Special note: This course is of particular value for graduate students or those preparing for graduate education in behavioral science.

Special note: PSY A678 cannot be taken for credit if PSY A478 was previously taken for credit.
8. Status of course relative to degree or certification program: Selective for the concentration in Behavior Analysis
9. Course Fees: None
10. Coordination: UAA faculty list-serve
11. Cross-listed/Stacked: Stacked with PSY A478
12. Course Prerequisites: PSY A600
13. Course Co-requisites: N/A
14. Other Restrictions: N/A
15. Registration Restrictions: Graduate standing

III. Course Activities
Lecture and classroom-based activities, including substantive contribution to class discussion and coordination of a class topic discussion activity.

IV. Instructional Goals and Student Learning Outcomes
A. Instructional Goals. The instructor will:
1. Explain the philosophical assumptions of behavior analysis and guide class discussion on assigned readings.
2. Explain the importance of science in clinical practice.
3. Describe the role of the behavior analyst as a scientist-practitioner.
4. Describe advanced topics in behavior analysis and guide class discussion on assigned readings.
B. Student Learning Outcomes.

<table>
<thead>
<tr>
<th>Upon successful completion of the course, the student will be able to:</th>
<th>The student learning outcome will be assessed by one or more of the following:</th>
</tr>
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<tbody>
<tr>
<td>Explain the philosophical assumptions of behavior analysis.</td>
<td>Graded in-class activities, quizzes, and/or tests.</td>
</tr>
<tr>
<td>Describe the role of the behavior analyst as a scientist-practitioner and explain the importance of science in clinical practice.</td>
<td>Graded in-class activities, quizzes, case studies, written papers, and/or tests.</td>
</tr>
<tr>
<td>Explain advanced topics such as matching law and behavioral economics, behavior analysis in education, and the behavioral philosophy relating to private events like thoughts and feelings.</td>
<td>Graded in-class activities, quizzes, written papers, and/or tests as well as developing discussion topics based on primary sources and leading a lecture on a class topic.</td>
</tr>
<tr>
<td>Critically analyze primary source material.</td>
<td>Term paper, class presentations, and/or leading a lecture on a class topic.</td>
</tr>
</tbody>
</table>

V. Topic Course Outline

Course content should change to reflect contemporary issues in behavioral science.

1. Advanced exploration of behavioral philosophy
   a. Determinism
   b. Selectionism

2. The Behavior Analyst as a scientist-practitioner
   a. Rationale for understanding basic principles and concepts
   b. Translational research
   c. Implementation Science

3. Choice making
   a. Matching law
   b. Behavioral economics
   c. Quantitative models of choice
   d. Self-control and impulsivity

4. Treatment of maladaptive behavior with non-disordered populations
   a. Substance use disorders
   b. Gambling
   c. Obesity

5. Behavioral views of private events
   a. Consciousness
   b. Relational Frame Theory
   c. Acceptance and Commitment Therapy

6. Behavioral animal training
   a. Treating problem behavior in pet animals
   b. Training for detection tasks (e.g., disease, drugs, physical hazards)

7. Behavior analysis in education
   a. Direct Instruction
   b. Personalized Systems of Instruction
   c. Interteaching

8. Promotion of treatment integrity in behavioral interventions
   a. Implementation Science
b. Translational research

VI. Suggested Texts
Selected readings to be provided by the instructor.

VII. Bibliography and Resources


*Seminal works in the field*
Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College
   AS CAS

1b. Division
   ASSC Division of Social Science

1c. Department
   PSY

2. Course Prefix
   PSY

3. Course Number
   A495A

4. Previous Course Prefix & Number
   A495

5a. Credits/CEUs
   3.0

5b. Contact Hours
   (Lecture + Lab)
   (1+6)

6. Complete Course Title
   Applied Behavior Analysis Practicum and Professional Issues
   ABA Practicum & Prof. Issues

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
   ☐ Title
   ☐ Grading Basis
   ☐ Cross-Listed/Stacked
   ☐ Course Description
   ☐ Co-requisites
   ☐ Test Score Prerequisites
   ☐ Registration Restrictions
   ☐ Other 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: Fall/2014
    To: Fall/9999

12. ☐ Cross Listed with
    ☐ Stacked with

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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<td>December 1, 2013</td>
<td>Claudia Lampman</td>
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<td>2. Psychology BA</td>
<td>December 1, 2013</td>
<td>Claudia Lampman</td>
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Initiator Name (typed): Veronica Howard         Initiator Signed Initials: ___________ Date: ______________

13b. Coordination Email
     Date: December 2, 2013
     submitted to Faculty Listerv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
     Date: December 2, 2013

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)
    Arranged placement in supervised settings that provide Applied Behavior Analytic (ABA) services. Focus on implementing behavior change procedures, data collection and graphing, program development, functional behavior assessment, behavior intervention plans, and ethical and professional conduct by practicing behavior analysts. Special note: meets the departmental capstone requirement for Psychology Major.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
     (PSY A400 and (PSY A455 or PSY A474 or PSY A476 or PSY A479)) with a minimum grade of B.

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

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

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

17. ☑ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
    Current course revised to add a prerequisite and to emphasize professional skill objectives provided by the Behavior Analysis Certification Board, the organization that offers professional certification in Behavior Analysis.
<table>
<thead>
<tr>
<th>Role</th>
<th>Approved</th>
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<td>Department Chair</td>
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350
I. Initiation Date: January 22, 2014

II. Curriculum Action Request
1. College: College of Arts and Sciences
2. Course Title: Applied Behavior Analysis Practicum & Professional issues
3. Course Prefix: PSY A495A
4. Credit Hours: 3.0 Credits
5. Contact Time: Lecture Hours: 1 Practicum Hours: 6
6. Grading Information: A - F
7. Course Description: Arranged placement in supervised settings that provide Applied Behavior Analytic (ABA) services. Focus on implementing behavior change procedures, data collection and graphing, program development, functional behavior assessment, behavior intervention plans, and ethical and professional conduct by practicing behavior analysts. Special note: meets the departmental capstone requirement for Psychology major.
8. Status of course relative to degree or certification program: Required for concentration in Behavior Analysis
9. Course Fees: Yes
10. Coordination: UAA faculty list-serve
11. Cross-listed/Stacked: N/A
12. Course Prerequisites: [PSY A400 and (PSY A455 or PSY A474 or PSY A476 or PSY A478)] with a minimum grade of B.
13. Course Co-requisites: N/A
14. Other Restrictions: N/A
15. Registration Restrictions: N/A

III. Course Activities
Lecture: Students will attend lectures related to ethical/professional conduct and fieldwork activities.
Agency Placement: Students will submit a university-approved field experience agreement signed by the agency or placement site where the student will complete practicum experience in an approved ABA setting. Students are required to keep an activity log of their experiences.

