I. Roll Call
   (e) Arlene Schmuland  () Peter Olsson  () Zhaohui (Joey) Yang
   () Tim Hinterberger (e) Susan Garton  () FSAL vacancy (CAS)  Ex-Officio Members:
   () Patricia Sandberg (e) Mary Dallas Allen  () FSAL Vacancy  () David Yesner
   () Greg Protasel  () Deb Russ  () FSAL Vacancy  () Lora Volden
   () Yoshito Kanamori () Hsing-Wen Hu  () Jaime Spatrisano  () Scheduling & Publications

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

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

IV. Administrative Reports
   A. Associate Dean of the Graduate School David Yesner
   B. Graduate Student Jaime Spatrisano
   C. University Registrar Lora Volden

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

VI. Program/Course Action Request – Second Reading
   Add CE A626 Traffic Modeling and Simulation (Stacked with CE A426)(3 cr)(3+0)(pg. 5-12)

VII. Program/Course Action Request - First Readings
   Add BIOL A661L Advanced Molecular Biology Laboratory
       (Stacked with BIOL A461L)(3)(0+6)(pg. 13-22)
   Add Master of Science, Mechanical Engineering (pg. 23-27)
   Add ME A630 Advanced Mechanics of Materials (3 cr)(3+0)(pg. 28-30)
   Add ME A686 Project (3 cr)(0+9)(pg. 31-36)
   Add ME A699 Thesis (1-6 cr)(1-6+0)(pg. 37-39)
   Chg Graduate Certificate in English as a Second Language and Culturally Sustaining Pedagogy (pg. 40-44)
   Add EDFN A645 Culturally Sustaining Literacy for P-6 English Language Learners
       (3 cr)(3+0)(pg. 45-54)
   Add EDFN A646 Culturally Sustaining Instruction in Science, Technology, Engineering, Arts and
       Mathematics (STEAM) for English Language Learners in Classrooms (3 cr)(3+0)(pg. 55-61)
   Add EDFN A689 Action Research Experience: Culturally Sustaining Pedagogy for English Learning
       Learners in P-6 Classrooms (1-6 cr)(0+3-18)(pg. 62-68)
   Chg BA A695 Graduate Internship (3 cr)(3+0)(pg. 69-72)
   Chg BA A698 MBA Individual Research (3 cr)(1+0)(pg. 73-75)
Chg BA A699 Thesis (6 cr)(1+0)(pg. 76-78)
Chg CIS A692 Management Information Systems Seminar (3 cr)(3+0)(pg. 79-82)

VIII. Old Business

IX. New Business

X. Informational Items and Adjournment
   A.
I. Roll Call
(x) Arlene Schmuland  (x) Peter Olsson  (x) Zhaohui (Joey) Yang
(x) Tim Hinterberger (x) Susan Garton  () FSAL vacancy (CAS)  Ex-Officio Members:
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(x) Yoshito Kanamori (x) Hsing-Wen Hu  (x) Jaime Spatrisano  (x) Scheduling & Publications

II. Approval of Agenda (pg. 1)
BIOL A661L is postponed until next meeting
Approved as amended

III. Approval of Meeting Summary (pg. 2-3)
Approved

IV. Administrative Reports
A. Associate Dean of the Graduate School David Yesner
Engineering has proposed a new master’s program in Geomatics
Working on changes to Chapter 12

B. Graduate Student Jaime Spatrisano
Sent out the call for proposals for the GSA scholarship and the deadline is next Monday; the award will be given on December 7th

C. University Registrar Lora Volden
Registration opens for graduate students November 9th
Lora is out of the office starting next Tuesday to November 27th
International Transcript Evaluation taskforce will be meeting November 13th

V. Chair’s Report
A. GAB Chair- Arlene Schmuland
Faculty Senate President, Robert Boeckmann, attended the meeting
Tim Hinterberger will be chairing the November 9th meeting

B. Faculty Alliance
Working on coordinating student learning outcomes in general education requirements

C. Graduate Council

VI. Program/Course Action Request – Second Reading

VII. Program/Course Action Request - First Readings
Add BIOL A661L Advanced Molecular Biology Laboratory
(Stacked with BIOL A461L)(3)(0+6)(pg. 4-13)
Postponed

Chg GEOL A690 Graduate Topics in Geology (Stacked with GEOL A490)(1-4 cr)(1-4+0)(pg. 14-23)
Waive first reading, approve for second

Add CE A626 Traffic Modeling and Simulation (Stacked with CE A426)(3 cr)(3+0)(pg. 24-31)
Accepted for first reading

VIII. Old Business

IX. New Business
A. Electronic Signatures
Motion to accept scanned or faxed signed copies of the CAR and PAR as long as signatures up to
the Deans level are there and legible and the approved or disapproved boxes are checked.

1st Patricia Sandberg
2nd Tim Hinterberger
Unanimously Approved

B. Electronic Catalog Presentation (Lora Volden)
   Distributed a handout to the board regarding CourseLeaf CIM
   Discussed the electronic features for both the curriculum and catalog portions

X. Informational Items and Adjournment
   A.
**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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**Abbreviated Title for Transcript (30 character)**

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<td>Grading Basis</td>
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<tr>
<td>Course Description</td>
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<td>Test Score Prerequisites</td>
</tr>
<tr>
<td>Other Restrictions</td>
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<td>Level</td>
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<td>College</td>
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<tr>
<td>List any programs or college requirements that require this course.</td>
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<tr>
<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>
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<td>2. Civil Engineering, MS</td>
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<tr>
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<tbody>
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UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: October 9, 2012

II. Course Information
A. College: School of Engineering
B. Course Title: Traffic Modeling and Simulation
C. Course Subject/Number: CE A626
D. Credit Hours: 3.0
E. Contact: 3+0
F. Grading Information: A-F
G. Course Description: Introduces concepts of traffic flow simulation, modeling of driver behavior, and application of traffic simulation in Intelligent Transportation Systems (ITS).
H. Stacked: CE A426
I. Status of course relative to degree or certificate program: Graduate level course in Civil Engineering
J. Lab Fees: No
K. Coordination: UAA/SOE/CE faculty list serves
L. Course Prerequisites: N/A
M. Registration Restrictions: Instructor’s permission and graduate standing

III. Course Activities
Course activities will be composed of demonstration, lectures and discussion by instructor. Instructor will provide regular homework assignments, a project, review of high quality technical literature including journal papers and self-study materials. The instructor will also train students in related traffic simulation software. The students’ performance will be assessed based on homework, a final examination, presentations on technical literature, project assignments that will lead to a detailed project report, and a presentation on the project assigned.

IV. Evaluation
Evaluation procedures are at the discretion of the instructor and will be discussed during the first class in the semester. Students will be evaluated on a semester-long class project, homework assignments, presentations, technical skills, attendance and participation in class activities. Project evaluation will generally include quality of content, problem solving, and amount of effort.

V. Course Level Justification
This course adds an important graduate level course in transportation engineering. It provides an opportunity for learners to develop concepts in development of traffic simulation models and skills in modeling and simulation of traffic including applications in ITS. This course will prepare learners for both professional practice as well as research in the areas of traffic modeling and simulation.
VI. Course Outline

- Fundamentals of system simulation
  - Define systems, models, simulation models
  - Define types of simulation models
- Building simulation models
  - Components of a simulation model
  - Steps in a simulation model
- Traffic flow simulation approaches
  - Analytical versus simulation
  - Discrete versus continuous
  - Macroscopic, mesoscopic, microscopic
- Traffic flow simulation software for ITS applications
  - PTV-America, McTrans, Transport Simulation System
- Review of probability and statistics
  - Random variables and their properties
  - Simulation output data and stochastic processes
  - Estimation of means and variances
  - Confidence interval
- Detailed review of development, calibration and validation of a microscopic multilane traffic simulation model
  - Concepts
  - Approaches
  - Methods
  - Statistical analysis of results
  - Stability analysis of the model
- Statistical modeling
  - Continuous distributions
  - Goodness-of-fit tests
- Random numbers
  - Mid-Square method
  - Linear Congruential Generators (LCG)
  - Test for random number generators
- Random variates
  - Inverse Transform
  - Composition
  - Convolution
  - Acceptance-Rejection
- Variance reduction technique
  - Common random numbers
VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:

1. Emphasize the fundamental concepts and models of traffic simulation with emphasis on the techniques and skills of utilizing traffic simulation software to evaluate traffic operation and control strategies.
2. Develop skills to conduct simulation studies for traffic operation and control, and the application of simulation models in research and the industry.

Student Learning Outcomes. After successful completion of course, student will be able to demonstrate:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Procedures</th>
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</thead>
<tbody>
<tr>
<td>Proficiency in the use of microscopic traffic simulation models</td>
<td>Final project report, Class presentations, Exam</td>
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<tr>
<td>Techniques to evaluate and interpret the results from microscopic traffic simulation models</td>
<td>Project assignments, Class presentations</td>
</tr>
<tr>
<td>Proficiency in the concepts of calibration and validation of simulation models</td>
<td>HW assignments, Project assignments, Project report, Exam</td>
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<tr>
<td>The application of simulation models for analyzing traffic operation and control</td>
<td>HW assignments, Project report, Exam</td>
</tr>
<tr>
<td>Understanding and presentation of technical literature and their application</td>
<td>Presentation of technical literature related to traffic simulation models</td>
</tr>
<tr>
<td>The capability to write a technical report and present the results of their simulation studies to professionals</td>
<td>Project report and presentation</td>
</tr>
</tbody>
</table>

VIII. Suggested Text


IX. Bibliography and Resources

1. Following software can be used:
   a. AIMSUN from Transport Simulation System (TSS) (http://www.aimsun.com).
   b. CORSIM from McTrans at Univ. of Florida (http://mctrans.ce.ufl.edu/),
   c. VISSIM from PTV-America (http://www.ptvamerica.com).
3. Technical journal papers.
## Course Action Request

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

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6. **Complete Course Title**

Traffic Modeling and Simulation

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

<table>
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If a change, mark appropriate boxes:

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

10. **Grading Basis**

- A-F
- P/NP
- NG

11. **Implementation Date**

- Semester/year
  - From: Spring/2013
  - To: 9999/9999

12. **Cross Listed with**

- Stack with CE A626

### 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. Civil Engineering, BS</td>
<td>Courtesy Coordination, 10/09/2012</td>
<td>Dr. Osama Abaza</td>
<td></td>
</tr>
<tr>
<td>2. Civil Engineering, MS</td>
<td>Courtesy Coordination, 10/09/2012</td>
<td>Dr. Osama Abaza</td>
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</table>

**Initiator Name (typed): Ghulam H Bham**

Initiator Signed Initials: __________ Date: __________

13b. **Coordination Email**

Date: 10/09/2012

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

13c. **Coordination with Library Liaison**

Date: 10/09/2012

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 concepts of traffic flow simulation, modeling of driver behavior, and application of traffic simulation in Intelligent Transportation Systems (ITS).

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

(list prefix and number) [CE A405 and ES A302] with a minimum grade of C

16b. **Test Score(s)**

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

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

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

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

Instructor's permission

17. **Mark if course has fees**

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

19. **Justification for Action**

Increases the available technical electives for civil engineering students. Not offered by other departments.

**Initiator (faculty only)**

Ghulam H. Bham

Initiator Signed Initials: __________ Date: __________

**Initiator (TYPE NAME)**

- Approved
- Disapproved

[Dean/Director of School/College] Date

[Undergraduate/Graduate Academic] Date

[Board Chairperson] Date

[Provost or Designee] Date

[Signature]
I. Initiation Date: October 9, 2012

II. Course Information
A. College: School of Engineering
B. Course Title: Traffic Modeling and Simulation
C. Course Subject/Number: CE A426
D. Credit Hours: 3.0
E. Contact: 3+0
F. Grading Information: A-F
G. Course Description: Introduces concepts of traffic flow simulation, modeling of driver behavior, and application of traffic simulation in Intelligent Transportation Systems (ITS).
H. Stacked: CE A626
I. Status of course relative to degree or certificate program: Technical elective, BS program in Civil Engineering
J. Lab Fees: No
K. Coordination: UAA/SOE/CE faculty list serves
L. Course Prerequisites: [CE A405 and ES A302] with a minimum grade of C
M. Registration Restrictions: Instructor’s permission

III. Course Activities
Course activities will be composed of demonstration, lectures and discussion by instructor. Instructor will provide regular homework assignments, a project, review of high quality technical papers and self-study materials. The instructor will also train students in related traffic simulation software. The students’ performance will be assessed based on homework, a final examination, project assignments that will lead to a detailed project report, and technical presentation on the project assigned.

IV. Evaluation
Evaluation procedures are at the discretion of the instructor and will be discussed during the first class in the semester. Students will be evaluated on a semester-long class project, homework assignments, presentations, technical skills, attendance and participation in class activities. Project evaluation will generally include quality of content, problem solving, and amount of effort.

V. Course Level Justification
This course is offered as a technical elective in transportation engineering. The course builds on material covered in CE A405, Transportation Engineering I.
VI. Course Outline

- Fundamentals of system simulation
  - Define systems, models, simulation models
  - Define types of simulation models

- Building simulation models
  - Components of a simulation model
  - Steps in a simulation model

- Traffic flow simulation approaches
  - Analytical versus simulation
  - Discrete versus continuous
  - Macroscopic, mesoscopic, microscopic

- Traffic flow simulation software for ITS applications
  - PTV-America, McTrans, Transport Simulation System

- Review of probability and statistics
  - Random variables and their properties
  - Simulation output data and stochastic processes
  - Estimation of means and variances
  - Confidence interval

- Detailed review of development, calibration and validation of a microscopic multilane traffic simulation model
  - Concepts
  - Approaches
  - Methods
  - Statistical analysis of results
  - Stability analysis of the model

- Statistical modeling
  - Continuous distributions
  - Goodness-of-fit tests

- Random numbers
  - Mid-Square method
  - Linear Congruential Generators (LCG)
  - Test for random number generators

- Random variates
  - Inverse Transform
  - Composition
  - Convolution
  - Acceptance-Rejection

- Variance reduction technique
  - Common random numbers
VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Emphasize the fundamental concepts and models of traffic simulation with emphasis on the techniques and skills of utilizing traffic simulation software to evaluate traffic operation and control strategies.
   2. Develop skills to conduct simulation studies for traffic operation and control, and the application of simulation models for the industry.