IV. Course Level Justification
The course requires an understanding and ability to apply principles of behavior analysis learned in PSY A400 and other upper division elective courses in the Behavior Analysis Concentration (e.g., PSY A455, PSY A474, PSY A476, and/or PSY A478). This course is designed for students who have an understanding of behavior analytic processes to gain hands-on experience that will
allow synthesis and application of course material to behavior of actual clients, and to help students develop skills related to the many positions requiring knowledge of human behavior.

V. Instructional Goals and Student Learning Outcomes
   A. Instructional Goals. The instructor will:
      1. Describe the qualities of an effective intervention team.
      2. Provide specific feedback on student performance to engender improvement.
      3. Structure the learning environment to facilitate critical thinking, problem solving, and decision making.
      4. Structure the learning environment to facilitate development of professional behavior.
   
   B. Student Learning Outcomes.
   
   Upon successful completion of the course, the student will be able to:

   | Apply communication skills, intervention skills, and professional behavior when providing services. | The student learning outcome will be assessed by one or more of the following: |
   | Write behavior support plans based on the results of observations and assessments. | Graded in-class activities, quizzes, and on-site supervisor evaluation(s). |
   | Apply critical thinking, problem solving, and decision making skills related to service delivery. | Graded in-class activities, discussion, quizzes, and on-site supervisor evaluation(s). |
   | Implement behavior support plans with fidelity and collect behavioral data reliably. | Graded in-class activities, quizzes, and on-site supervisor evaluation(s). |

VI. Topic Course Outline

   Note: Course ethics and professional conduct content focuses on Client-Centered Responsibilities as described by the Behavior Analysis Certification Board (BACB)®. These skills are outlined in the BACB Fourth Edition Task List®: http://www.bacb.com/Downloadfiles/TaskList/BACB_Fourth_Edition_Task_List.pdf

1. Identification of Problem
   a. Review records and available data at the outset of the case.
   b. Consider biological/medical variables that may be affecting the client.
   c. Conduct a preliminary assessment of the client in order to identify the referral problem.
   d. Explain behavioral concepts using nontechnical language.
   e. Describe and explain behavior, including private events, in behavior-analytic (non-mentalistic) terms.
   f. Provide behavior-analytic services in collaboration with others who support and/or provide services to one’s clients.
   g. Practice within one’s limits of professional competence in applied behavior analysis, and obtain consultation, supervision, and training, or make referrals as necessary.
   h. Identify and make environmental changes that reduce the need for behavior analysis services.

2. Measurement
   a. Select appropriate measurement systems given logistics of behavior and observation/recording
b. Accurately graph data to communicate relevant quantitative relations
c. Evaluate level, trend, variability
d. Evaluate temporal relations between observed variables

3. Assessment
   a. Defined behavior in observable, measurable terms
   b. Defined environmental variables in observable, measurable terms
   c. Implement individualized behavioral assessment and functional assessment procedures
   d. Organize, analyze, and interpret observed data
   e. Make recommendations regarding behavior that must be established, maintained, increased, or decreased
   f. Conduct preference assessments to identify putative reinforcers

4. Intervention
   a. State intervention goals in observable and measurable terms.
   b. Identify potential interventions based on assessment results and the best available scientific evidence.
   c. Select intervention strategies based on task analysis.
   d. Select intervention strategies based on client preferences.
   e. Select intervention strategies based on the client’s current repertoires.
   f. Select intervention strategies based on supporting environments.
   g. Select intervention strategies based on environmental and resource constraints.
   h. Select intervention strategies based on the social validity of the intervention.
   i. Identify and address practical and ethical considerations when using experimental designs to demonstrate treatment effectiveness.
   j. When a behavior is to be decreased, select an acceptable alternative behavior to be established or increased.
   k. Program for stimulus and response generalization.
   l. Program for maintenance.
   m. Select behavioral cusps as goals for intervention when appropriate.
   n. Arrange instructional procedures to promote generative learning (i.e., derived relations).
   o. Base decision-making on data displayed in various formats.

5. Implementation, Management, and Supervision
   a. Provide for ongoing documentation of behavioral services.
   b. Identify the contingencies governing the behavior of those responsible for carrying out behavior-change procedures and design interventions accordingly.
   c. Design and use competency-based training for persons who are responsible for carrying out behavioral assessment and behavior-change procedures.
   d. Design and use effective performance monitoring and reinforcement systems.
   e. Design and use systems for monitoring procedural integrity.
   f. Provide supervision for behavior-change agents.
   g. Evaluate the effectiveness of the behavioral program.
   h. Establish support for behavior-analytic services from direct and indirect consumers.
   i. Secure the support of others to maintain the client’s behavioral repertoires in their natural environments.
j. Arrange for the orderly termination of services when they are no longer required.

VII. Suggested Texts


VIII. Bibliography and Resources


*Seminal works in the field.*
Proposal to Initiate, Add, Change, or Delete a Course

<table>
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<tr>
<th>1a. School or College</th>
<th>1b. Division</th>
<th>1c. Department</th>
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6. Complete Course Title

Applied Behavior Analysis Supervised Practicum
ABA Supervised Practicum
Abbreviated Title for Transcript (30 character)

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9. Repeat Status Yes # of Repeats 10 Max Credits

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

12. Cross Listed with

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<td>(<a href="mailto:uaa-faculty@lists.uaa.alaska.edu">uaa-faculty@lists.uaa.alaska.edu</a>)</td>
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| 13c. Coordination with Library Liaison | Date: December 2, 2013 |

15. Course Description (suggested length 20 to 50 words)
Arranged placement in supervised settings that provide Applied Behavior Analytic (ABA) services. This course will focus on professional skill development, accruing sufficient experience hours in preparation for certification as a Board Certified Assistant Behavior Analyst (BCaBA®), and BCaBA® exam preparation.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
PSY A495A with grade of B or higher.

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

16c. Other Restriction(s)

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

17. Mark if course has fees

18. Mark if course is a selected topic course

19. Justification for Action
This course is being added to provide students a way to access hands-on experience supervised by a Board Certified Behavior Analyst®, necessary for qualifying to take the Behavior Analysis Certification Board® certification exam for Board Certified Assistant Behavior Analysts (BCaBAs®).
I. **Initiation Date:** January 22, 2014

II. **Curriculum Action Request**

1. **College:** College of Arts and Sciences
2. **Course Title:** Applied Behavior Analysis Supervised Practicum
3. **Course Prefix:** PSY A495B
4. **Credit Hours:** VAR (1-3)
5. **Contact Time:** 0 + 9 per credit hour
6. **Grading Information:** P/NP
7. **Course Description:** Arranged placement in supervised settings that provide Applied Behavior Analytic (ABA) services. This course will focus on professional skill development, accruing hands-on experience hours in preparation for certification as a Board Certified Assistant Behavior Analyst (BCaBA) ®, and BCaBA® exam preparation.
8. **Status of course relative to degree or certification program:** Elective for concentration in Behavior Analysis
9. **Course Fees:** Yes
10. **Coordination:** UAA faculty list-serve
11. **Cross-listed/Stacked:** N/A
12. **Course Prerequisites:** PSY A495A with a minimum grade of B
13. **Course Co-requisites:** N/A
14. **Other Restrictions:** N/A
15. **Registration Restrictions:** Instructor permission

III. **Course Activities**

**Supervision:** Students will attend individual and/or group supervision with a Board Certified Behavior Analyst (BCBA) ® in accordance with supervision requirements set forth by the Behavior Analyst Certification Board (BACB) ®. The student will also prepare for the Board Certified Behavior Analyst (BCaBA) ® using supervisor-approved training methods.

**Agency Placement:** Students will submit a university-approved field experience agreement signed by the agency or placement site where the student will complete practicum experience in an approved ABA setting. Students are required to keep an activity log of their experiences.

**Exam Preparation (optional):** Students who are close to completing all required experience to apply for the BACB ® BCaBA ® exam will prepare for the exam using supervisor-approved test preparation activities.

IV. **Course Level Justification**

The course requires an understanding of the professional skills developed in PSY A495A. This course is designed for students actively pursuing a career in behavior analysis and pursuing certification as a Board Certified Assistant Behavior Analyst (BCaBA) ®.
V. Instructional Goals and Student Learning Outcomes

A. Instructional Goals.

   The instructor will:

   1. Provide observation and specific performance feedback to engender improvement.
   2. Structure the learning environment to facilitate development and/or maintenance of professional behavior.
   3. Support students in preparation for the Board Certified Assistant Behavior Analyst (BCaBA)® certification exam.

B. Student Learning Outcomes.

<table>
<thead>
<tr>
<th>Upon successful completion of the course, the student will be able to:</th>
<th>The student learning outcome will be assessed by one or more of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply communication skills, intervention skills, and professional behavior when providing services.</td>
<td>Graded on-site supervisor evaluation(s).</td>
</tr>
<tr>
<td>Write behavior support plans based on the results of observations and assessments.</td>
<td>Graded written assignments and/or on-site supervisor evaluation(s).</td>
</tr>
<tr>
<td>Implement behavior support plans with fidelity and collect behavioral data reliably.</td>
<td>Graded on-site supervisor evaluation(s).</td>
</tr>
<tr>
<td>Demonstrate understanding of behavior analytic principles as measured using BCaBA sample or practice exam content.</td>
<td>Graded test preparation activities arranged by the practicum supervisor.</td>
</tr>
</tbody>
</table>

VI. Topic Course Outline


1. Identification of Problem

   a. Review records and available data at the outset of the case.
   b. Consider biological/medical variables that may be affecting the client.
   c. Conduct a preliminary assessment of the client in order to identify the referral problem.
   d. Explain behavioral concepts using nontechnical language.
   e. Describe and explain behavior, including private events, in behavior-analytic (non-mentalistic) terms.
   f. Provide behavior-analytic services in collaboration with others who support and/or provide services to one’s clients.
   g. Practice within one’s limits of professional competence in applied behavior analysis, and obtain consultation, supervision, and training, or make referrals as necessary.
   h. Identify and make environmental changes that reduce the need for behavior analysis services.

2. Measurement

   a. Select appropriate measurement systems given logistics of behavior and observation/recording
   b. Accurately graph data to communicate relevant quantitative relations
   c. Evaluate level, trend, variability
d. Evaluate temporal relations between observed variables

3. Assessment
   a. Defined behavior in observable, measurable terms
   b. Defined environmental variables in observable, measurable terms
   c. Implement individualized behavioral assessment and functional assessment procedures
   d. Organize, analyze, and interpret observed data
   e. Make recommendations regarding behavior that must be established, maintained, increased, or decreased
   f. Conduct preference assessments to identify putative reinforcers

4. Intervention
   a. State intervention goals in observable and measurable terms.
   b. Identify potential interventions based on assessment results and the best available scientific evidence.
   c. Select intervention strategies based on task analysis.
   d. Select intervention strategies based on client preferences.
   e. Select intervention strategies based on the client’s current repertoires.
   f. Select intervention strategies based on supporting environments.
   g. Select intervention strategies based on environmental and resource constraints.
   h. Select intervention strategies based on the social validity of the intervention.
   i. Identify and address practical and ethical considerations when using experimental designs to demonstrate treatment effectiveness.
   j. When a behavior is to be decreased, select an acceptable alternative behavior to be established or increased.
   k. Program for stimulus and response generalization.
   l. Program for maintenance.
   m. Select behavioral cusps as goals for intervention when appropriate.
   n. Arrange instructional procedures to promote generative learning (i.e., derived relations).
   o. Base decision-making on data displayed in various formats.

5. Implementation, Management, and Supervision
   a. Provide for ongoing documentation of behavioral services.
   b. Identify the contingencies governing the behavior of those responsible for carrying out behavior-change procedures and design interventions accordingly.
   c. Design and use competency-based training for persons who are responsible for carrying out behavioral assessment and behavior-change procedures.
   d. Design and use effective performance monitoring and reinforcement systems.
   e. Design and use systems for monitoring procedural integrity.
   f. Provide supervision for behavior-change agents.
   g. Evaluate the effectiveness of the behavioral program.
   h. Establish support for behavior-analytic services from direct and indirect consumers.
   i. Secure the support of others to maintain the client’s behavioral repertoires in their natural environments.
   j. Arrange for the orderly termination of services when they are no longer required.

VII. Suggested Texts


VIII. Bibliography and Resources


*Seminal works in the field.*
### 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>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>AS CAS</td>
<td>PHYS</td>
<td>A381</td>
<td>N/A</td>
<td>3</td>
<td>(Lecture + Lab)</td>
</tr>
</tbody>
</table>

#### 6. Complete Course Title

**Advanced Physics Laboratory**

**Advanced Physics Lab**

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

#### 9. Repeat Status No

- # of Repeats
- Max Credits

#### 10. Grading Basis

- ☒ A-F
- ☐ P/NP
- ☐ NG

#### 11. Implementation Date

- From: Fall/2014
- To: /9999

#### 12. Cross Listed with

- Stacked with

#### 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>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Initiator Name (typed): Nathaniel Hicks**

**Initiator Signed Initials:** ________

**Date:** ____________

#### 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)

Theory and practical application of topics in upper division physics to advanced laboratory experiments and techniques. Students will learn rigorous statistical and error analysis of data.