Student Learning Outcomes. After successful completion of course, student will be able to demonstrate:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proficiency in the use of microscopic traffic simulation models</td>
<td>Final project report, Class presentations, Exam</td>
</tr>
<tr>
<td>Techniques to evaluate and interpret the results from microscopic traffic simulation models</td>
<td>Project assignments, Class presentations</td>
</tr>
<tr>
<td>Proficiency in the concepts of calibration and validation of simulation models</td>
<td>HW assignments, Project assignments, Project report, Exam</td>
</tr>
<tr>
<td>The application of simulation models for analyzing traffic operation and control</td>
<td>HW assignments, Project report, Exam</td>
</tr>
<tr>
<td>The capability to write a technical report and present the results of their simulation studies to professionals</td>
<td>Project report and presentation</td>
</tr>
</tbody>
</table>

VIII. Suggested Texts


IX. Bibliography and Resources

1. Following software can be used:
   a. AIMSUN from Transport Simulation System (TSS) (http://www.aimsun.com).
   b. CORSIM from McTrans at Univ. of Florida (http://mctrans.ce.ufl.edu/).
   c. VISSIM from PTV-America (http://www.ptvamerica.com).
1. School or College
   AS CAS

2. Course Prefix
   BIOL

3. Course Number
   A661L

4. Previous Course Prefix & Number
   N/A

5a. Credits/CEUs
   3

5b. Contact Hours
   (Lecture + Lab)
   (0+6)

6. Complete Course Title
   Advanced Molecular Biology Laboratory
   Adv. Molecular Biology Lab

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

9. Repeat Status No
   # of Repeats
   N/A
   Max Credits
   N/A

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

11. Implementation Date
    semester/year
    From: SPRING/2013
    To: XX/9999

12. ☐ Cross Listed with
    ☑ Stacked with BIOL A461L
    Cross-Listed Coordination

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

13b. Coordinator Date: 04-26-2012

13c. Coordination with Library Liaison Date: 04-26-2012

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)
   A practical implementation of the theory learned in BIOL A661, which includes in vitro DNA techniques, gene expression analysis, and genomics. Students will also learn and practice experimental design, proposal writing, and oral and written presentation skills, lead research groups, and learn mentorship skills.

16a. Course Prerequisite(s) (list prefix and number)
   BIOL A661 with 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
   Students enrolled in BIOL A661 have frequently requested a laboratory to provide hands-on understanding of the molecular methodologies discussed in the lecture course, particularly when their graduate thesis work involves molecular approaches - an increasingly common trend. Most molecular biology courses at other institutions have associated laboratories, and a laboratory will significantly enhance the learning experience in BIOL A661. Stacking this course with BIOL A461L will enable BIOL A661L students to gain mentorship experience and pursue more elaborate research projects.
<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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<tbody>
<tr>
<td>Ben Harrison</td>
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<thead>
<tr>
<th>Curriculum Committee Chairperson</th>
<th>Date</th>
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<th>Disapproved</th>
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</table>
I. Implementation Date: Spring 2012.

II. Course Information
A. College: College of Arts and Sciences.
B. Course Subject/Number: BIOL A661L.
C. Course Title: Molecular Biology Laboratory.
D. Course Description: A practical implementation of the theory learned in BIOL A661, which includes in vitro DNA techniques, gene expression analysis, and genomics. Students will also learn and practice experimental design, proposal writing, and oral and written presentation skills, lead research groups, and learn mentorship skills. May be stacked with: BIOL A461L.

E. Credit Hours: 3.0
F. Contact Hours: 0+6.
G. Grading Basis: A-F.
H. Status of Course Relative to Degree Program: Elective course for graduate students studying at UAA.
I. Lab Fees (Yes/No): Yes.
J. Coordination: UAA Faculty Listserv, UAA Deans and Directors.
K. Prerequisites/Corequisite: BIOL A661, with minimum grade of C, or concurrent enrollment
L. Registration Restrictions: None

III. Course Activities: This is a laboratory class meeting for two 3 hour sessions per week for 15 weeks.

IV. Evaluation:

Course grading is A-F. The evaluation methods, while at the discretion of the faculty member teaching the course, may include participation in group discussions and experimental work, reading and interpreting primary scientific literature and a presentation of project outcomes.

V. Course Level Justification: Designed for graduate students in the biological sciences as an elective graduate course comparable to 600-level molecular biology laboratory courses offered at other universities. This course covers the practical applications of molecular biology, cell biology, genetics and genomics essential to the student's ability to succeed in biological research and apply this content to research topics in the
VI. Course Outline

1.0 Research Project Proposals
   1.1 Choice of topic and experimental system
      1.1.1 Developing a research project from a topic of interest
      1.1.2. Choosing an effective model organism or model system
   1.2 Experimental design
      1.2.1 Developing research aims
      1.2.2 Developing hypotheses and designing experiments to address them
      1.2.3 Elaborating experimental protocols

2.0 Experimentation
   2.1 Practical methodology
      2.1.1 Chemical safety
      2.1.2 Handling reagents and making solutions
      2.1.3 Biological media and organism care
      2.1.4 Biological assays and molecular techniques
      2.1.5 Data collection
   2.2 Data analysis
      2.2.1. Qualitative data analysis
      2.2.2. Quantitative data analysis
      2.2.3. Critical analysis and troubleshooting

3.0 Research communication
   3.1 In-lab journal article presentation/discussion
   3.2 In-lab research project presentation/discussion
   3.3 Research Proposal
      3.3.1 Peer review
   3.4 Primary research manuscript
   3.5 Oral presentation to a scientific audience - In-class presentation
   3.6 Poster presentation

VII. Instructional Goals and Student Learning Outcomes:

A. The instructor will:
   Support the development of group projects aimed at investigating one or more biological phenomena using molecular approaches. This includes facilitating the discussion of research topics, the developments of research aims and experimental design. The instructor will provide review and critical analysis of student proposals in addition to the student-to-student peer review.

B. Student Learning Outcomes:

<table>
<thead>
<tr>
<th>Students will be able to:</th>
<th>Assessment Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop an experimental research plan, including the elaboration of research aims and experimental strategies, and the</td>
<td>Oral literature summary, written proposal, group discussion and peer review.</td>
</tr>
<tr>
<td>Demonstrate competency in molecular laboratory technique including, in vitro DNA/RNA protein methods, genomics and gene expression analysis.</td>
<td>Laboratory exercises and group discussion.</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Lead a small research team by coordinating group activity, maintaining communication and coordination of group efforts in written work and oral presentation</td>
<td>Laboratory exercises, primary research, written proposals, oral presentation and group discussion.</td>
</tr>
<tr>
<td>Communicate, to an audience of scientific peers, their project as primary scientific research.</td>
<td>Oral presentation, primary research paper.</td>
</tr>
</tbody>
</table>

VIII. **Suggested Text(s):**

Barker K. 1998. At the Bench: A Laboratory Navigator. CSHL Press, Woodbury, NY

IX. **Bibliography:**

Journal articles from the primary literature (Science, Nature, Cell, EMBO J, Cell and Molecular Biology, etc) related to student research projects.

Web-based resources for project development and data analysis, including genomic analysis (NCBI and model organism databases), microarray and image analysis platforms (Image J and MAGIC Tool), and DNA sequence analysis.

Reference books related to student research topics and model systems, including:


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>AS CAS</td>
<td>AMSC Division of Math Science</td>
<td>Biology</td>
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<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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<tr>
<td>BIOL</td>
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<td>N/A</td>
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6. Complete Course Title
Molecular Biology Laboratory

Abbreviated Title for Transcript (30 character): Molecular Biology Laboratory

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

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

9. Repeat Status No # of Repeats N/A Max Credits N/A

10. Grading Basis
☑ A-F ☐ P/NP ☐ NG

11. Implementation Date
From: SPRING/2013 To: XX/9999

12. ☐ Cross Listed with
☑ Stacked with BIOL A661L

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

<table>
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<tr>
<th>Impacted Program/Course</th>
<th>Catalog Page(s)</th>
<th>Date of Coordination</th>
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<td>97</td>
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<td>Fred Rainey</td>
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<td>2. BA in Natural Sciences</td>
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Initiator Name (typed): Ben Harrison Initiator Signed Initials: _________ Date:________________

13b. Coordination Email
Date: 04-26-2012
(submitted to Faculty Listserv: uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
Date: 04-26-2012

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)
A practical implementation of the theory learned in BIOL A461, which includes in vitro DNA techniques, gene expression analysis, and genomics. Students will also learn experimental design, proposal writing, and oral and written presentation skills.

16a. Course Prerequisite(s) (list prefix and number)
BIOL A461 with minimum grade of C or concurrent enrollment

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

Students enrolled in BIOL A461 have frequently requested a laboratory to provide hands-on understanding of the molecular methodologies discussed in the lecture course. Most molecular biology courses at other institutions have associated laboratories, and a laboratory will significantly enhance the learning experience in BIOL A461. Changing the BIOL A461L from one credit to three reflects the significant time commitment of students in the course (6hrs in lab per week), and will attract students to the course when it does not run concurrently with the lecture course.
<table>
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<th>Initiator (faculty only)</th>
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<th>Date</th>
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<th>Curriculum Committee Chairperson</th>
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</table>
I. Implementation Date: Spring 2012.

II. Course Information
A. College: College of Arts and Sciences.
B. Course Subject/Number: BIOL A461L.
C. Course Title: Molecular Biology Laboratory.
D. Course Description: A practical implementation of the theory learned in BIOL A461, which includes in vitro DNA techniques, gene expression analysis, and genomics. Students will also learn experimental design, proposal writing, and oral and written presentation skills. Stacked with: BIOL A661L.
E. Credit Hours: 3.0
F. Contact Hours: 0+6.
G. Grading Basis: A-F.
H. Status of Course Relative to Degree Program: Selective course for BA-Biological Sciences, BS-Biological Sciences majors, Biology minors; BS Natural Sciences major.
I. Lab Fees (Yes/No): Yes.
J. Coordination: UAA Faculty Listserv, UAA Deans and Directors.
K. Prerequisites/Corequisite: BIOL A461, with minimum grade of C, or concurrent enrollment
L. Registration Restrictions: None

III. Course Activities:
This is a laboratory class meeting for two 3 hour sessions per week for 15 weeks.

IV. Evaluation:
Course grading is A-F. The evaluation methods, while at the discretion of the faculty member teaching the course, may include participation in group discussions and experimental work, reading and interpreting primary scientific literature and a presentation of project outcomes.

V. Course Level Justification:
Designed for Biological and Natural Sciences majors as a selective undergraduate course comparable to 400-level molecular biology laboratory courses offered at other universities.
VI. Course Outline

1.0 Research Project Proposals
  1.1 Choice of topic and experimental system
    1.1.1 Developing a research project from a topic of interest
    1.1.2 Choosing an effective model organism or model system
  1.2 Experimental design
    1.2.1 Developing research aims
    1.2.2 Developing hypotheses and designing experiments to address them
    1.2.3 Elaborating experimental protocols

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  2.1 Practical methodology
    2.1.1 Chemical safety
    2.1.2 Handling reagents and making solutions
    2.1.3 Biological media and organism care
    2.1.4 Biological assays and molecular techniques
    2.1.5 Data collection
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    2.2.1 Qualitative data analysis
    2.2.2 Quantitative data analysis
    2.2.3 Critical analysis and troubleshooting

3.0 Research communication
  3.1 In-lab journal article presentation/discussion
  3.2 In-lab research project presentation/discussion
  3.3 Research Proposal
    3.3.1 Peer review
  3.4 Primary research manuscript
  3.5 Oral presentation to a scientific audience - In-class presentation
  3.6 Poster presentation

VII. Instructional Goals and Student Learning Outcomes:

A. The instructor will:
   Support the development of group projects aimed at investigating one or more biological phenomena using molecular approaches. This includes facilitating the discussion of research topics and the developments of research aims and experimental design. The instructor will provide review and critical analysis of student proposals in addition to the student-to-student peer review.

B. Student Learning Outcomes:

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<th>Students will be able to:</th>
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<td>Develop an experimental research plan, including the elaboration of research aims and experimental strategies, and the evaluation of similar research proposals.</td>
<td>Oral literature summary, written proposal, group discussion and peer review.</td>
</tr>
<tr>
<td>Demonstrate competency in molecular</td>
<td>Laboratory exercises and group</td>
</tr>
</tbody>
</table>
laboratory technique including, in vitro DNA/RNA protein methods, genomics and gene expression analysis.

Communicate, to an audience of scientific peers, their project as primary scientific research.

<table>
<thead>
<tr>
<th>discussion.</th>
<th>Oral presentation, primary research paper.</th>
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</table>

VIII. **Suggested Text(s):**

Barker K. 1998. At the Bench: A Laboratory Navigator. CSHL Press, Woodbury, NY

IX. **Bibliography:**

Journal articles from the primary literature (Science, Nature, Cell, EMBO J, Cell and Molecular Biology, etc) related to student research projects.

Web-based resources for project development and data analysis, including genomic analysis (NCBI and model organism databases), microarray and image analysis platforms (Image J and MAGIC Tool), and DNA sequence analysis.

Reference books related to student research topics and model systems, including:


17 October 2012

Dear Provost Baker:

During the Spring 2011 Semester, the Mechanical Engineering Faculty worked with Mechanical Engineering program constituents (students, employers, alumni, and faculty) on an assessment of the Bachelor of Science in Mechanical Engineering curriculum. During those many meetings, the interest in an MSME program became clear. The proposed MSME program addresses that interest.

No students currently enrolled in a UAA degree program will have that program adversely affected by the proposed MSME program.

No significant additional resources will be needed to begin implementing the proposed MSME program.

Thank you for your consideration. Please feel free to contact me at any time if you have any questions.

Best Regards,

Anthony J. Paris, Ph.D., P.E.
Associate Professor of Mechanical Engineering
907-786-1912
ajparis@alaska.edu
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>EN SOENGR</th>
<th>1b. Division</th>
<th>No Division Code</th>
<th>1c. Department</th>
<th>ME</th>
</tr>
</thead>
</table>

2. Complete Program Title/PREFIX
Master of Science, Mechanical Engineering

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

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

5. Implementation Date (semester/year)
From: Fall/2013 To: 99/9999

6a. Coordination with Affected Units
Department, School, or College: SOE
Initiator Name (typed): Anthony Paris
Initiator Signed Initials: _________
Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu)
Date: 10/15/2012

6c. Coordination with Library Liaison
Date: 10/17/2012

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

8. Justification for Action
Interest from students, alumni, professionals in industry, industry leadership, and faculty.

Initiator (faculty only)
Anthony J. Paris
Initiator (TYPE NAME)

[ ] Approved
[ ] Disapproved
Date

Dean/Director of School/College
Approved
Date

Undergraduate/Graduate Academic
Approved
Date

Board Chairperson
Disapproved
Date

Provost or Designee
Disapproved
Date
Graduate study in mechanical engineering prepares students for work that requires a greater degree of autonomy and mastery. A master’s degree in mechanical engineering implies not only an enhanced level of understanding of the fundamentals of mechanical engineering, but also a skill set that includes original thinking and an ability to apply advanced concepts of mechanical engineering to problem solving.