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

- PHYS A303 with minimum grade of C or concurrent enrollment

#### 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 new course: a topic appropriate to different kinds of experimental scientists, which takes advantage of expertise of experimentalists in the department's faculty.

---

**Initiator (faculty only)**

Nathaniel Hicks

**Initiator (TYPE NAME):**

**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:** ____________
COURSE CONTENT GUIDE

I) Date initiated: 11/20/2013

II) Course Information:
A) College: College of Arts and Sciences
B) Course Title: Advanced Physics Laboratory
C) Course Prefix/Number: PHYS A381
D) Number of credits: 3
E) Contact hours: 0.0 + 6.0 (lecture + lab)
F) Grading Basis: A-F
G) Course Description: Theory and practical application of topics in upper division physics to advanced laboratory experiments and techniques. Students will learn rigorous statistical and error analysis of data.
H) Status of course relative to degree programs: elective for the Physics Minor
I) Fees: yes
J) Coordination: UAA Faculty Listserv
K) Prerequisite: PHYS A303 with minimum grade of C or concurrent enrollment
L) Registration restrictions: none

III) Course level justification:
This is a traditional physics laboratory course to be taken in the junior or senior year. The prerequisites are consistent with the 300 level classification.

IV) Instructional Goals & Student Learning Outcomes
A) Instructional Goals
   The advanced laboratory is intended to give students an opportunity to study and conduct fundamental experiments in physics; experiments which have helped establish the basic framework of physics theory.

   The instructor will:
1. Introduce students to the context and significance of the experiments to be performed, and the techniques to be used, and guide students in the planning, setup, and execution of these experiments.
2. Help the student in their abilities to reason mathematically, and analyze quantitative and qualitative data competently to reach reasonable and sound conclusions.
3. Provide guidelines for required report format and content.
B) Student Learning Outcomes & Assessment Methods

**The student will...**

| Understand the connection between theoretical principles and applications to particular experiments. | Lab reports and/or oral presentations |
| Design, set up, and conduct advanced physics experiments | Lab exercises, reports, and/or observation of students in the lab |
| Collect and analyze experimental data, including proper treatment of experimental errors. | Lab exercises, reports, and/or observation of students in the lab |
| Present experimental goals, data, and analysis of the data through effective verbal or written communication. Given the advanced nature of these experiments, all written reports should be patterned after research papers typical of the field. | Lab reports and/or oral presentations |

V) Topical course outline:

A set of typical advanced laboratory experiments is listed below; the experiments to be performed may include a subset of these and/or additional experiments at the instructor’s discretion.

1. Millikan Oil Drop experiment
2. Zeeman Effect
3. Franck-Hertz experiment
4. Measurement of Speed of Light
5. Air Drag on Rigid Spheres
6. Muon Lifetime
7. Radioactive Decay
8. Superconductivity
9. Cloud Chamber

VI) Suggested text(s):

VII) Bibliography:


**Course Action Request**

**University of Alaska Anchorage**

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

---

### 1. School or College

<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>Physics and Astronomy</td>
</tr>
</tbody>
</table>

### 2. Course Prefix

- PHYS

### 3. Course Number

- A403

### 4. Previous Course Prefix & Number

- N/A

### 5. Credits/CEUs

- 4

### 6. Contact Hours

- (Lecture + Lab) (4+0)

### 7. Complete Course Title

- Quantum Mechanics

### 8. Type of Course

- Academic

### 9. Type of Action

- Add

### 10. Grading Basis

- A-F

### 11. Implementation Date

- From: Fall 2014
- To: 9/999

### 12. Cross Listed with

- PHYS A603

### 13a. Impacted Courses or Programs

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
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<tr>
<td>1. see attached sheet</td>
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<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</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)

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

**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)

- N/A

16c. Other Restriction(s)

- 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)**

Katherine Rawlins

Initiator (TYPE NAME)

Initiator Signed Initials: ____________________________ Date: ____________________________

**Dean/Director of School/College**

Approved

Disapproved

**Undergraduate/Graduate Academic Board Chair**

Approved

Disapproved

**Provost or Designee**

Approved

Disapproved

---

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### BIOL/CHEM/PHYS 403

13a. Impacted Courses or Programs

<table>
<thead>
<tr>
<th>Impacted Programs</th>
<th>Catalog Page(s) Impacted</th>
<th>Date of Coord.</th>
<th>Chair/Coordinator Contacted</th>
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<td>Chemistry, BS</td>
<td>104</td>
<td>10/15/2013</td>
<td>Chem Chair, Holmberg</td>
</tr>
<tr>
<td>Natural Sciences, BS</td>
<td>129</td>
<td>10/15/2013</td>
<td>Chem Chair, Holmberg</td>
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<td></td>
<td></td>
<td>10/15/2013</td>
<td>Geo Chair, Crossen</td>
</tr>
<tr>
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<td></td>
<td>10/15/2013</td>
<td>Bio Director, Rainey</td>
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<td>10/15/2013</td>
<td>Chem Chair, Holmberg</td>
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<td>Physics Chair, Pantaleone</td>
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</table>

**Natural Science Chairs:**

<table>
<thead>
<tr>
<th>Impacted Courses</th>
<th>Catalog Page(s) Impacted</th>
<th>Date of Coord.</th>
<th>Chair/Coordinator Contacted</th>
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<tbody>
<tr>
<td>CHEM 333L</td>
<td>390</td>
<td>10/15/2013</td>
<td>Chem Chair, Holmberg</td>
</tr>
</tbody>
</table>
University of Alaska Anchorage  
Course Content Guide  
PHYS 403 Quantum Mechanics

I. Date of Initiation  
November 20, 2013

II. Course Information
A. College: CAS  
Department: Physics & Astronomy
B. Course Subject: PHYS  
C. Course Number A403
D. Number of Credits/CEU 4.0
E. Number of Contact Hours 4+0
F. Course Title Quantum Mechanics  
G. Grading Basis: A-F
H. Course Description: Fundamentals of quantum mechanics, including applications to the hydrogen atom, particle spin, and perturbation theory.
I. 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
J. Implementation Date: Fall 2014
K. 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 Schroedinger 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 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:

<table>
<thead>
<tr>
<th>The ability to use linear algebra to solve eigenvector/eigenvalue problems in quantum mechanics.</th>
<th>Assessment Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery of use of the Schrödinger equation and how to solve it for problems such as a particle in a box, the harmonic oscillator, and the hydrogen atom.</td>
<td>Objective tests</td>
</tr>
<tr>
<td>Full comprehension of the concept of spin angular momentum, and how it relates to identical particles.</td>
<td>Objective tests</td>
</tr>
</tbody>
</table>

VIII  Suggested Texts (at option of instructor)