The Master of Science in Mechanical Engineering (MSME) has a thesis and a non-thesis option. The thesis option includes a focus on skills related to the acquisition of new knowledge and is designed for students who wish to pursue research-oriented occupations or to eventually pursue a PhD degree, as well as to prepare for advanced professional engineering practice. The non-thesis option is designed for students who wish to further emphasize engineering practice and prefer to substitute additional classroom education and a comprehensive written exam or a project and comprehensive oral exam for graduate research experience.

Program Objectives
The UAA mechanical engineering graduate program objectives are to provide graduates with:
1. Graduate-level technical knowledge within mechanical engineering.
2. An ability to conceive and conduct graduate-level engineering research and problem solving.
3. An ability to effectively communicate graduate-level engineering concepts and applications.

Student Learning Outcomes
In keeping with the above objectives, the expected student learning outcomes of the UAA MSME program include an ability to:
1. Use in-depth methods of analysis.
2. Demonstrate graduate-level mechanical engineering theory.
3. Conduct advanced mechanical engineering research and applications.
4. Apply graduate-level engineering theory to the design of mechanical engineering systems.
5. Work effectively within the professional framework of organizations responsible for the practice of engineering.

Admission Requirements
See the beginning of this chapter for Admission Requirements for Graduate Degrees and deadlines. All students must hold a baccalaureate degree in an engineering or closely related discipline and submit to the UAA Office of Admissions:
1. A completed UAA graduate application form.
2. Official transcripts of all college-level work.
3. Graduate Record Examination (GRE) results, taken within five years prior to the application date.
4. Three letters of recommendation from professors or other professionals particularly qualified to attest to the applicant’s qualifications for graduate study.
5. A resume or curriculum vitae.
6. A one-page personal statement discussing the applicant’s credentials and readiness for graduate studies. This is an opportunity for the applicant to share relevant information, qualifications and experience that would not be included with the UAA graduate application form or reflected on official transcripts. It is also the applicant’s opportunity to describe his or her desire and commitment to pursue graduate study in mechanical engineering.

Current UAA baccalaureate students enrolled in engineering or a closely related discipline at the conclusion of their junior year may apply and be admitted to the MSME program. Students must complete their baccalaureate degree requirements before receiving their MSME degree.

Master of Science, Mechanical Engineering (MSME)
Graduation Requirements, Thesis Option
In order to receive the Master of Science in Mechanical Engineering, students choosing the thesis option must satisfy all University Requirements for Graduate Degrees listed at the beginning of this chapter and complete coursework and thesis work approved in advance by the student’s graduate committee.
**Program Requirements**

Students must complete a total of 30 credits of coursework, of which 21 credits must be at the 600-level. The elective coursework will be selected by the student and the student’s graduate committee and will appear on each student’s Graduate Studies Plan.

1. Complete 12 credits of mechanical engineering electives from the following: 12
   - ME A471 Automatic Control (3)
   - ME A608 Mechanical Vibrations (3)
   - ME A615 Composite Materials (3)
   - ME A630 Advanced Mechanics of Materials (3)
   - ME A642 Advanced Fluid Mechanics (3)
   - ME A653 Renewable Energy Systems Engineering (3)
   - ME A655 HVAC Systems Optimization (3)
   - ME A659 Fracture Mechanics (3)
   - ME A664 Corrosion Processes and Engineering (3)
   - ME A685 Arctic Heat and Mass Transfer (3)
2. Complete 12 credits of elective courses 12
   - Six (6) credits of 400- or 600-level mathematics or statistics courses are strongly encouraged.
3. Complete 6 credits of mechanical engineering thesis: 6
   - ME A699 Thesis (6)

**Candidacy Requirements**

To advance to candidacy, the student must complete:

1. All UAA requirements for Advancement to Candidacy listed at the beginning of this chapter.
2. At least 9 credits of coursework from the approved Graduate Studies Plan.
3. A written thesis proposal, submitted to the student’s graduate committee at least one semester prior to the thesis defense, presenting evidence that the thesis requirements will be satisfied. The proposal will consist of an explicit problem statement, a literature review, and one or more sections describing the research and analytical methods that will be applied. The proposal is subject to approval by the student’s graduate committee following an oral presentation scheduled no sooner than two weeks after submission of the written proposal.

**Thesis Requirements**

The completed thesis must:

1. Describe how the work is associated with the current state of the art in the candidate’s graduate field of study.
2. Contribute to the body of knowledge in the candidate’s field of graduate study.
3. Be publishable in either peer-reviewed technical conference proceedings or a peer-reviewed journal as judged by the candidate’s graduate committee.
4. Demonstrate command of knowledge and skills associated with the candidate’s program of graduate study.
5. Be defended by the student in an oral presentation to the candidate’s graduate committee.

**Graduation Requirements, Non-thesis Option**

In order to receive the Master of Science in Mechanical Engineering, students choosing the non-thesis option must satisfy all University Requirements for Graduate Degrees listed at the beginning of this chapter, complete coursework approved in advance by the student’s graduate committee, and complete one of the following:

1. A comprehensive written examination set by the student’s graduate committee.
2. A project fulfilling the project requirements below and a comprehensive oral exam set by the student’s graduate committee.

**Program Requirements**

Students must complete a total of 33 credits of coursework, of which 21 credits must be at the 600-level. The elective coursework will be selected by the student and the student’s graduate committee and will appear on the student’s Graduate Studies Plan.

1. Complete 15 credits of mechanical engineering electives from the following: 15
   - ME A471 Automatic Control (3)
   - ME A608 Mechanical Vibrations (3)
   - ME A615 Composite Materials (3)
   - ME A630 Advanced Mechanics of Materials (3)
   - ME A642 Advanced Fluid Mechanics (3)
ME A653 Renewable Energy Systems Engineering (3)
ME A655 HVAC Systems Optimization (3)
ME A659 Fracture Mechanics (3)
ME A664 Corrosion Processes and Engineering (3)
ME A685 Arctic Heat and Mass Transfer (3)

2. Complete 3 credits of project management fundamentals: 3
   PM A601 Project Management Fundamentals (3)

3. Choose one of the following: 15
   a. Complete 15 credits of elective coursework.
   b. Complete 12 credits of elective coursework and 3 credits of ME A686 Project.

Project Requirements

The project must solve a practical engineering problem to the extent that original developments by the student are evident in the project report.

1. The project problem and solution must be explained in the context of the current state of the art by means of a thorough review of pertinent literature.
2. The project must include advanced technical components directly involving modern practice of mechanical engineering.
3. The project must have sufficient scope to clearly demonstrate the student’s advanced technical expertise in mechanical engineering.
4. The project report must demonstrate command of knowledge and skills directly associated with the student’s graduate program of study.
5. The written project report, in the judgment of the student’s graduate committee, must be publishable in the proceedings of a mechanical engineering specialty conference.
6. The project proposal, submitted prior to enrolling in ME A686, must present evidence that the above requirements will be satisfied and will generally consist of an explicit problem statement, a literature review, and one or more sections describing the information and analytical methods to be applied.
7. The project is to be orally presented to the student’s graduate committee.

FACULTY

Jennifer Brock, Assistant Professor, jmcferran@alaska.edu
Matt Cullin, Assistant Professor, mcullin@alaska.edu
Jeff Hoffman, Associate Professor/Chair, jahoffman@alaska.edu
Nicolae Lobontiu, Professor, nlobontiu@alaska.edu
Ganhua Lu, Assistant Professor, email here
Anthony Paris, Associate Professor, aiparis@alaska.edu
Steffen Peuker, Assistant Professor, speuker2@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>EN SOENGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. Division</td>
<td>No Division Code</td>
</tr>
<tr>
<td>1c. Department</td>
<td>ME</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Course Prefix</th>
<th>ME</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Course Number</td>
<td>A630</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 (Lecture + Lab)</td>
<td>(3+0)</td>
</tr>
</tbody>
</table>

#### 6. Complete Course Title

**Advanced Mechanics of Materials**

**Adv. Mechanics of Materials**

Abbreviated Title for Transcript (30 character)

#### 7. Type of Course

- [ ] 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
- [ ] Level
- [ ] College
- [ ] Major
- [ ] Other

#### 9. Repeat Status No

- [x] "# of Repeats"
- [ ] "Max Credits"

#### 10. Grading Basis

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

#### 11. Implementation Date

- From: Spring/2013
- To: 99/9999

#### 12. Cross Listed with

- [ ] No
- [ ] 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>Catalog Page(s) Impacted</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Master of Science, Mechanical Engineering</td>
<td>Courtesy Coordination</td>
<td>10/18/2012</td>
<td>Jeff Hoffman</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Initiator Name (typed): Anthony J. Paris**

**Initiator Signed Initials:** ________________

**Date:** ________________

#### 13b. Coordination Email

- Date: 10/24/2012
- Submitted to Faculty Listserv: [uaa-faculty@lists.uaa.alaska.edu](mailto:uaa-faculty@lists.uaa.alaska.edu)

**13c. Coordination with Library Liaison**

- Date: 10/29/2012

#### 14. General Education Requirement

**Mark appropriate box:**

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

#### 15. Course Description

*(suggested length 20 to 50 words)*

Theory of stress and strain, stress-strain-temperature relations, equilibrium, and energy methods and their application to the torsion of shafts, bending of straight and curved beams, beams on elastic foundations, thin and thick walled cylinders, elastic and inelastic stability of columns, plates and shells, stress concentrations, creep, and contact stresses.

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

- N/A

#### 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)

- Instructor permission

#### 17. Mark if course has fees

- [x] SOE standard fee

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

- [ ]

#### 19. Justification for Action

Demand from mechanical engineering constituents to offer advanced courses that satisfy program or continuing education requirements.

- [ ] Approved
- [ ] Disapproved

**Initiator (faculty only)**

**Anthony J. Paris**

**Initiator (TYPE NAME)**

**Date:** ________________

**Dean/Director of School/College**

**Date:** ________________

**Undergraduate/Graduate Academic**

**Date:** ________________

**Board Chairperson**

**Date:** ________________

**Provost or Designee**

**Date:** ________________
UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

ME A630
Advanced Mechanics of Materials

1. Initiation Date: 18 October 2012

2. Course Information
   A. College: School of Engineering EN SOENGR
   B. Course Prefix: ME
   C. Course Number: A630
   D. Number of Credits/Contact Hours:
      3 Credit Hours
      3+0 Contact Hours
   E. Course Title: Advanced Mechanics of Materials
   F. Grading Basis: A-F
   G. Implementation Date: Spring 2013
   H. Cross Listing: No
   I. Stacking: No
   J. Course Description: Theory of stress and strain, stress-strain-temperature relations, equilibrium, and energy methods and their application to the torsion of shafts, bending of straight and curved beams, beams on elastic foundations, thin and thick walled cylinders, elastic and inelastic stability of columns, plates and shells, stress concentrations, creep, and contact stresses.
   K. Course Attributes: N/A
   L. Prerequisites: N/A
   M. Registration Restrictions: Instructor permission
   N. Course Fee: SOE standard fee

3. Course Level Justification
   ME A630 Advanced Mechanics of Materials builds upon the foundation of the undergraduate courses ES A331 Mechanics of Materials and MATH A302 Ordinary Differential Equations at the graduate level.

4. Instructional Goals
   The instructor will:
   1. Review introductory mechanics of materials theory and application.
   2. Introduce equilibrium and energy approaches to mechanics of materials theory.
   3. Illustrate the application of equilibrium and energy approaches to classical mechanics of materials problems.
   4. Discuss current advanced mechanics of materials theory and applications.
5. **Student Learning Outcomes and Assessment Methods**

Students will be evaluated using a variety of tools at the instructor’s discretion which may include but are not limited to those listed below:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derive introductory mechanics of materials theory and apply it to engineering problems.</td>
<td>Homework, quizzes, exams, reports, presentations, and/or final exams.</td>
</tr>
<tr>
<td>Demonstrate equilibrium and energy approaches to mechanics of materials theory.</td>
<td>Homework, quizzes, exams, reports, presentations, and/or final exams.</td>
</tr>
<tr>
<td>Apply equilibrium and energy approaches to classical mechanics of materials problems.</td>
<td>Homework, quizzes, exams, reports, presentations, and/or final exams.</td>
</tr>
<tr>
<td>Relate advanced mechanics of materials theory to current engineering problems.</td>
<td>Homework, quizzes, exams, reports, presentations, and/or final exams.</td>
</tr>
</tbody>
</table>

6. **Topical Course Outline**

1. Theories of Stress and Strain
2. Linear Stress-Strain-Temperature Relations
3. Inelastic Material Behavior
4. Application of Energy Methods
5. Torsion of Shafts
6. Nonsymmetrical Bending of Straight Beams
7. Shear Center for Thin-Wall Beam Cross Sections
8. Curved Beams
9. Beams on Elastic Foundations
10. Thin and Thick Walled Cylinders
11. Elastic and Inelastic Stability of Columns
12. Stress Analysis of Plates and Shells
13. Stress Concentrations
14. Creep (Time Dependant Behavior of Materials)
15. Contact Stresses

7. **Suggested text(s)**


8. **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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<td>ME</td>
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<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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</thead>
<tbody>
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<td>A686</td>
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<td>(0+9)</td>
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</table>

6. Complete Course Title
Project

Abbreviated Title for Transcript (30 character)

<table>
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<tr>
<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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</thead>
<tbody>
<tr>
<td></td>
<td>⬗ Add or Change or Delete</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

11. Implementation Date
- semester/year
From: Fall/2013 To: 99/9999

12. Cross Listed with
- Stacked with
- Cross-Listed Coordinated

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

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
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Initiator Name (typed): Anthony J. Paris
Initiator Signed Initials: _________
Date: __________

13b. Coordination Email
Date: 10/24/2012
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
Date: 10/29/2012

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

15. Course Description (suggested length 20 to 50 words)
Project arranged among the advisor, graduate advisory committee and student to solve a practical engineering problem.

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

N/A

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

16e. Registration Restriction(s) (non-codable)
Graduate standing and instructor permission

17. Mark if course has fees SOE standard fee.

18. Mark if course is a selected topic course

19. Justification for Action
This course is being added to satisfy requirements of the Master of Science, Mechanical Engineering program.

Initiator (faculty only)
Date
Anthony J. Paris
Initiator (TYPE NAME)

Approve
Disapprove
Dean/Director of School/College

Undergraduate/Graduate Academic Board Chairperson

Provost or Designee

31
1. **Initiation Date:**
   18 October 2012

2. **Course Information**
   A. **College:** School of Engineering EN SOENGR
   B. **Course Prefix** ME
   C. **Course Number:** A686
   D. **Number of Credits/Contact Hours:**
      - 3 Credit Hours
      - 0+9 Contact Hours
   E. **Course Title:** Project
   F. **Grading Basis:** A-F
   G. **Implementation Date:** Fall 2013
   H. **Cross Listing:** No
   I. **Stacking:** No
   J. **Course Description:** Project arranged among the advisor, graduate advisory committee and student to solve a practical engineering problem.
   K. **Course Attributes:** N/A
   L. **Registration Restrictions:** Graduate standing and instructor permission
   M. **Course Fee:** SOE standard fee

3. **Course Level Justification**
   This course requires individual students under the direction of a faculty advisor to apply advanced mechanical engineering and scientific knowledge and skills to solve a practical engineering problem. This course is appropriate only for graduate students.

4. **Instructional Goals**
   The instructor will:
   1. Negotiate a project agenda and meeting schedule with the student.
   2. Supervise the student’s independent project work concerning a topic agreed upon by the student, advisor and graduate committee in advance.
   3. Direct the student in accessing a wide variety of resource materials.
   4. Direct the student in preparing a written project report, subject to approval and judged publishable by the graduate committee.

5. **Student Learning Outcomes and Assessment Methods**
   Students will be evaluated using a variety of tools at the instructor’s discretion which may include but are not limited to those listed below:
### Student Learning Outcomes

*The student will be able to:*

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a series of achievable benchmarks as a step in project planning.</td>
<td>Reports and discussion.</td>
</tr>
<tr>
<td>Apply graduate level technical knowledge, applications and concepts to an engineering problem.</td>
<td>Project report and presentation, discussions.</td>
</tr>
<tr>
<td>Explain engineering work in the context of current state of the art using a variety of references.</td>
<td>Project report reference section, discussions, project presentation.</td>
</tr>
<tr>
<td>Summarize technical work in a written report of sufficient quality to be publishable in a peer-reviewed journal or conference proceedings.</td>
<td>Project report, project presentation.</td>
</tr>
</tbody>
</table>

### 6. Topical Course Outline

This course involves independent work under the direction of a faculty member. Individual project topics will vary.

### 7. Suggested text(s)

N/A

### 8. Bibliography and Resources

References will vary with the project topic. Each student will develop a reference list relevant to their own work.
MECHANICAL ENGINEERING PROJECT REPORT

THE EFFECTS OF FROZEN GROUND ON CATHODIC PROTECTION AT

ELMENDORF

AIR FORCE BASE IN ANCHORAGE, ALASKA

Abstract

Introduction

• Background
• Project Goals

Background on Corrosion and Corrosion Protection

• Corrosion Cell
• Types of Corrosion
• Cathodic Protection Concept
• Galvanic and Impressed Current Systems
• Soil resistivity
• Protection Criteria
• Types of Test stations

Methods and Materials

• Description of system
• Post mounted test station procedures
• Flush mounted test stations
• Rectifiers and anode ground beds
• Soil Resistivity
• CP Testing requirements

Results

• North Jet observations
• South Jet observations
• West Pump House Loop Observations
• East Pump House Loop Observations
• West Ramp Observations
• Soil Resistivity Observations
• Bulk Fuel Storage Tank Observations
• Rectifier Observations

Discussion of Results

1 Adapted from CE A686 Civil Engineering Project CCG
Conclusion and Recommendations

References

Abstract

Frozen ground has substantial impacts on cathodic protection systems due to the resulting increase in soil resistivity, yet little guidance is available on system operation and testing during these conditions. Typically, data collection and evaluation of cathodic protection levels are discontinued when the ground freezes. To investigate and address possible operational changes, the cathodic protection system at Elmendorf Air Force Base in Anchorage Alaska was tested in both unfrozen and frozen ground conditions and the results compared. It was determined that deep well anode beds were able to operate with minimal influence from frozen ground and coupon style test stations buried at pipeline depth enabled voltage potential measurements at locations below frost depth. Based upon these findings, it is recommended that both rectifier operational checks and impressed current system checks be continued year round at Elmendorf Air Force Base.

Introduction

Background

Corrosion of buried pipelines can result in unexpected failure, such as leaks, with catastrophic consequences. Petroleum distribution systems are used to deliver enormous amounts of fuel. Domestic air carriers alone consumed more than 13 billion gallons of fuel per year from 2004 through 2008 (US Department of Transportation 2010). Loss of fuel resulting from leaks or pipeline failure due to corrosion could have significant environmental, socio-economic, and even national defense implications. Understandably, the military relies on well maintained fuel infrastructure. The US Air Force maintains many miles of pipelines in support of aircraft fueling operations. For security, appearance, and operational flexibility, much of this infrastructure is buried underground where it is subject to corrosion. The underground fuel system at Elmendorf Air Force Base is a good example for potential problems. Elmendorf has an extensive network of buried jet fuel lines. Military and federal regulations require these pipelines be protected from corrosion. The primary means of accomplishment is by cathodic protection. Cathodic protection (CP) helps prevent corrosion of buried metallic pipes by controlling and manipulating electro-chemical currents flowing around the pipes. Electro-chemical currents are inherently present in the soil and on the buried pipe due to either internal or external sources (Parker and Peattie 1999). A pipe can be protected from corrosion if its potential is driven cathodic to an electrically connected second metal that acts as an anode.

There are two types of CP systems. The first is an impressed current system and the second is a galvanic system. Both types use anodes to provide a protective corrosion current. Galvanic systems rely completely on the voltage difference that exists between two dissimilar metals. Impressed current systems use a rectifier to control current output of the anodes and are generally used when conditions require a higher driving potential to provide protective current (AFIT 1995). The National Association of Corrosion Engineers (NACE) has developed criteria to determine adequate cathodic protection levels. Air Force regulations follow NACE guidance to establish protection levels and stipulate timelines for performing testing and measurements. Both impressed current and galvanic CP systems are currently installed at Elmendorf AFB. The majority of the pipelines are protected by an impressed current system that consists of thirteen rectifiers with deep well anode beds. The galvanic system consists of ribbon
anodes installed adjacent to a limited section of pipe and protects only a small portion of refueling laterals located underneath aircraft parking pavement.

**Project Goals**

Freezing temperatures influence resistivity (Jurick and McHattie 1983). This in turn impacts every aspect of a CP system. Unfortunately, there is little guidance available for operations in freezing temperatures. The impact of frozen ground on the cathodic protection system at Elmendorf AFB needed to be further addressed. Testing schedules, rectifier adjustments, and interpretation of data, were areas that needed to be considered and possibly altered. The goal of this project was to observe and document this impact and address these issues by testing Elmendorf's CP system during unfrozen as well as frozen ground conditions. Field tests were conducted to determine pipeline CP voltage potential as well as anode output amperes. These test results were recorded during summer operating conditions and then again during winter/frozen ground conditions. Both sets of data were compared and the results are the basis for the recommendations. This report provides a brief background on corrosion and cathodic protection. This is followed by a description of the cathodic protection systems installed and investigated at Elmendorf Air Force Base as well as the associated testing and documentation requirements levied by the Department of Defense. Field evaluation measurements and data are then presented and the impact of frozen ground is summarized. Lastly, recommendations are provided that address the standard operating procedures used at Elmendorf Air Force Base.

**Conclusion and Recommendations**

The goal of this project was to document the impact of frozen ground on Elmendorfs CP system and recommend operational changes. The goal was met. The data shows that soil resistivity increased significantly when frozen, but overall impact considerations depended on the depth of the CP system components. The field data showed that deep well anode beds (far below frost depth) were able to operate with minimal influence from frozen ground and coupon style test stations buried at pipeline depth enabled voltage potential measurements at locations below frost depth. Based upon these findings, it is recommended that both rectifier operational checks and impressed current system checks continue year round at Elmendorf AFB. Additionally, recommend future research on the pipeline half-cell voltages to investigate the different trending observed in the data. (North Jet pipeline voltages went more positive while all other areas appeared to go more negative.) Lastly, recommend additional CP system evaluation and analysis of seasonal pass/fail status as well as collection of additional trending data over multiple years to determine if actual rectifier adjustments during frozen ground conditions provide benefit.
Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College
EN SOENGR

1b. Division
No Division Code

1c. Department
ME

2. Course Prefix
ME

3. Course Number
A699

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
1-6

5b. Contact Hours (Lecture + Lab)
(1-6+0)

6. Complete Course Title
Thesis

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
☐ Level ☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status
Yes ☐ # of Repeats ☐ Max Credits 18

10. Grading Basis
☐ A-F ☒ P/NP ☐ NG

11. Implementation Date
From: Fall/2013 To: 99/9999

12. ☐ Cross Listed with

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

Impacted Program/Course
Master of Science, Mechanical Engineering

catalog Page(s) Impacted

Date of Coordination
10/18/2012

Chair/Coordinator Contacted
Jeff Hoffman

13b. Coordination Email
Date: 10/24/2012
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
Date: 10/29/2012

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)
Individual study of an advanced engineering problem resulting in a thesis.

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

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)
Graduate standing and instructor permission

17. ☒ Mark if course has fees SOE standard fee.

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is being added to satisfy requirements of the Master of Science, Mechanical Engineering program.

Initiator (faculty only) Anthony J. Paris
Initiator Signed Initials: __________ Date: __________

Approved Disapproved Dean/Director of School/College Date

Undergraduate/Graduate Academic Board Chairperson Date

Provost or Designee Date

Department Chairperson Date

Curriculum Committee Chairperson Date
UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

ME A699
Thesis

1. Initiation Date: 18 October 2012

2. Course Information
   A. College: School of Engineering EN SOENGR
   B. Course Prefix: ME
   C. Course Number: A699
   D. Number of Credits/Contact Hours: 1-6 Credit Hours
      1-6+0 Contact Hours
   E. Course Title: Thesis
   F. Grading Basis: P/NP
   G. Implementation Date: Fall 2013
   H. Cross Listing: No
   I. Stacking: No
   J. Course Description: Individual study of an advanced engineering problem resulting in a thesis.
   K. Course Attributes: N/A
   L. Registration Restrictions: Graduate standing and instructor permission
   M. Course Fee: SOE standard fee

3. Course Level Justification
   As the culmination of the Master of Science, Mechanical Engineering program, this course is only appropriate for graduate students.

4. Instructional Goals
   The instructor will:
   1. Negotiate a research, writing and meeting schedule with the student.
   2. Direct the student’s research project work concerning a topic agreed upon by the student, advisor and graduate committee in advance.
   3. Direct the student in accessing a wide variety of resource materials.
   4. Direct the student in preparing a written thesis, judged publishable in a peer-reviewed journal or conference proceedings by graduate committee.

5. Student Learning Outcomes and Assessment Methods
   Students will be evaluated using a variety of tools at the instructor’s discretion which may include but are not limited to those listed below:
<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon completion of this course, students should be able to:</td>
<td></td>
</tr>
<tr>
<td>Develop a series of achievable benchmarks as a step in project planning.</td>
<td>Reports and discussion.</td>
</tr>
<tr>
<td>Apply graduate level technical knowledge, applications and concepts to an engineering research problem.</td>
<td>Thesis and thesis defense, discussions.</td>
</tr>
<tr>
<td>Explain engineering work in the context of current state of the art using a variety of references.</td>
<td>Thesis and thesis defense.</td>
</tr>
<tr>
<td>Summarize technical work in a written report of sufficient quality to be publishable in a peer-reviewed journal or conference proceedings.</td>
<td>Thesis and thesis defense.</td>
</tr>
</tbody>
</table>

6. **Topical Course Outline**
The course involves independent research and writing under the direction of a faculty member. Topics will vary.

7. **Suggested text(s)**
N/A

8. **Bibliography and Resources**
References will vary with the topic selected. Each student will develop a reference list relevant to their own work.
Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College
   EA COE

1b. Department
   EDTL

2. Complete Program Title/Prefix
   Graduate Certificate in English as a Second Language and Culturally Sustaining Pedagogy

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

   Graduate Certificate

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

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

   PREFIX
   □ Add
   □ Change
   □ Inactivate

5. Implementation Date (semester/year)
   From: Spring/2013 To: 9999/9999

6a. Coordination with Affected Units
   Department, School, or College: EDTL
   Initiator Name (typed): Cathy Coulter
   Initiator Signed Initials: __________
   Date: __________

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

6c. Coordination with Library Liaison
   Date: 10/10/12

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

8. Justification for Action
   There is a national, statewide and local need for qualified P-6 professionals in the area of ESL and Culturally Sustaining Classrooms. In addition, there is a need for highly qualified teachers who can foster the academic and English language proficiency of ELL students in P-6 learning environments. Candidates completing this graduate certificate may add a P-6 ESL endorsement to an existing teaching certificate or become prepared to assist culturally and linguistically diverse community members. This graduate certificate enables candidates to work with people who speak languages other than English in classrooms that sustain cultural identity.

Initiator (faculty only)
Cathy Coulter
Initiator (TYPE NAME)

☑ Approved
☐ Disapproved

☐ Approved
☐ Disapproved

☐ Approved
☐ Disapproved

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☐ Disapproved

☐ Approved
☐ Disapproved

☑ Approved
☐ Disapproved

Dean/Director of School/College
Date

Undergraduate/Graduate Academic
Date

Board Chair

Provost or Designee
Date

College/School Curriculum Committee Chair
Date
D. Graduate Certificate, Language Education

www.uaa.alaska.edu/coedegrees

The Graduate Certificate in Language Education is designed for individuals seeking advanced professional preparation to increase knowledge and skills in working with language learners in the P-6 setting. Those who teach languages in public or private settings, both in the United States and abroad, may enhance their knowledge and practice by completing this standards-based program.

**English as a Second Language (ESL) and Culturally Sustaining Pedagogy Concentration**

The ESL concentration is for candidates who are seeking one of the following:

1. Institutional Recommendation for an English as a Second Language (ESL) endorsement on a current teacher certificate, OR
2. Advanced preparation in ESL for increasing professional performance in community programs.

**Student Learning Outcomes**

The student outcomes for this concentration are based on the Teachers of English to Speakers of Other Languages (TESOL), and World-Class Instructional Design and Assessment (WIDA Standards). More information about these standards may be found at www.tesol.org/ and www.wida.us/. Students who complete the Graduate Certificate in Teaching English as a Second Language and Culturally Sustaining Pedagogy will:

1. Demonstrate understanding of language as a system and demonstrate a high level of competence in helping language learners acquire and use the new language in speaking, reading, and writing for social and academic purposes.
2. Understand and apply concepts, theories, research, and practice to facilitate the acquisition of a primary and a new language in and out of classroom settings.
3. Know, understand and use the major concepts, principles, theories, and research related to the nature and role of culture in language development and academic achievement that support an individual student’s learning and apply this knowledge to improve teaching and learning.
4. Know, understand, and use knowledge of how cultural groups and students’ cultural identities affect language learning and school achievement.
5. Understand, and apply concepts from research to plan instruction in a supportive learning environment for language learners.
6. Understand various issues of measurement (e.g., equity, cultural and linguistic bias, political, social, and psychological factors) in assessment, IQ, and special education testing; the importance of standards; and the difference between language proficiency and other types of assessment.
7. Serve as a professional advocate and resource for language learners and the community.