IX. Bibliography and Resources

### 1. 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
(Lecture + Lab) (4+0)

### 6. Complete Course Title
Advanced 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
- [ ] Course Number
- [ ] Contact Hours
- [ X] Repeat Status
- [ ] Grading Basis
- [ ] Cross-Listed/Stacked
- [ ] Course Description
- [ ] Course Prerequisites
- [ ] Co-requisites
- [ ] Other Restrictions
  - [ ] Class
  - [ ] Level
  - [ ] College
  - [ ] Major
  - [ ] Other
    (please specify)

### 9. Repeat Status No
- [ ] # of Repeats
- [ X] 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.

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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
- [ ] 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
- [X] 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)
Initiator (TYPE NAME)
Katherine Rawlins

Disapproved
Dean/Director of School/College

Approved

Disapproved
Undergraduate/Graduate Academic

Approved

Disapproved
Board Chair

Approved

Disapproved
Provost or Designee

Date

University of Alaska Anchorage
Course Content Guide
PHYS 603 Advanced Quantum Mechanics

I. Date of Initiation
November 20, 2013

II. Course Information
A. College: CAS
   Department: Physics & Astronomy
B. Course Subject: PHYS
C. Course Number: A403
D. Number of Credits/CEU: 4.0
E. Number of Contact Hours: 4+0
F. Course Title: Advanced Quantum Mechanics
G. Grading Basis: A-F
H. Course Description: Fundamentals of quantum mechanics, including applications to the hydrogen atom, particle spin, and perturbation theory.
I. 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
J. Implementation Date: Fall 2014
K. Stacked with: PHYS A403
L. 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. | Assessment Procedures |
| tp 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. | Objective tests |
| Full comprehension of the concept of spin angular momentum, and how it relates to identical particles. | Objective tests |
| Demonstrate familiarity with current work in the field represented by journals and other current literature, and/or carry out a research project | Oral or written presentations |

VIII. Suggested Texts (at option of instructor)


IX. Bibliography and Resources

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

<table>
<thead>
<tr>
<th>1a. School or College</th>
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<tr>
<td>1c. Department</td>
<td>Physics and Astronomy</td>
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</table>

<table>
<thead>
<tr>
<th>2. Course Prefix</th>
<th>PHYS</th>
</tr>
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<tbody>
<tr>
<td>3. Course Number</td>
<td>A413</td>
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<tr>
<td>4. Previous Course Prefix &amp; Number</td>
<td>N/A</td>
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<tr>
<td>5a. Credits/CEUs</td>
<td>4</td>
</tr>
<tr>
<td>5b. Contact Hours</td>
<td>(Lecture + Lab) (4+0)</td>
</tr>
</tbody>
</table>

### 6. Complete Course Title

**Statistical and Thermal Physics**

**Statistical & Thermal Physics**

Abbreviated Title for Transcript (30 character)

### 7. Type of Course

- [ ] Academic
- [x] 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
- [ ] Repeat Status
- [ ] Cross-Listed/Stacked
- [x] Course Description
- [x] Course Prerequisites
- [x] Test Score Prerequisites
- [ ] Co-requisites
- [x] Other Restrictions
- [ ] Class
- [ ] Level
- [ ] College
- [ ] Major
- [x] 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. Cross Listed with

- [ ] PHYS A613

**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](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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</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)

### 13c. Coordination with Library Liaison

Date: 12/2/13

**Coordinate with Library Liaison**

### 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 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

### 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, minor change in title

**Initiator (faculty only)**

Katherine Rawlins

**Initiator (TYPE NAME)**

Date

**Approved**

Date

**Disapproved**

Date

**Dean/Director of School/College**

Date

**Approved**

Date

**Disapproved**

Date

**Undergraduate/Graduate Academic Board Chair**

Date

**Approved**

Date

**Disapproved**

Date

**Provost or Designee**

Date

374
13a. Impacted Courses or Programs

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<td>Natural Sciences, BS</td>
<td>129</td>
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<td>Geo Chair, Crossen</td>
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<td><strong>Natural Science Chairs:</strong></td>
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<td>Geo Chair, Crossen</td>
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<tr>
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<td>CHEM 333L</td>
<td>390</td>
<td>10/15/2013</td>
<td>Chem Chair, Holmberg</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, students will be able to:

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</table>
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

1a. School or College  1b. Division  1c. Department
AS CAS  AMSC Division of Math Science  Physics and Astronomy

2. Course Prefix  3. Course Number  4. Previous Course Prefix & Number
PHYS  A613  N/A

5a. Credits/CEUs  5b. Contact Hours
4  (Lecture + Lab) (4+0)

6. Complete Course Title
Advanced Statistical and Thermal Physics
Adv Statistical & Therm Phys

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

9. Repeat Status No  # of Repeats  Max Credits

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

11. Implementation Date
  From:  Fall 2014  To:  9999

12.  □ Cross Listed with
  □ Stacked with PHYS A413
  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.

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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)
    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 Restrictions
    □ 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)  Date  Dean/Director of School/College  Date
Katherine Rawlins (TYPE NAME)  □ Approved  □ Disapproved

Disapproved  Date
Department Chair

Approved  Date
Disapproved
Undergraduate/Graduate Academic Board Chair

Approved  Date
Disapproved
Provost or Designee

378
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:

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</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>
</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>
</tbody>
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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

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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</th>
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<tbody>
<tr>
<td>PHYS</td>
<td>A490</td>
<td>N/A</td>
<td>1-4</td>
<td>(Lecture + Lab)</td>
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6. Complete Course Title
Special Topics in Physics
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  ☐ Repeat Status  ☐ Contact Hours  ☐ Cross-Listed/Stacked  ☐ Course Prerequisites  ☐ Co-requisites  ☐ Registration Restrictions  ☐ General Education Requirement
☐ (please specify)

9. Repeat Status
☐ Yes  # of Repeats: 2  ☐ Max Credits: 12

10. Grading Basis
☐ A-F  ☐ P/NP  ☐ NG

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

12. ☐ Cross Listed with

Stacked with A690

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.