**Admission Requirements**

1. Satisfy Admission Requirements for Graduate Certificates found at beginning of this chapter.
2. Document professional background (must hold or be eligible to hold a teacher certificate from the State of Alaska.)
3. Provide a minimum of three letters of recommendation addressing the candidate’s potential for program success.
4. Submit a current resume.
5. Submit a writing sample including an educational goal statement directly related to the certification program.

**Graduation Requirements**

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

**Background Check Requirements**

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

**Program Requirements**

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

1. Complete a minimum of 12 credits beyond the baccalaureate degree including:
   
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDFN A621</td>
<td>Culture, Language, and Literacy</td>
<td>3</td>
</tr>
<tr>
<td>EDFN A 645</td>
<td>Culturally Sustaining Literacy for P-6</td>
<td></td>
</tr>
</tbody>
</table>
English Language Learners 3

EDSY A668 Content Area Literacy for English Language Learners 3

EDFN A691 Current Topics in Second Language Education (1-3) 3

EDFN 646 Culturally Sustaining Instruction in Science, Technology, Engineering, Arts and Mathematics (STEAM) for English Language Learners in P-6 Classrooms 3

EDFN A689 Action Research Experience: Culturally Sustaining Pedagogy for English Language Learners in P-6 Classrooms 1-6

*The number of internship credits required varies based on faculty advisor evaluation and approval of prior relevant experience.

2. Meet the TESOL Standards for ESL teachers. This may require students to take additional credits beyond the minimum of 12 required for a graduate certificate.

3. Maintain an overall GPA of 3.00 in the program with no more than one C in a required course.

Note: As with all graduate certificates in the College of Education, coursework applied to the certificate may apply to the MEd with faculty advisor approval.

Institutional Recommendation

Following are the requirements for an institutional recommendation for an ESL endorsement:

1. Professional Teacher Certificate or equivalent. 2. Baccalaureate degree from a regionally accredited institution or foreign equivalent.

3. Completion of all program requirements as indicated above.

Alaska certification note: The State of Alaska Department of Education and Early Development (EED) in Juneau awards endorsements. Graduates must meet all requirements specified by EED at the time of application for the endorsement.
The Graduate Certificate in Language Education is designed for individuals seeking advanced professional preparation to increase knowledge and skills in working with language learners in the P-6 setting. Those who teach languages in public or private settings, both in the United States and abroad, may enhance their knowledge and practice by completing this standards-based program.

**English as a Second Language (ESOL) and Culturally Sustaining Pedagogy Concentration**

The ESOL 7-12 concentration is for candidates who are seeking one of the following:

1. Institutional Recommendation for an English as a Second Language (ESL) 7-12 endorsement on a current secondary teacher certificate, OR
2. Advanced preparation in ESOL for increasing professional performance in community programs.

**Student Learning Outcomes**

The student outcomes for this concentration are based on the Teachers of English to Speakers of Other Languages (TESOL) National Council for Accreditation of Teacher Education (NCATE) Standards for P-12 Teacher Education Programs, and World-Class Instructional Design and Assessment (WIDA Standards). More information about these standards may be found at www.tesol.org/ and www.wida.us/. Students who complete the Graduate Certificate in Teaching English as a Second Language and Culturally Sustaining Pedagogy Language Education will:

1. Demonstrate understanding of language as a system and demonstrate a high level of competence in helping language learners acquire and use the new language in speaking, reading, and writing for social and academic purposes.
2. Understand and apply concepts, theories, research, and practice to facilitate the acquisition of a primary and a new language in and out of classroom settings.
3. Know, understand and use the major concepts, principles, theories, and research related to the nature and role of culture in language development and academic achievement that support an individual student’s learning and apply this knowledge to improve teaching and learning.
4. Know, understand, and use knowledge of how cultural groups and students’ cultural identities affect language learning and school achievement.
5. Know, understand, and apply concepts from research and best practice to plan instruction in a supportive learning environment for language learners.
6. Understand various issues of measurement (e.g., equity, cultural and linguistic bias, political, social, and psychological factors) in assessment, IQ, and special education testing; the importance of standards; and the difference between language proficiency and other types of assessment.
7. Serve as a professional advocate and resource for language learners and the community.

**Admission Requirements**

1. Satisfy Admission Requirements for Graduate Certificates found at beginning of this chapter.
2. Document professional background (must meet one of the two criteria):
   a. Hold a bachelor’s degree from a regionally accredited institution or foreign equivalent and document appropriate professional experience or personal background in the field of English Language Learners (ELL). (See department for specific requirements.)
   b. Hold a secondary teacher certificate from the State of Alaska.
3. Provide a minimum of three letters of recommendation addressing the candidate’s potential for program success.
4. Submit a current resume.
5. Submit a writing sample including an educational goal statement directly related to the certification program.
6. Provide evidence of preparation in Language Analysis and Awareness - for example, coursework such as ENGL A201, or ENGL A475 or equivalents.

**Graduation Requirements**

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

**Background Check Requirements**

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

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

1. Complete a minimum of 12 credits beyond the baccalaureate degree including:

   - ENGL A450 Linguistics and Language Teaching 4
   - ENGL A452 English Grammar and Language Teaching 4
   - EDFN A621 Culture, Language, and Literacy 3
   - EDFN A645 Culturally Sustaining Literacy for P-6 English Language Learners 3
   - EDSY A630 Language, Culture, and Teaching in Secondary Schools 2
   - EDSY A667A Middle/High School Second Language Teaching I 3
   - EDSY A667C Middle/High School Methods for Teaching English as a Second Language 2
   - EDSY A668 Content Area Literacy for English Language Learners 3
   - EDFN A621 Culture, Language, and Literacy 3
   - EDFN A691 Current Topics in Second Language Education (I-3) 3
   - EDFN 646 Culturally Sustaining Instruction in Science, Technology, Engineering, Arts and Mathematics (STEAM) for English Language Learners in P-6 Classrooms 3
   - EDFN A6589 Action Research Experience: Culturally Sustaining Pedagogy for English Language Learners in P-6 Classrooms Internship: English for Speakers of Other Languages (ESOL) 2-4

   *The number of internship credits required varies based on faculty advisor evaluation and approval of prior relevant experience.

2. Meet the TESOL Standards for ESL teachers. This may require students to take additional credits beyond the minimum of 12 required for a graduate certificate.

3. Maintain an overall GPA of 3.00 in the program with no more than one C in a required course.

4. Complete a minimum of 23 to 25 credits:
   - ENGL A450 Linguistics and Language Teaching 4
   - ENGL A452 English Grammar and Language Teaching 4
   - EDFN A621 Culture, Language, and Literacy 3
   - EDFN A645 Culturally Sustaining Literacy for P-6 English Language Learners 3
   - EDFN A621 Culture, Language, and Literacy 3
   - EDFN A691 Current Topics in Second Language Education (I-3) 3
   - EDFN 646 Culturally Sustaining Instruction in Science, Technology, Engineering, Arts and Mathematics (STEAM) for English Language Learners in P-6 Classrooms 3
   - EDFN A6589 Action Research Experience: Culturally Sustaining Pedagogy for English Language Learners in P-6 Classrooms Internship: English for Speakers of Other Languages (ESOL) 2-4

   *The number of internship credits required varies based on faculty advisor evaluation and approval of prior relevant experience.

4. Meet the TESOL Standards for ESL teachers. This may require students to take additional credits beyond the minimum of 12 required for a graduate certificate.

3. Maintain an overall GPA of 3.00 in the program with no more than one C in a required course.

4. Complete a minimum of 23 to 25 credits:
   - ENGL A450 Linguistics and Language Teaching 4
   - ENGL A452 English Grammar and Language Teaching 4
   - EDFN A621 Culture, Language, and Literacy 3
   - EDFN A645 Culturally Sustaining Literacy for P-6 English Language Learners 3
   - EDFN A621 Culture, Language, and Literacy 3
   - EDFN A691 Current Topics in Second Language Education (I-3) 3
   - EDFN 646 Culturally Sustaining Instruction in Science, Technology, Engineering, Arts and Mathematics (STEAM) for English Language Learners in P-6 Classrooms 3
   - EDFN A6589 Action Research Experience: Culturally Sustaining Pedagogy for English Language Learners in P-6 Classrooms Internship: English for Speakers of Other Languages (ESOL) 2-4

   *The number of internship credits required varies based on faculty advisor evaluation and approval of prior relevant experience.

4. Meet the TESOL Standards for ESL teachers. This may require students to take additional credits beyond the minimum of 12 required for a graduate certificate.

3. Maintain an overall GPA of 3.00 in the program with no more than one C in a required course.

4. Complete a minimum of 23 to 25 credits:
   - ENGL A450 Linguistics and Language Teaching 4
   - ENGL A452 English Grammar and Language Teaching 4
   - EDFN A621 Culture, Language, and Literacy 3
   - EDFN A645 Culturally Sustaining Literacy for P-6 English Language Learners 3
   - EDFN A621 Culture, Language, and Literacy 3
   - EDFN A691 Current Topics in Second Language Education (I-3) 3
   - EDFN 646 Culturally Sustaining Instruction in Science, Technology, Engineering, Arts and Mathematics (STEAM) for English Language Learners in P-6 Classrooms 3
   - EDFN A6589 Action Research Experience: Culturally Sustaining Pedagogy for English Language Learners in P-6 Classrooms Internship: English for Speakers of Other Languages (ESOL) 2-4

   *The number of internship credits required varies based on faculty advisor evaluation and approval of prior relevant experience.

2. Meet the TESOL Standards for ESL teachers. This may require students to take additional credits beyond the minimum of 12 required for a graduate certificate.

3. Maintain an overall GPA of 3.00 in the program with no more than one C in a required course.

The Graduate Studies Plan is developed with a faculty advisor, who will analyze previous experience and prior coursework.

**Institutional Recommendation**

Following are the requirements for an institutional recommendation for an ESL endorsement:

1. Professional Teacher Certificate or equivalent with a secondary content endorsement.
2. Baccalaureate degree from a regionally accredited institution or foreign equivalent.
3. Completion of all program requirements as indicated above.

Alaska certification note: The State of Alaska Department of Education and Early Development (EED) in Juneau awards endorsements. Graduates must meet all requirements specified by EED at the time of application for the endorsement.
**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>EA COE</th>
<th>1b. Division</th>
<th>choose one</th>
<th>1c. Department</th>
<th>EDTL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Course Prefix</td>
<td>EDFN</td>
<td>3. Course Number</td>
<td>A645</td>
<td>4. Previous Course Prefix &amp; Number</td>
<td></td>
</tr>
<tr>
<td>5a. Credits/CEUs</td>
<td>3</td>
<td>5b. Contact Hours</td>
<td>Lecture + Lab</td>
<td>(3+0)</td>
<td></td>
</tr>
</tbody>
</table>

**6. Complete Course Title**  
Culturally Sustaining Literacy for P-6 English Language Learners  
Cult_Sustain_Lit_P-6_ELL

<table>
<thead>
<tr>
<th>Abbreviated Title for Transcript (30 character)</th>
</tr>
</thead>
</table>

**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
- (please specify)

**9. Repeat Status**  
Yes  # of Repeats  2  Max Credits  6

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

**11. Implementation Date**  
semester/year  
From: Spring/2013  To: 9999/9999

**12. Cross Listed with**  
Stacked with  
Cross-Listed/Stacked 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>Catalog Page(s) Impacted</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>COE</td>
<td>Courtesy Coordination</td>
<td>September 2012</td>
<td>Claudia Dybdahl</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initiator Name (typed): Cathy Coulter  
Initiator Signed Initials:  
Date:  

**13b. Coordination Email**  
Date: 11/1/2012  
submitted to Faculty Listserv:  
[uaa-faculty@lists.uaa.alaska.edu](mailto:uaa-faculty@lists.uaa.alaska.edu)

**13c. Coordination with Library Liaison**  
Date: October 10, 2012

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

- ☐ Oral Communication
- ☐ Written Communication
- ☐ Quantitative Skills
- ☐ Social Sciences
- ☐ Natural Sciences
- ☐ Integrative Capstone

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

Examines how children learn language and become literate in their first and subsequent languages. Integrates structure of language and its application to the development and assessment of language and literacy for English language learners including Alaska Native population. Explores implications of culturally sustaining pedagogy on academic literacy practices.

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

**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)**  
Department Approval

**17. ☐ Mark if course has fees N/A**

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

**19. Justification for Action**

This is a graduate-level course intended for certified teachers in pursuit of a graduate certificate in ESL and Culturally Sustaining Pedagogy.

**Initiator (faculty only) only**

Initiator (TYPE NAME)  
Date

**Approved**  
Disapproved  
Date  

Dean/Director of School/College  
Date

**Approved**  
Disapproved  
Date

Undergraduate/Graduate Academic  
Board Chairperson  
Date

**Approved**  
Disapproved  
Date

Provost or Designee  
Date

(If a change, mark appropriate boxes:)

- Prefix
- Credits
- Title
- Grading Basis
- Course Description
- Test Score Prerequisites
- Other Restrictions
  - Class
  - Level
  - College
  - Major
- (please specify)
Course Content Guide  
University of Alaska Anchorage  
College of Education  

I. Date Initiated: October 10, 2012

II. Information for the Course Action Request

College/School: EA College of Education  
Department: Department of Teaching and Learning  
Subject: EDFN  
Course Number: A645  
Title: Culturally Sustaining Literacy for P-6 English Language Learners  
Credits: 3  
Grading Basis: A-F  
Implementation Date: Spring 2013  

Course Description: Examines how children learn language and become literate in their first and subsequent languages. Integrates structure of language and its application to the development and assessment of language and literacy for English language learners including Alaska Native population. Explores implications of culturally sustaining pedagogy on academic literacy practices.

Course Prerequisites(s): N/A

Test Scores(s): N/A

Corequisite(s) N/A

Registration Restrictions: Department Approval

Course Fee: ☐ Yes ☒ No

Justification: This is a graduate-level course intended for certified teachers in pursuit of a graduate certificate in ESL and
Culturally Sustaining Pedagogy.

III. Instructional Goals, Student Outcomes, and Assessment Procedures
A. Instructional Goals
The instructor will:

1. Present and evaluate major concepts, theories, and research related to oral language and literacy development in the first and subsequent languages.

2. Analyze and compare language and literacy development as related to cultural identity in primary and subsequent languages.

3. Explain and demonstrate the structures of languages and relate it to the development of literacy.

4. Describe and analyze reading and writing processes and discuss teaching strategies that support them.

5. Present research on the development of children’s knowledge of writing and how to support English language learners’ ability to produce effective writing bilingually.

6. Employ the lens of culturally sustaining pedagogy (with recognition of indigenous Alaska Native populations) to analyze and critique assessments of language and literacy proficiency, including oral language, reading, and writing.

7. Demonstrate and analyze the use of multicultural children’s literature in supporting cultural identity, as well as knowledge of text structure, story elements and writing craft.

8. Illustrate how to examine teaching practice in order to generate research questions and a research design proposal related to action research project.

B. Student Learning Outcomes/Assessment Procedures

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Procedures</th>
<th>Standards</th>
<th>Core Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of the course, the student will be able to do the following:</td>
<td>This outcome will be assessed by one or more of the following:</td>
<td>This outcome meets the following state and/or national standard:</td>
<td>This outcome addresses the following core value:</td>
</tr>
<tr>
<td>1. Integrate major concepts, theories, and research related to first and subsequent language oral language and literacy development into classroom</td>
<td>Research Paper</td>
<td>WIDA 1, 2</td>
<td>Intellectual Vitality</td>
</tr>
<tr>
<td></td>
<td>Case Study</td>
<td>ATS 2, 3, 4, 6, 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AKCSE A, B, D, E</td>
<td></td>
</tr>
</tbody>
</table>
2. Develop a repertoire of practices that apply knowledge of language and literacy development in teaching.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Type</th>
<th>Materials</th>
<th>Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Research Paper</td>
<td>ATS 1, 2, 3, 4, 6, 7</td>
<td>Intellectual Vitality</td>
</tr>
<tr>
<td></td>
<td>Case Study</td>
<td>WIDA ELD 1, 2</td>
<td>Inclusiveness and Equity</td>
</tr>
<tr>
<td></td>
<td>Case Study</td>
<td>AKCSE A, B, D, E</td>
<td></td>
</tr>
</tbody>
</table>

3. Identify the structure of language and relate it to the development of literacy.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Type</th>
<th>Materials</th>
<th>Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Research Paper</td>
<td>ATS 4</td>
<td>Intellectual Vitality</td>
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<tr>
<td></td>
<td>Case Study</td>
<td>WIDA ELD 1, 2</td>
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</tr>
<tr>
<td></td>
<td>Case Study</td>
<td>AKCSE E</td>
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</tbody>
</table>

4. Utilize knowledge of reading and writing as processes and develop teaching strategies to support reading and writing for English language learners.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Type</th>
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<th>Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Case Study</td>
<td>ATS 2, 3, 4</td>
<td>Intellectual Vitality</td>
</tr>
<tr>
<td></td>
<td>Lesson Plans</td>
<td>WIDA ELD 1, 2</td>
<td>Collaborative Spirit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AKCSE A, E</td>
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</tbody>
</table>

5. Prepare culturally sustaining lesson plans, based on writing assessments and research on writing development, that respond to the writing needs of English language learners.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Type</th>
<th>Materials</th>
<th>Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Case Study</td>
<td>ATS 2, 3, 4, 5</td>
<td>Intellectual Vitality</td>
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<tr>
<td></td>
<td>Lesson Plans</td>
<td>WIDA ELD 1, 2</td>
<td>Collaborative Spirit</td>
</tr>
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<td></td>
<td>AKCSE A, B, D, E</td>
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</table>

6. Employ the lens of culturally sustaining pedagogy to design assessments of language and literacy proficiency, including oral language, reading, writing, and content knowledge.

<table>
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<th>Materials</th>
<th>Competencies</th>
</tr>
</thead>
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<td>Case Study</td>
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<tr>
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<td>WIDA ELD 1, 2</td>
<td>Inclusiveness and Equity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AKCSE A, B, D, E</td>
<td></td>
</tr>
</tbody>
</table>
and writing, and prescribe instructional response.

7. Demonstrate the ability to use multicultural children’s literature to support cultural identity as well as knowledge of text structure, story elements and writing craft.
   - Case Study
   - ATS 2, 3, 4, 6, 7
   - WIDA ELD 1, 2
   - AKCSE A, B, C, D, E

8. Generate preliminary research question and research design for action research project.
   - Research Design Plan
   - ATS 8

IV. Course Level Justification
This is a graduate-level course intended for certified teachers in pursuit of a graduate certificate in ESL and Culturally Sustaining Pedagogy.

V. Course Outline
1. Major concepts, theories, and research related to oral language and literacy development in the first and subsequent languages.
   1.1 Psycholinguistics, sociopsycholinguistics, and sociolinguistics
   1.2 Language, power, social standing, and identity
   1.3 Academic language and social discourses
   1.4 Environments that nurture bilingual development
   1.5 Strategies that foster language and literacy development and proficiency

2. Analyze and compare language and literacy development as related to cultural identity in first and subsequent languages.
   2.1 Primary (L1) language development
   2.2 Academic English development in relation to primary language
   2.3 The interplay of literacy development in the primary and the subsequent languages
   2.4 Cultural identity, age, and the influence of sociocultural and psychological factors

3. Explain and demonstrate the structure of language and relate it to the development of literacy.
3.1 Rule-governed nature of language
3.2 Nature vs. nurture in language development
3.3 Developmental sequences in English language acquisition
3.4 Overgeneralizations in language and literacy

4. Describe and analyze reading and writing processes and discuss teaching strategies that support them.
   4.1 Models of the reading process
   4.2 Reading as a transaction
   4.3 The language cueing systems
   4.4 The writing process
   4.5 Supporting culturally sustaining reading and writing processes with English learners

5. Present research on the development of children’s knowledge of writing and how to support English language learner’s ability to produce effective writing bilingually.
   5.1 Identity in bilingual writers
   5.2 Phonics and literacy learning in English learners
   5.3 Emerging writing in first and subsequent languages
   5.4 Supporting multilingual writing in the classroom
   5.5 Writing in the content areas
   5.6 Teaching skills in writing
   5.7 Teaching craft in writing

6. Explain, demonstrate and critique issues of assessment of language and literacy proficiency, including running record, print awareness, miscue analysis in both first and subsequent languages, and various writing assessments.
   6.1 Assessing early literacy in English learners
   6.2 Running record and miscue analysis
   6.3 Authentic writing assessments
   6.4 The reciprocal process of assessment and curricular design

7. Demonstrate and analyze the use of multicultural children’s literature in supporting cultural identity as well as knowledge of text structure, story elements and writing craft.
   7.1 Insider and outsider perspectives in published literature
   7.2 Quality multicultural children’s literature
   7.3 Matching children and books
   7.4 Postmodern picture books
   7.5 Author studies

8. Illustrate how to examine practice in order to generate research questions and a tentative research design for action research project.
   8.1 Finding research questions in practice
   8.2 The evolving research question
8.3 Developing data collection procedures: field observations, interviews, research journals, school artifacts, and data triangulation
8.4 Developing a research plan
8.5 Preliminary literature review

VI. Suggested Text(s)


VII. Bibliography


Carini, P. F. (2002). *Starting strong: A different look at children, schools, and*
standards. NY: Teachers College Press.

Language issues: Readings for teachers (pp. 80-89). White Plains, NY:
Longman Publishers.

indigenous youth: A review of literature. Review of Educational Research,
78(4), 941-993.

Cavanagh, S. (2004). ‘No child’ law poses challenges to Indians. Education Week,
23(34), 11-12.

Christensen, L. (2009). Teaching for joy and justice: Reimagining the language
arts classroom. Milwaukee, WI: Rethinking Schools, Inc.

(7), 678-687.

learning for all children: Implications of the NELP Report for dual-

children: The new literacy of the old world order. Bilingual Research
Journal, 24 (1 & 2), 87-112.

classroom discourses. Asia-Pacific Journal of Teacher Education, 35(1),
41-53.


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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<td>EA COE</td>
<td>choose one</td>
<td>EDTL</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>EDFN</td>
<td>A646</td>
<td></td>
<td>3</td>
<td>(3+0)</td>
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6. Complete Course Title  
Culturally Sustaining Instruction in Science, Technology, Engineering, Arts and Mathematics (STEAM) for English Language Learners in Classrooms.  
Cult Sust Inst STEAM ELL clsrm

Abbreviated Title for Transcript (30 character)

<table>
<thead>
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<th>7. Type of Course</th>
<th>8. Type of Action:</th>
<th>9. Repeat Status</th>
<th># of Repeats</th>
<th>10. Grading Basis</th>
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</thead>
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<td>Add or Change or Delete</td>
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</tr>
</tbody>
</table>

If a change, mark appropriate boxes:
- Prefix
- Credits
- Contact Number
- Title
- Repeat Status
- Grading Basis
- Course Description
- Cross-Listed/Stacked
- Test Score Prerequisites
- Course Prerequisites
- Other Restrictions
- Class
- College
- Major
- Level

(please specify)

9. Repeat Status Yes  # of Repeats  2  Max Credits  6

10. Grading Basis  A-F  P/NP  NG

11. Implementation Date  semester/year  
From:  Fall/2013  
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).  

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Catalog Page(s) Impacted</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>COE</td>
<td>Courtesy Coordination</td>
<td>September 2012</td>
<td>Claudia Dybdahl</td>
</tr>
</tbody>
</table>

13b. Coordination Email  
Date: November 1, 2012  
submitted to Faculty Listserv: [uaa-faculty@lists.uaa.alaska.edu](mailto:uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison  
Date: October 10, 2012

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)  
Focus on assessment and science inquiry methods to promote science literacy and academic English proficiency for linguistically diverse students (including Alaska Native populations). Discusses the cognitive academic language demands of school science. Integrates research-based science teaching strategies for supporting academic language development; including reading, writing, oral language and auditory comprehension skills.

16a. Course Prerequisite(s) (list prefix and number)  
EDFN691, EDSY668

16b. Test Score(s)  
N/A

16c. Co-requisite(s) (concurrent enrollment required)  
EDFN A695D

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

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

17. Mark if course has fees

18. Mark if course is a selected topic course

19. Justification for Action  
This is a course designed for classroom teachers who want to obtain an ESL endorsement for grades P-6.

Initiator Name (typed): Irasema Ortega  
Initiator Signed Initials:  
Date: 

Initiator (faculty only):  
Irasema Ortega  
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

Approved  Disapproved  
Department Chairperson  
Date

Approved  Disapproved  
Curriculum Committee Chairperson  
Date

55
I. Date Initiated: October 10, 2012

II. Information for the Course Action Request

College/School: EA COE

Department: DTL

Subject: EDFN

Course Number: A646

Title: Culturally Sustaining Instruction in Science, Technology, Engineering, Arts and Mathematics (STEAM) for English Language Learners in Classrooms

Credits: 3

Grading Basis: A – F

Implementation Date: Fall 2013

Course Description: Focus on assessment and science inquiry methods to promote science literacy and academic English proficiency for linguistically diverse students (including Alaska Native populations). Discusses the cognitive academic language demands of school science. Integrates research-based science teaching strategies for supporting academic language development; including reading, writing, oral language and auditory comprehension skills.

Course Prerequisites(s): EDFN691, EDSY668

Test Scores(s): None

Corequisite(s): EDFN A689 Action Research Experience: Culturally Sustaining Pedagogy for English Language Learners in P-6 Classrooms.

Registration Restrictions: Department Approval
III. Instructional Goals, Student Outcomes, and Assessment Procedures

Instructional Goals
The instructor will prepare inservice teachers through theoretical and applied research-based principles of assessment and curriculum implementation in culturally and linguistically diverse elementary classrooms.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Assist inservice teachers in developing a culturally and linguistically responsive philosophy of science teaching in elementary settings.</td>
</tr>
<tr>
<td>2.</td>
<td>Model and scaffold the implementation of differentiated science instruction that integrates the STEAM approach.</td>
</tr>
<tr>
<td>3.</td>
<td>Provide feedback for science lesson design and implementation.</td>
</tr>
<tr>
<td>4.</td>
<td>Assist inservice teachers in developing a classroom practice that values students' cultural and linguistic heritage.</td>
</tr>
<tr>
<td>5.</td>
<td>Model and scaffold assessment methods that are culturally responsive, valid, and reliable.</td>
</tr>
</tbody>
</table>

B. Student Learning Outcomes/Assessment Procedures

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Procedures</th>
<th>Standards</th>
<th>Core Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upon successful completion of the course, the student will be able to do the following:</strong></td>
<td><strong>This outcome will be assessed by one or more of the following:</strong></td>
<td><strong>This outcome meets the following state and/or national standard:</strong></td>
<td><strong>This outcome addresses the following core value:</strong></td>
</tr>
<tr>
<td>1. Articulate a philosophy of science teaching that is culturally sustaining.</td>
<td>Philosophy essay Science literacy portfolio Classroom observations</td>
<td>ATS 1 WIDA 1, 4 AKCSE A</td>
<td>Intellectual Vitality</td>
</tr>
<tr>
<td>2. Design and implement science instruction that promotes science achievement and language development of culturally and linguistically diverse students based on students' prior knowledge</td>
<td>Inquiry science lesson observation Outstanding Trade book inquiry lesson observation</td>
<td>ATS 4 WIDA 1, 2, 4 AKCSE A, B, C, E</td>
<td>Inclusiveness and Equity</td>
</tr>
</tbody>
</table>
and difficulties with science concepts.

3. Evaluate the effectiveness of instruction and adjust strategies of instruction to meet the needs of the students.

   - Teaching reflection
   - Post-observation conference

   ATS 2
   WIDA 1, 2, 4
   AKCSE A, D, E

   Intellectual Vitality
   Inclusiveness and Equity

4. Plans curriculum and strategies and locates instructional resources that foster students' academic achievement and language proficiency development.

   - Unit plan
   - Inquiry lesson plan
   - Trade book lesson plan

   ATS 6
   WIDA 1, 2, 4
   AKCSE A, D

   Intellectual Vitality
   Inclusiveness and Equity

5. Demonstrate proficiency in the implementation of reform-based, culturally responsive assessment strategies.

   - Classroom observation
   - Assessment plan

   ATS 5
   WIDA 2, 4
   AKCSE A, B, D, E

   Inclusiveness and Equity

IV. Course Level Justification

This is a graduate level course designed for classroom teachers who want to obtain an ESL endorsement for grades P-6.