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</table>

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 physics. Special Note: may be repeated with change of topic.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
PHYS A303 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 course, for flexible option to offer specialized topics in response to student demand

Initiator (faculty only)
Katherine Rawlins
Initiator Signed Initials: __________________ Date: __________

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

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

13d. Coordination Email
Date: __________________
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14. General Education Requirement
Mark appropriate box:
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15. Course Description (suggested length 20 to 50 words)
Detailed study of a selected topic in physics. Special Note: may be repeated with change of topic.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
PHYS A303 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 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  Date

☐ Approved  ☐ Disapproved
Board Chair  Date

☐ Approved  ☐ Disapproved
Provost or Designee  Date
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
   - 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:

**The student will...**  
**... as measured by:**

- Be familiar with the properties of particles and the categorization of the "particle zoo"  
  Homework and in-class tests
- Be able to describe the mechanisms by which particles interact in matter  
  Homework and in-class tests
- Understand quantum numbers and conservation laws in particle physics  
  Homework and in-class tests
- Understand the electromagnetic, weak nuclear, and strong nuclear forces  
  Homework and in-class tests

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
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<th>6. Complete Course Title</th>
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<tr>
<td>☑ A-F</td>
<td>semester/year</td>
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<td>P/NP</td>
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<th>16c. Other Restriction(s)</th>
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</thead>
<tbody>
<tr>
<td>☑ College</td>
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<tr>
<td>☑ Major</td>
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<td>☑ Class</td>
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<table>
<thead>
<tr>
<th>16d. Registration Restriction(s) (non-codable)</th>
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<tbody>
<tr>
<td>Graduate standing, and approval of faculty advisor</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>17. Mark if course has fees</th>
<th>18. Mark if course is a selected topic course</th>
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</table>

<table>
<thead>
<tr>
<th>19. Justification for Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adding a stacked version of this course, so as to be available for Interdisciplinary Masters students</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Initiator (faculty only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katherine Rawlins</td>
</tr>
</tbody>
</table>

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<th>Date</th>
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<td>Approved</td>
<td></td>
</tr>
<tr>
<td>Disapproved</td>
<td></td>
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</tbody>
</table>
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:

**The student will...** | **... as measured by:**
--- | ---
Be familiar with the properties of particles and the categorization of the "particle zoo" | Homework and in-class tests
Be able to describe the mechanisms by which particles interact in matter | Homework and in-class tests
Understand quantum numbers and conservation laws in particle physics | Homework and in-class tests
Understand the electromagnetic, weak nuclear, and strong nuclear forces | Homework and in-class tests
Become familiar with current work in the field through journals and other current literature, and/or carry out a research project | Oral or written presentations

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>
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<td>English</td>
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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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<tr>
<td>ENGL</td>
<td>A259</td>
<td>CWLA A259</td>
<td>1</td>
<td>(1+0)</td>
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#### Complete Course Title
- **Short Format:** Introduction to Creative Writing
- **Abbreviated Title for Transcript (30 characters):** Intro Creative Wr

<table>
<thead>
<tr>
<th>6. Type of Course</th>
<th>7. Type of Course</th>
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<tr>
<td>Academic</td>
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<td>Preparatory/Development</td>
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<td>Non-credit</td>
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<td>CEU</td>
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<tr>
<td>Professional Development</td>
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#### 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)

<table>
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<tr>
<th>9. Repeat Status Yes</th>
<th># of Repeats</th>
<th>2 Max Credits</th>
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<thead>
<tr>
<th>10. Grading Basis</th>
<th>11. Implementation Date</th>
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<tbody>
<tr>
<td>A-F</td>
<td>semester/year</td>
</tr>
<tr>
<td>P/NP</td>
<td>From: Fall/2014</td>
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<tr>
<td>NG</td>
<td>To: 9999/9999</td>
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<table>
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<tr>
<th>12. Cross Listed with</th>
<th>Stacked with</th>
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Initiator Name (typed): Aisha Barnes
Initiator Signed Initials: ____________________________
Date: ____________________________

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<tr>
<th>13b. Coordination Email</th>
<th>13c. Coordination with Library Liaison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 1/22/14</td>
<td>Date: 1/27/14</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>14. General Education Requirement</th>
<th>Mark appropriate box:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Communication</td>
<td>Fine Arts</td>
</tr>
<tr>
<td>Written Communication</td>
<td>Social Sciences</td>
</tr>
<tr>
<td>Quantitative Skills</td>
<td>Natural Sciences</td>
</tr>
<tr>
<td>Humanities</td>
<td>Integrative Capstone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15. Course Description (suggested length 20 to 50 words)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to one creative writing genre in short one-credit workshops. Special Note: May be repeated twice for elective credit with a different topic.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>16a. Course Prerequisite(s) (list prefix and number)</th>
<th>16b. Test Score(s)</th>
<th>16c. Co-requisite(s) (concurrent enrollment required)</th>
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</thead>
<tbody>
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<th>16d. Other Restriction(s)</th>
<th>16e. Registration Restriction(s) (non-codable)</th>
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<tbody>
<tr>
<td>College</td>
<td></td>
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<tr>
<td>Major</td>
<td></td>
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<tr>
<td>Class</td>
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</tr>
<tr>
<td>Level</td>
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<th>19. Justification for Action</th>
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<tbody>
<tr>
<td>To bring courses administered by the English department under a consistent course prefix.</td>
</tr>
</tbody>
</table>

**Initiator (faculty only):** Aisha Barnes
Initiator Signed Initials: ____________________________
Date: ____________________________

**Univ. of Alaska Anchorage**: 390
### Course Action Request

**University of Alaska Anchorage**

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

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<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>ENGL</td>
<td>A260</td>
<td>CWLA A260</td>
<td>3</td>
<td>(3+0)</td>
</tr>
</tbody>
</table>

**6. Complete Course Title**

*Introduction to Creative Writing*

*Intro to Creative Writing* (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**

- Yes
- # of Repeats: 1
- Max Credits: 6

**10. Grading Basis**

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

**11. Implementation Date**

- semester/year: 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 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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**Initiator Name (typed):** Aisha Barnes

Initiator Signed Initials:** ___________

**13b. Coordination Email**

Date: 1/22/14

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

**13c. Coordination with Library Liaison**

Date: 1/27/14

**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)*

Introduction to creative writing in multiple genres. Reading fiction, nonfiction, and poetry; analysis of stylistic features; participation in writing workshop; and production of written exercises and texts. Special Note: May be repeated once for elective credit.

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

ENGL A111, with a minimum grade of C.

**16b. Test Score(s)**

n/a

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

n/a

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

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

**16e. 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**

To bring courses administered by the English department under a consistent course prefix.