V. Course Outline

1. Scientific Inquiry in the Diverse Classroom
   1.1 The Nature of Science
   1.2 Science literacy and its implications for ELL students
   1.3 Inquiry Science in the classroom
   1.4 Differentiating Inquiry
   1.5 Assessment in the inquiry-based classroom

2. Learning Language: Language-rich science curriculum
   2.1 The importance of contextualized vocabulary
   2.2 Using trade books to support science inquiry
   2.3 Outstanding science trade book lesson design
2.4 Building a language-rich science curriculum
2.5 Learning about nouns
2.6 Analyzing classroom science discourse

3. Reading and writing strategies in the context of science
   3.1 Principles and practices of reading strategy instruction in science
   3.2 Scaffolding reading comprehension in the science classroom
   3.3 The importance of written communication in science
   3.4 Using science journals as an instructional strategy
   3.5 Writing and metacognition

4. Integrating science, technology, engineering and mathematics (STEAM) in the elementary science curriculum
   4.1 STEAM as cross-curricular approach in classroom science
   4.2 Strategies for designing STEAM lessons
   4.3 Assessing student performance and achievement
   4.4 Community and world connections in STEAM curriculum
   4.5 Gender and cultural issues in STEAM curriculum
   4.6 Literacy in the STEAM curriculum

VI. Suggested Text(s)


Harper Collins.

VII. Bibliography


Banks, J. A., Au, K. H., Ball, A. F., Bell, P., Gordon, E.W., Gutiérrez, K., Heath,


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

**Course Action Request**
University of Alaska Anchorage

**Course Description**
Action Research Experience: Culturally Sustaining Pedagogy for English Language Learners in P-6 Classrooms

**Abbreviated Title for Transcript (30 character)**
Action_Research_ELL_in_P-6

**Course Title:** Action Research Experience: Culturally Sustaining Pedagogy for English Language Learners in P-6 Classrooms

**Course Code:** EDFN A689

**Type of Course:** Academic

**Type of Action:** Add

**Course Description:**
This graduate certificate enables candidates to work with students who speak languages other than English. There is a national, statewide and local need for highly qualified P-6 professionals in the area of English as a second language who can foster the academic and English language proficiency of ELL students in P-6 learning environments. Candidates completing this graduate certificate may add a P-6 ESL endorsement to an existing teaching certificate or become prepared to assist culturally and linguistically diverse community members.

**Justification for Action**
There is a national, statewide and local need for highly qualified P-6 professionals in the area of English as a second language who can foster the academic and English language proficiency of ELL students in P-6 learning environments. Candidates completing this graduate certificate may add a P-6 ESL endorsement to an existing teaching certificate or become prepared to assist culturally and linguistically diverse community members. This graduate certificate enables candidates to work with students who speak languages other than English.

**Initiator (faculty only)**
Irasema Ortega

**Initiator Signed Initials:** _________

**Approval History**

<table>
<thead>
<tr>
<th>Approver</th>
<th>Date</th>
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**Proposal to Initiate, Add, Change, or Delete a Course**

**Initiator Name (typed):** Irasema Ortega

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

**13a. 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
- Social Sciences
- Quantitative Skills
- Humanities
- Integrative Capstone

**15. Course Description (suggested length 20 to 50 words)**
Action research project in P-6 classroom to support the development of academic language proficiency and culturally sustaining pedagogy with an emphasis on theory-based inquiry into teaching and learning with English Language Learners.

**16a. Course Prerequisite(s) (list prefix and number)**
EDFN 691, EDSY668

**16b. Test Score(s)**
N/A

**16c. Co-requisite(s) (concurrent enrollment required)**
EDFN A646

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

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

**17.** Mark if course has fees N/A

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

**19. Justification for Action**
There is a national, statewide and local need for highly qualified P-6 professionals in the area of English as a second language who can foster the academic and English language proficiency of ELL students in P-6 learning environments. Candidates completing this graduate certificate may add a P-6 ESL endorsement to an existing teaching certificate or become prepared to assist culturally and linguistically diverse community members. This graduate certificate enables candidates to work with students who speak languages other than English.

**Initiator (faculty only)**
Irasema Ortega

**Initiator (TYPE NAME)**

**Approval History**

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

**Initiator Name (typed):** Irasema Ortega

**Initiator Signed Initials:** _________
**Date:** __________
I. Date Initiated: October 10, 2012

II. Information for the Course Action Request

College/School: EA College of Education

Department: Department of Teaching and Learning

Subject: EDFN

Course Number: A689

Title: Action Research Experience: Culturally Sustaining Pedagogy for English Language Learners in P-6 Classrooms

Credits: 3

Grading Basis: A-F

Implementation Date: Spring 2013

Course Description: Action research project in P-6 classroom to support the development of academic language proficiency and culturally sustaining pedagogy with an emphasis on theory-based inquiry into teaching and learning with English Language Learners.

Course Prerequisites(s): EDFN 691, EDSY 668

Test Scores(s):

Corequisite(s) EDFN A646

Registration Restrictions: Department Approval

Course Fee: ☑ Yes ☒ No

Justification: There is a national, statewide and local need for highly qualified P-6 professionals in the area of English as a second language who can foster the academic and English
language proficiency of ELL students in P-6 learning environments. Candidates completing this graduate certificate may add a P-6 ESL endorsement to an existing teaching certificate or become prepared to assist culturally and linguistically diverse community members. This graduate certificate enables candidates to work with students who speak languages other than English.

III. Instructional Goals, Student Outcomes, and Assessment Procedures

A. Instructional Goals

The instructor will:

1. Supervise research protocol and facilitate discussion regarding research on human subjects directly related to Action Research Project.

2. Discuss major theoretical frameworks related to education and/or classroom teaching (e.g. sociocultural theory, feminist theory, critical theory, etc.) and guide student articulation of the theoretical framework within the Action Research Project.

3. Provide feedback on literature review for Action Research Project.

4. Lead discussions regarding research methodologies for data collection and analysis (i.e. qualitative, quantitative, and mixed methods methodologies.)

5. Support research conversations about the implications of Action Research Project results to teacher practice.


7. Discuss and model the importance of Professional Learning Communities (PLC).

8. Facilitate observations of student in the field.

B. Student Learning Outcomes/Assessment Procedures

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Procedures</th>
<th>Standards</th>
<th>Core Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of the course, the student will be able to do the following:</td>
<td>This outcome will be assessed by one or more of the following:</td>
<td>This outcome meets the following state and/or national standard:</td>
<td>This outcome addresses the following core value:</td>
</tr>
<tr>
<td>1. Design and implement IRB compliant Action Research Project.</td>
<td>Action Research Project</td>
<td>AKTS 4, 8</td>
<td>Intellectual Vitality</td>
</tr>
<tr>
<td>3. Refine literature</td>
<td>Literature Review</td>
<td>AKTS 4</td>
<td>Intellectual</td>
</tr>
<tr>
<td></td>
<td>Action</td>
<td>Journal</td>
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<tr>
<td>4.</td>
<td>Discern and select appropriate research methodologies to align with the research questions that guide their Action Research Project.</td>
<td>Action Research Project</td>
<td>Research Journal</td>
</tr>
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<tr>
<td>5.</td>
<td>Engage in research conversations and reflect on the implications to their own personal classroom practice and student achievement.</td>
<td>Research Group discussions</td>
<td>Research Journal</td>
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<tr>
<td>6.</td>
<td>Present results of Action Research Project.</td>
<td>Poster Session</td>
<td>AKS 4,8</td>
</tr>
<tr>
<td>7.</td>
<td>Articulate the importance of Professional Learning Communities and take steps toward implementation at their individual school sites.</td>
<td>Discussion</td>
<td>Research Journal</td>
</tr>
<tr>
<td>8.</td>
<td>Reflect on teaching practice in dialogue with clinical faculty/instructor.</td>
<td>Discussion</td>
<td>Research Journal</td>
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</table>

**IV. Course Level Justification**
This is a graduate level course designed for classroom teachers who want to obtain an ESL endorsement for grades K-6.

**V. Course Outline**
1. IRB Compliance in Action Research Projects
   1.1 History of human subject research.
1.2 Implications of IRB protocols to Action Research Project.
1.3 Parental, School, District, and University clearance.
1.4 IRB forms and letters for classroom research.
1.5 Cultural implications.

2. Educational Theories and Theoretical Frameworks
   2.1 Sociocultural Theory, Feminist Theory, Critical Theory, etc.
   2.2 Using the theoretical framework as an interpretive lens.
   2.3 Theoretical framework and data collection/analysis as reciprocal processes.

3. Literature Reviews
   3.1 Identifying areas of research pertinent to Action Research Project.
   3.2 Identifying major contributions to the field.
   3.3 Setting up parameters of a literature review (e.g., dates, key words, databases, journals, etc.)
   3.4 Using the literature review as a guide and interpretive lens.
   3.5 Evaluating Action Research Project implications based on literature review.

4. Research Methodologies, Data Collection and Analysis
   4.1 Overview of instruments, data, and procedures for conducting qualitative research.
   4.2 Overview of instruments, data, and procedures for conducting quantitative research.
   4.3 Overview of instruments, data, and procedures for conducting mixed-methods research.
   4.4 Identifying suitable research methodology for Action Research Project.
   4.5 Conducting data collection and analysis aligned with research questions.

5. Dialogue and Reflection on Teaching and Research
   5.1 Teacher self-reflection.
   5.2 Engaging in dialogues (with members of the PLC and instructor) about teacher practice.
   5.3 Engaging in critical and collaborative research conversations.
   5.4 Identifying and reflecting on implications of results to teaching practice.
   5.5 Identifying and reflecting on implications of results to student achievement.

6. Sharing and dissemination of Action Research Projects
   6.1 Identifying essential elements of research project and articulating them to peers.
   6.2 Preparing research posters.
   6.3 Presenting research.
7. Professional Learning Communities
7.1 Rationale for professional learning communities.
7.2 Structure and dynamics of professional learning communities.
7.3 Discussing and reflecting on relevant research on education (e.g. performance assessment, practices, curriculum, context and community).
7.3 Analyzing student work in professional learning communities.
7.4 Formulating and implementing intervention based on work analysis.
7.5 Reflecting on results of modified practices.

VI. Suggested Text(s)

VII. Bibliography


**Course Action Request**

**University of Alaska Anchorage**

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

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>CB CBPP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. Division</td>
<td>ADBP Division of Business Programs</td>
</tr>
<tr>
<td>1c. Department</td>
<td>BA</td>
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</table>

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

6. Complete Course Title

Graduate Internship

<table>
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<tr>
<th>Abbreviated Title for Transcript (30 character)</th>
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</table>

7. Type of Course

<table>
<thead>
<tr>
<th>Academic</th>
<th>Preparatory/Development</th>
<th>Non-credit</th>
<th>CEU</th>
<th>Professional Development</th>
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</table>

8. Type of Action:  

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

If a change, mark appropriate boxes:

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

9. Repeat Status No  

<table>
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<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/2013
- To: /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>Impacted Program/Course</th>
<th>Catalog Page(s) Impacted</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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<tbody>
<tr>
<td>General Management, MBA</td>
<td>354</td>
<td>10/12/12</td>
<td>Ed Forrest</td>
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</table>

13b. Coordination Email

- Date: 10/12/12
- Submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison

- Date: 9/30/12

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)

Integrates classroom study with planned and supervised work experience in the public and private sectors. Students acquire essential practical skills by being exposed to occupational work environment beyond the boundaries of the campus, enhancing self-confidence and career direction.

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

None

16b. Test Score(s)

N/A

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

N/A

16d. Other Restriction(s)

- [X] Mark if course has fees Standard CBPP lab fees and Standard Career Services Center (CSC) Internship fee.

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

Graduate standing. Completion of MBA core courses.

17. Mark if course is a selected topic course

- [ ] Mark if course is a selected topic course

18. Justification for Action

Update CCG according to CBPP course review schedule

<table>
<thead>
<tr>
<th>Initator (faculty only)</th>
<th>Bogdan Hoanca</th>
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<td>Initator (TYPE NAME)</td>
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<td>Bogdan Hoanca</td>
<td></td>
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<th>Date</th>
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<td>Provost or Designee</td>
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69
I. Date Initiated
November 6, 2012

II. Course Information

College/School: College of Business and Public Policy
Department: Business Administration
Program: Master of Business Administration
Course Title: Graduate Internship
Course Number: BA A695
Credits: 3
Contact Hours: 3 contact hours with faculty supervisor
Grading Basis: A-F

Course Description: Integrates classroom study with planned and supervised work experience in the public and private sectors. Students acquire essential practical skills by being exposed to occupational work environment beyond the boundaries of the campus, enhancing self-confidence and career direction.

Course Prerequisites: None
Registration Restrictions: Graduate standing; completion of MBA core courses
Fees: Standard CBPP lab fees and Standard Career Services Center (CSC) Internship fee.

III. Course Activities

A. Work experience in an approved position with supervision and training in various phases of business
B. Specific activities are developed and approved by employer, faculty, student, and the Career Services Center
C. Each internship must include a Learning Agreement which includes:
   1. Learning objectives to be accomplished
   2. How objectives will be accomplished
   3. How achievement of objectives will be evaluated

IV. Course Level Justification

This is a 600-level course that integrates the totality of students’ classroom study with planned and supervised work experience in the public and private sectors.
V. Outline
A. Overview of the Internship Program
   1. Identify occupational interests
   2. Develop updated résumé
   3. Meet with the MBA Faculty Internship Coordinator and a Career Services Center (CSC) representative

B. Interview Process and Selection
   1. Review proper interviewing technique
   2. Interview with the potential employer

C. Training Goals and Learning Objectives
   1. Develop learning objectives with help of the CSC and Internship Coordinator
   2. Meet with faculty advisor to review learning objectives for approval

D. Employment in Internship Position

VI. Suggested Texts N/A

VII. Bibliography N/A

VIII. Instructional Goals and Student Learning Outcomes

<table>
<thead>
<tr>
<th>A. Instructional Goals. The instructor will:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Meet with students and help them explore occupational interests, offer insight into various CSC program positions and job requirements, and review positions students bring to UAA for internships</td>
</tr>
<tr>
<td>2. Help students develop an updated résumé</td>
</tr>
<tr>
<td>3. Help students prepare for the student/employer interview</td>
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<tr>
<td>4. With the CSC representative and employer, develop the learning objectives that include specific academic content</td>
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<tr>
<td>5. Help students develop approaches to the intricacies of business and skills pertinent to successful job performance</td>
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<tr>
<td>6. Meet with the CSC representative, employer, and student to discuss the student’s job performance</td>
</tr>
</tbody>
</table>
### B. Student Learning Outcomes.
**Students will be able to:**

<table>
<thead>
<tr>
<th></th>
<th>Assessment Method</th>
</tr>
</thead>
</table>
| 1. Perform job tasks effectively | Mid-way evaluation  
Final evaluation  
Completion of the required hours on the job |
| 2. Complete assigned tasks on deadline | Mid-way evaluation  
Final evaluation |
| 3. Accept responsibility to work independently and cooperatively in teams | Mid-way evaluation  
Final evaluation |
| 4. Demonstrate effective written communication skills | Technical report |
| 5. Practice good work ethic | Mid-way evaluation  
Final evaluation |
**Course Action Request**

**University of Alaska Anchorage**

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

---

1a. School or College  
CB CBPP

1b. Division  
ADBP Division of Business Programs

1c. Department  
BA

2. Course Prefix  
BA

3. Course Number  
A698

4. Previous Course Prefix & Number  
N/A

5a. Credits/CEUs  
3

5b. Contact Hours (Lecture + Lab)  
(1+0)

6. Complete Course Title  
MBA Individual Research

Abbreviated Title for Transcript (30 character)

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

7b. Type of Action:  
☐ Add  ☒ Change  ☐ Delete

8. If a change, mark appropriate boxes:

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Credits</th>
<th>Grade Basis</th>
<th>Repeatability</th>
<th>Title</th>
<th>Contact Hours</th>
<th>Repeat Status</th>
<th>Cross-Listed/Stacked</th>
<th>Co-requisites</th>
<th>Registration Restrictions</th>
<th>Other Restrictions</th>
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</tbody>
</table>

9. Repeat Status No  
# of Repeats  
Max Credits

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

10b. Implementation Date  
semester/year

10c. From: Fall/2013  
To: /9999

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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<td>General Management, MBA</td>
<td>296, 354</td>
<td>10/12/12</td>
<td>Ed Forrest</td>
</tr>
</tbody>
</table>

14a. General Education Requirement  
Mark appropriate box:

☐ Oral Communication  ☐ Written Communication  ☐ Quantitative Skills  ☐ Humanities

☒ Fine Arts  ☐ Social Sciences  ☐ Natural Sciences  ☐ Integrative Capstone

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

Independent primary research project conducted under the supervision of a faculty advisor.