---

**Initiator (faculty only):** Aisha Barnes

Initiator (TYPE NAME): __________________________

Date: __________________________

[ ] 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: __________________________
1a. School or College AS CAS  
1b. Division AHUM Division of Humanities  
1c. Department English  
2. Course Prefix ENGL  
3. Course Number A352  
4. Previous Course Prefix & Number CWLA A352  
5a. Credits/CEUs 3  
5b. Contact Hours (Lecture + Lab) (3+0)  
6. Complete Course Title Writers’ Workshop: Poetry  
7. Type of Course ☒ Academic ☐ Non-credit ☐ CEU ☐ Professional Development  
8. Type of Action: ☐ Add ☒ Change ☐ Delete  
If a change, mark appropriate boxes:  
☐ Prefix ☐ Course Number ☐ Contact Hours ☐ Repeat Status ☐ Grading Basis ☐ Cross-Listed/Stacked ☐ Course Prerequisites ☐ Co-requisites ☐ Test Score Prerequisites ☐ Registration Restrictions ☐ Other Restrictions ☐ Class ☑ Level ☐ College ☐ Major ☐ Other Update CCG (please specify)  
9. Repeat Status Yes ☐ # of Repeats 1 ☐ 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.  
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Initiator Signed Initials: __________________ Date: ___________  
13b. Coordination Email Date: 1/22/14 submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)  
13c. Coordination with Library Liaison: Date: 1/27/14  
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)  
Introduction to techniques of writing poetry, with instructor-guided peer critique of each student’s work. Special Note: May be repeated once for elective credit.  
16a. Course Prerequisite(s) ([list prefix and number]) (ENGL A111 and ENGL A260) with a minimum grade of C  
16b. Test Score(s) n/a  
16c. Co-requisite(s) (concurrent enrollment required) n/a  
16d. Other Restriction(s) ☐ College ☐ Major ☐ Class ☐ Level  
16e. 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  
To bring courses administered by the English department under a consistent course prefix.  
Initiator (faculty only) Aisha Barnes  
Initiator (TYPE NAME)  
☐ Approved ☐ Disapproved Date: ___________  
Dean/Director of School/College  
☐ Approved ☐ Disapproved Date: ___________  
Undergraduate/Graduate Academic  
Board Chairperson  
☐ Approved ☐ Disapproved Date: ___________  
Provost or Designee  
☐ Approved ☐ Disapproved Date: ___________  
Curriculum Committee Chairperson  
192
Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College  
AS CAS

1b. Division  
AHUM Division of Humanities

1c. Department  
English

2. Course Prefix  
ENGL

3. Course Number  
A362

4. Previous Course Prefix & Number  
CWLA A362

5a. Credits/CEUs  
3

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

6. Complete Course Title  
Writers' Workshop: Fiction
Fiction Workshop

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:  
- College:  
- Major:  
- Other Fee status (please specify):

9. Repeat Status Yes  # of Repeats 1  Max Credits 6

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

11. Implementation Date  
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.
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Initiator Name (typed): Aisha Barnes
Initiator Signed Initials: __________________ Date: __________

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

13c. Coordination with Library Liaison  
Date: 2/27/14

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)
Introduction to techniques of writing fiction, with intensive critique of each student's work. Special Note: May be repeated once for elective credit.

16a. Course Prerequisite(s) (list prefix and number)  
[ENGL A111 and ENGL A260] with a minimum grade of C

16b. Test Score(s)  
n/a

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

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

16e. 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  
To bring courses administered by the English department under a consistent course prefix.

Initiator (faculty only)  
Aisha Barnes
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  

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

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<th>5b. Contact Hours</th>
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<td>(Lecture + Lab) (3+0)</td>
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6. Complete Course Title  
Writers’ Workshop: Nonfiction  
Nonfiction Workshop  
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 Description
- Test Score Prerequisites
- Other Restrictions
- College
- Major
- Other Update CCG (please specify)

9. Repeat Status

- Yes  
- No

# of Repeats: 1  
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 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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Initiator Name (typed): Aisha Barnes

Initiator Signed Initials: ____________________________  
Date: ____________________________

13b. Coordination Email

Date: 1/22/14

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

13c. Coordination with Library Liaison

Date: 1/27/14

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)

Study of creative nonfiction including analysis of representative texts and practice in writing nonfiction. Special Note: May be repeated once for elective credit.

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

[ENGL A111 and ENGL A260] with a minimum grade of C

16b. Test Score(s)

n/a

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

n/a

16d. Other Restriction(s)

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

16e. 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

To bring courses administered by the English department under a consistent course prefix.
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<tr>
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<th>Date</th>
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<tbody>
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Initiator (TYPE NAME)

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Undergraduate/Graduate Academic Board Chairperson

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

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<td>CWLA A382</td>
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<td>(3+0)</td>
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</table>

### Complete Course Title
Writers' Workshop: Drama and Screenwriting
Drama & Screenwriting Wkshp
Abbreviated Title for Transcript (30 character):

### Type of Course
- [ ] Academic
- [ ] Non-credit
- [ ] CEU
- [ ] Professional Development

### 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)

### Repeat Status
- [ ] Yes
- [ ] No

# of Repeats: 1
Max Credits: 6

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

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

### Cross Listed with

### Course Description (suggested length 20 to 50 words)
Introduction to techniques of writing drama for stage and screen, with instructor-guided peer critique of each student's work.

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

### Course Prerequisite(s) (list prefix and number)
[ENGL A111 and ENGL A260] with a minimum grade of C

### Test Score(s)
- [ ] n/a

### Co-requisite(s) (concurrent enrollment required)
- [ ] n/a

### Registration Restriction(s) (non-codable)
- [ ] n/a

Mark if course is a selected topic course

### Justification for Action
To bring courses administered by the English department under a consistent course prefix.

Initiator Name (typed): Aisha Barnes
Initiator Signed Initials: __________ Date: __________

### Coordination Email
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)
Date: 1/22/14

### Coordination with Library Liaison
Date: 1/27/14

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

Initiator (faculty only)
Aisha Barnes
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 Action Request**  
University of Alaska Anchorage  
Proposal to Initiate, Add, Change, or Delete a Course

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**Complete Course Title**  
Advanced Writers' Workshop: Poetry

**Abbreviated Title for Transcript (30 character)**  
Adv Poetry Workshop

<table>
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<th>7. Type of Course</th>
<th>☑ Academic</th>
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<tr>
<td>8. Type of Action:</td>
<td>☑ Add</td>
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**Repeat Status** Yes  
# of Repeats: 1  
Max Credits: 6

| 9. Repeat Status Yes | # of Repeats | 1 | Max Credits | 6 |

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

**Implementation Date**  
From: Fall/2014  
To: 9999/9999

**Cross Listed with**  
Stacked with  
Cross-Listed Coordination Signature

**Initiator Name (typed):** Aisha Barnes  
Initiator Signed Initials: ____________  
Date: _______________

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

- [ ] Impacted Program/Course
- [ ] Catalog Page(s) Impacted
- [ ] Date of Coordination
- [ ] Chair/Coordinator Contacted

**13b. Coordination Email**  
Date: 1/22/14  
Submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

**13c. Coordination with Library Liaison:**  
Date: 1/27/14

**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)

Practice in writing poetry, with instructor-guided peer critique of each student's work. Special Note: May be repeated once for elective credit.