16a. Course Prerequisite(s) (list prefix and number)  
None

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)  
Graduate standing. Completion of MBA core courses.

17. Mark if course has fees  
Standard CBPP computer lab fee

18. Mark if course is a selected topic course

19. Justification for Action  
Update CCG according to CBPP course review schedule

Initiator Name (typed): Bogdan Hoanca  
Initiator Signed Initials:  
Date:

13b. Coordination Email  
Date: 9/30/12

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

13c. Coordination with Library Liaison  
Date: 9/30/12

14b. General Education Requirement  
Mark appropriate box:

☐ Oral Communication  ☐ Written Communication  ☐ Quantitative Skills  ☐ Humanities

☒ Fine Arts  ☐ Social Sciences  ☐ Natural Sciences  ☐ Integrative Capstone

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

Independent primary research project conducted under the supervision of a faculty advisor.

16b. Test Score(s)  
N/A

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

17. Mark if course has fees  
Standard CBPP computer lab fee

18. Mark if course is a selected topic course

19. Justification for Action  
Update CCG according to CBPP course review schedule

Initiator (faculty only)  
Bogdan Hoanca  
Initiator (TYPE NAME)

Initiator (faculty only)  
Bogdan Hoanca  
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
I. Date Initiated  
October 12, 2012

II. Course Information  
College/School: College of Business and Public Policy  
Department: Business Administration  
Program: Master of Business Administration  
Course Title: MBA Individual Research  
Course Number: BA A698  
Credits: 3  
Contact Hours: 1 per week x 15 weeks = 15 hours  
Grading Basis: A – F  
Course Description: Independent primary research project conducted under the supervision of a faculty advisor.  
Course Prerequisites: None  
Registration Restrictions: Graduate standing; completion of MBA core courses  
Fees: Standard CBPP computer lab fee

III. Course Activities  
A. Development of research project, objectives, and design  
B. Review of literature  
C. Data collection  
D. Data analysis  
E. Research results  
F. Final research project

IV. Course Level Justification  
This is a 600-level course that provides the student the opportunity to design and conduct a primary research project on a selected business concept, problem, and/or theory.

V. Outline  
Given the nature of this course and the variable demands that each research advisor may pose, there is no fixed outline for this course. At the beginning of the semester the student and research advisor will develop a written contract (i.e., proposal) outlining the specific tasks to be performed by the student over the course of the semester. The student and the research advisor will meet on a regular basis at an agreed time and will discuss issues as they become relevant to the project.
VI. Suggested Texts  

N/A

VII. Bibliography
Students are expected to rely on source material that is relevant to the research work they are undertaking.

VIII. Instructional Goals and Student Learning Outcomes

| A. Instructional Goals.  
| The faculty advisor will: |
|---|---|
| 1. Provide appropriate background for the student's intellectual understanding of the nature, scope, and expectations regarding an individual research project |
| 2. Provide regular opportunities to review and discuss the progress of the research project |
| 3. Read and comment on drafts of the research project as it develops |
| 4. Evaluate and grade the final research project |

| B. Student Learning Outcomes.  
<table>
<thead>
<tr>
<th>Students will be able to:</th>
<th>Assessment Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Construct a formal research prospectus</td>
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<td>2. Conduct a substantive review of literature relevant to the research topic</td>
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<tr>
<td>3. Formulate hypotheses</td>
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<tr>
<td>4. Design reliable and valid data collection instruments and methods</td>
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<tr>
<td>5. Demonstrate knowledge of appropriate quantitative and/or qualitative data analysis techniques and procedures</td>
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<td>6. Interpret results</td>
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<td>7. Evaluate research results significance, ramifications, and limitations</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>
</tr>
</thead>
<tbody>
<tr>
<td>CB CBPP</td>
<td>ADBP Division of Business Programs</td>
<td>BA</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</th>
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<tbody>
<tr>
<td>BA</td>
<td>A699</td>
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<th>7. Type of Course</th>
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<tr>
<td>Academic</td>
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<th>8. Type of Action:</th>
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<tr>
<td>Add</td>
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**If a change, mark appropriate boxes:**

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

<table>
<thead>
<tr>
<th>9. Repeat Status No</th>
<th># of Repeats</th>
<th>Max Credits</th>
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<th>11. Implementation Date</th>
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<td>semester/year</td>
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**From:** Fall/2013  **To:** /9999

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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).

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Catalog Page(s) Impacted</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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<tbody>
<tr>
<td>General Management, MBA</td>
<td>296, 354</td>
<td>10/12/12</td>
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**Initiator Name (typed): Bogdan Hoanca**  
**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: 10/12/12**

### 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)

Independent research project conducted under the supervision of a thesis advisor and committee, culminating in a formal thesis and oral defense.

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

| None |

### 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)

- Graduate standing. Completion of MBA core courses.

### 17. Mark if course has fees

- Standard CBPP computer lab fee

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

### 19. Justification for Action

- Update credits and CCG.

---

**Initiator (faculty only)**  
**Date**  
**Bogdan Hoanca**  
**Initiator (TYPE NAME)**  

- Approved  
- Disapproved

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

---

**Department Chairperson**  
**Date**  

---

**Curriculum Committee Chairperson**  
**Date**  

---

**Provost or Designee**  
**Date**
I. Date Initiated  
October 12, 2012

II. Course Information
College/School: College of Business and Public Policy  
Department: Business Administration  
Program: Master of Business Administration  
Course Title: Thesis  
Course Number: BA A699  
Credits: 6  
Contact Hours: 1 per week x 15 weeks = 15 hours  
Grading Basis: A – F

Course Description: Independent research project conducted under the supervision of a thesis advisor and committee, culminating in a formal thesis and oral defense.

Course Prerequisites: None
Registration Restrictions: Graduate standing; completion of MBA core courses.
Fees: Standard CBPP computer lab fee

III. Guidelines for Evaluation
A. Prospectus approval by thesis advisor and committee  
B. Thesis draft approval by thesis advisor  
C. Final thesis and presentation approval by committee

IV. Course Level Justification
This is a 600-level course that requires students to apply and demonstrate the full range of their acquired expertise regarding the key concepts and management principles of business.

V. Outline
A. Delineate purpose and importance of the thesis: Objectives, problems to be addressed, questions to be answered.  
B. Literature review  
C. Research questions, hypotheses, predictions  
D. Operational definitions and methodology  
E. Data analyses  
F. Results and interpretation  
G. Conclusions and recommendations  
H. Research study limitations
VI. Suggested Texts: N/A

VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals.
The thesis advisor will:

1. Provide appropriate background for the student's intellectual understanding of the nature, scope, and expectations for the master’s thesis
2. Provide regular opportunities to review and discuss thesis progress
3. Identify appropriate thesis committee members
4. Read and comment on drafts of the thesis as it develops
5. Chair the student’s prospectus and thesis presentation and defense

B. Student Learning Outcomes.
Students will be able to:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Construct a formal thesis prospectus</td>
<td>Assessment Method</td>
</tr>
<tr>
<td>2.</td>
<td>Conduct a substantive review of literature relevant to the thesis topic</td>
<td>Written thesis and oral defense</td>
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<tr>
<td>3.</td>
<td>Formulate hypotheses</td>
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<tr>
<td>4.</td>
<td>Design reliable and valid data collection instruments and methods</td>
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<tr>
<td>5.</td>
<td>Demonstrate knowledge of appropriate quantitative and/or qualitative data analysis techniques and procedures</td>
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<tr>
<td>6.</td>
<td>Interpret results</td>
<td></td>
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<tr>
<td>7.</td>
<td>Evaluate research results significance, ramifications, and limitations</td>
<td></td>
</tr>
</tbody>
</table>
Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>CB CBPP</th>
<th>1b. Division</th>
<th>ADBP Division of Business Programs</th>
<th>1c. Department</th>
<th>CIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Course Prefix</td>
<td>CIS</td>
<td>3. Course Number</td>
<td>A692</td>
<td>4. Previous Course Prefix &amp; Number</td>
<td>N/A</td>
</tr>
<tr>
<td>5a. Credits/CEUs</td>
<td>3</td>
<td>5b. Contact Hours</td>
<td>(Lecture + Lab) (3+0)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Complete Course Title
Management Information Systems Seminar
Management Info Sys Seminar
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 ☐ Course Number ☐ Contact Hours ☐ Repeat Status ☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites ☐ Co-requisites ☐ Test Score Prerequisites ☐ 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/2013 To: 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>Catalog Page(s)</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Management, MBA</td>
<td>286, 375</td>
<td>10/12/12</td>
<td>Minnie Yen</td>
</tr>
<tr>
<td>CIS A692</td>
<td>375</td>
<td>11/2/2012</td>
<td>Minnie Yen</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Initiator Name (typed): Bogdan Hoanca Initiator Signed Initials: _______ Date: __________

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

13c. Coordination with Library Liaison Date: 10/12/12

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)
Analysis of current and future implications of Information Systems (IS) and emerging technologies for managers and decision makers. Focuses on the interaction of technology with business organizations including e-commerce, enterprise IS and globalization issues.

16a. Course Prerequisite(s) (list prefix and number) None
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)
Graduate standing.

17. ☑ Mark if course has fees
Standard CBPP computer lab fee
18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update CCG according to CBPP course review schedule

Initiator (faculty only) Bogdan Hoanca
Initiator (TYPE NAME)

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

☐ Approved ☐ Disapproved
Department Chairperson Date

☐ Approved ☐ Disapproved
Curriculum Committee Chairperson Date

Provost or Designee Date
I. Date Initiated
   November 6, 2012

II. Course Information
   College/School: College of Business and Public Policy
   Department: Business Administration
   Program: Master of Business Administration
   Course Title: Seminar in Management Information Systems
   Course Number: CIS A692
   Credits: 3
   Contact Hours: 3 per week x 15 weeks = 45 hours
   0 lab hours
   6 hrs outside of class per week x 15 weeks = 90 hours
   Grading Basis: A – F
   Course Description: Analysis of current and future implications of Information Systems (IS) and emerging technologies for managers and decision makers. Focuses on the interaction of technology with business organizations including e-commerce, enterprise IS, and globalization issues.
   Course Prerequisites: None.
   Registration Restrictions: Graduate standing
   Fees: Standard CBPP computer lab fee

III. Course Activities
   A. Lectures and discussions
   B. In-class exercises
   C. On-line assignments

IV. Course Level Justification
   This is a graduate-level class that surveys fundamental concepts in Management Information Systems as needed for managers and decision makers. Students are expected to be proficient at using business software, conducting research, presenting business reports.

V. Outline
   A. Introduction to management information systems
   B. Strategic role of information systems in business
   C. Staffing and organizational impacts of information systems
   D. Enterprise resource planning and changing business processes
   E. Business intelligence and knowledge management
   F. Customer relationship management and supply chain management
   G. Systems development
H. Sourcing information systems
I. Systems integration: inter-organizational and globalization issues
J. Information systems in mergers and acquisitions
K. Ethical aspects of information systems

VI. Suggested Texts


VII. Bibliography


**VIII. Instructional Goals and Student Learning Outcomes**

**A. Instructional Goals.**

The instructor will:

1. Present the reasons why businesses acquire information systems (IS), the options for acquisition, the decision process they use, and the steps in actual development or acquisition of IS

2. Engage students in thinking critically about how businesses use IS and the relative impact of IS on business strategy and organizational strategy

3. Discuss ethical and legal issues related to IS development and use

4. Analyze the relationship between IS and business processes

5. Explain the concept of business intelligence and its application to modern organizations

6. Discuss trends and emerging technologies in MIS

**B. Student Learning Outcomes.**

Students will be able to:

<table>
<thead>
<tr>
<th>Students will be able to:</th>
<th>Assessment Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Discuss the reasons why businesses acquire information systems (IS), the options for acquisition, the decision process and the steps in development or acquisition of IS</td>
<td>Class discussion</td>
</tr>
<tr>
<td></td>
<td>Research project</td>
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<tr>
<td></td>
<td>Student-written case study</td>
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<tr>
<td>2. Describe how businesses use IS for competitive advantage, focusing on the relative impact of IS on business strategy and organizational strategy</td>
<td>Research project</td>
</tr>
<tr>
<td></td>
<td>Student-written case study</td>
</tr>
<tr>
<td>3. Identify ethical and legal issues related to IS development and use; propose solutions</td>
<td>Class discussion</td>
</tr>
<tr>
<td>4. Analyze the relationship between IS and business processes</td>
<td>Class discussion</td>
</tr>
<tr>
<td></td>
<td>Exams</td>
</tr>
<tr>
<td>5. Discuss the concept of business intelligence and identify its application to modern organizations</td>
<td>Class discussion</td>
</tr>
<tr>
<td></td>
<td>Individual or team project</td>
</tr>
<tr>
<td>6. Discuss trends and emerging technologies in MIS and apply the knowledge by developing business application software</td>
<td>Class discussion</td>
</tr>
<tr>
<td></td>
<td>Individual or team project</td>
</tr>
</tbody>
</table>