**16. Course Prerequisite(s)** ([list prefix and number])  
ENGL A352, ENGL A362, ENGL A372, or ENGL A382]  
with a grade of C or better

**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)**  
Prior completion of ENGL A352 and ENGL A351 recommended.

**17. Mark if course has fees**  
☐

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

**19. Justification for Action**  
To bring courses administered by the English department under a consistent course prefix.
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## Course Action Request
### University of Alaska Anchorage

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

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### 6. Complete Course Title

**Advanced Writers' Workshop: Fiction**  
Adv Fiction Workshop

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
- Other

### 9. Repeat Status
- Yes
- # of Repeats: 1
- Max Credits: 6

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

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

### 12. Cross Listed
- with
- Stacked with

### 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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Initiator Name (typed): Aisha Barnes

Initiator Signed Initials: ________________________ Date: ________________________

### 13b. Coordination Email
Date: 1/22/14

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

### 13c. Coordination with Library Liaison
Date: 1/27/14

### 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 practice in writing fiction in an intensive workshop format. Special Note: May be repeated once for elective credit.

### 16. Course Prerequisite(s)

(list prefix and number)

ENGL A352 or ENGL A362 or ENGL A372 or ENGL A382 with a minimum grade of C

### 16b. Test Score(s)

n/a

### 16c. Co-requisite(s)

(concurrent enrollment required)

n/a

### 16d. Other Restriction(s)

- College
- Major
- Class
- Level

### 16e. Registration Requirement(s)

(non-codable)

Prior completion of ENGL A362 and [ENGL A361 or ENGL A363] recommended.

### 17. Mark if course has fees

- Yes

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

- Yes

### 19. Justification for Action

To bring courses administered by the English department under a consistent course prefix.

Initiator (faculty only)  Date

Aisha Barnes  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

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Course Action Request

University of Alaska Anchorage

Proposal to Initiate, Add, Change, or Delete a Course
# Course Action Request

**University of Alaska Anchorage**

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

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<td>Adv. Workshop: Nonfiction</td>
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<tr>
<td>Abbreviated Title for Transcript (30 character)</td>
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<th>7. Type of Course</th>
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| 8. Type of Action: | ☑ Add | ☑ Change | ☑ Delete |

If a change, mark appropriate boxes:

- ☑ Prefix
- ☑ Credits
- ☑ Title
- ☑ Grading Basis
- ☑ Course Description
- ☑ Test Score Prerequisites
- ☑ Other Prerequisites
- ☑ Other Restrictions
- ☑ (please specify)

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

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Initiator Name (typed): Aisha Barnes

Initiator Signed Initials: _________ Date: ____________

13b. Coordination Email: Date: 1/22/14

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

13c. Coordination with Library Liaison: Date: 1/27/14

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 study and practice of creative nonfiction including analysis of formal elements in representative texts, application of theoretical perspectives, production of numerous texts, and critiques of student work in workshop format. Special Note: May be repeated once for elective credit.

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

ENGL A352, ENGL A362, ENGL A372 or ENGL A382] with a minimum grade of C

16b. Test Score(s) n/a

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

16d. Other Restriction(s) (concurrent enrollment required)

- ☑ College
- ☑ Major
- ☑ Class
- ☑ Level

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

Prior completion of ENGL A372 and ENGL A371 recommended.

17. Mark if course has fees

18. Mark if course is a selected topic course

19. Justification for Action

To bring courses administered by the English department under a consistent course prefix.
<table>
<thead>
<tr>
<th>Role</th>
<th>Approval Status</th>
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<tbody>
<tr>
<td>Initiator (faculty only)</td>
<td></td>
<td></td>
<td>Date</td>
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<tr>
<td>Aisha Barnes</td>
<td></td>
<td></td>
<td>Date</td>
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<tr>
<td>Initiator (TYPE NAME)</td>
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<td>Date</td>
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<tr>
<td>Department Chairperson</td>
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<tr>
<td>Curriculum Committee Chairperson</td>
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<td>Dean/Director of School/College</td>
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<tr>
<td>Undergraduate/Graduate Academic Board Chairperson</td>
<td></td>
<td></td>
<td>Date</td>
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<tr>
<td>Provost or Designee</td>
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<td>Date</td>
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### 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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</thead>
<tbody>
<tr>
<td>AS CAS</td>
<td>AHUM Division of Humanities</td>
<td>English</td>
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<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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<tbody>
<tr>
<td>ENGL</td>
<td>A482</td>
<td>CWLA A482</td>
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</table>

**6. Complete Course Title**
Advanced Writers' Workshop: Drama and Screenwriting
Adv Wrkshp Drama/Screen

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

**7. Type of Course**
- ☑ Academic
- □ Non-credit
- □ CEU
- □ Professional Development

**8. Type of Action**: □ Add or ☑ Change or □ Delete

If a change, mark appropriate boxes:
- ☑ Prefix
- □ Course Number
- □ Contact Hours
- □ Repeat Status
- □ Grading Basis
- □ Cross-Listed/Stacked
- □ Course Prerequisites
- □ Co-requisites
- □ Test Score Prerequisites
- □ Registration Restrictions
- □ Other Restrictions
  - Class Level
  - College Major
- □ Other

**9. Repeat Status**
- Yes # of Repeats 1 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**
- ☑ Stack 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 in table. If more than three impacts, 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>Impacted</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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</thead>
<tbody>
<tr>
<td>1. BA Theatre</td>
<td></td>
<td>☑</td>
<td>1/30/14</td>
<td>Tom Skore, Chair, Dept. of Theatre</td>
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<td>2.</td>
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<tr>
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</tbody>
</table>

Initiator Name (typed): Aisha Barnes

Initiator Signed Initials: ___________________________ Date: __________

**13b. Coordination Email**
- Date: 1/22/14
- submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

**13c. Coordination with Library Liaison**
- Date: 1/27/14

**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)*

Practice in writing drama for stage and screen, with instructor-guided peer critique of each student's work. Special Note: May be repeated once for elective credit.

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

ENGL A352, ENGL A362, ENGL A372, or ENGL A382
with a minimum grade of C

**16b. Test Score(s)**
- n/a

**16c. Co-requisite(s) (concurrent enrollment required)**
- n/a

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

- ☑ English Major
- □ College
- □ Class Level

**16e. Registration Restriction(s) (non-codable)**
ENGL A382 and [ENGL A381 or ENGL A383] recommended

**17. Mark if course has fees**

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

**19. Justification for Action**

To bring courses administered by the English department under a consistent course prefix.

Initiator (faculty only)
Aisha Barnes
Initiator (TYPE NAME) ___________________________ Date: __________

Approved Disapproved

Dean/Director of School/College
Date

Approved Disapproved

Undergraduate/Graduate Academic Board Chairperson
Date

Approved Disapproved

Provost or Designee
Date

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