Submit original with signatures + 1 copy + electronic copy to UAF Governance. See http://www.uaf.edu/uafgov/faculty/ed for a complete description of the rules governing curriculum & course changes.

TRIAL COURSE OR NEW COURSE PROPOSAL

SUBMITTED BY:
Department: GPMSL  
Prepared by: Ana M. Aguilar-Islas  
Email Contact: naguilarislas@alaska.edu

College/School: SFOS  
Phone: 907 474 1524  
Faculty Contact: Ana M. Aguilar-Islas

1. ACTION DESIRED
(CHECK ONE):
Trial Course  X  New Course

2. COURSE IDENTIFICATION:
Dept  MSL  Course # 694  No. of Credits 3

Justify upper/lower division status & number of credits:
This upper division/graduate level course is intended for students with a background in marine science and chemical oceanography. There will be 3 hours of lecture per week. Homework assignments, a term paper, and/or a presentation will be required.

3. PROPOSED COURSE TITLE:
Chemical Coastal Processes

4. To be CROSS LISTED?
YES/NO
(Requires approval of both departments and deans involved. Add lines at end of form for such signatures.)

Yes  If yes, Dept:  

5. To be STACKED?
YES/NO

Yes  If yes, Dept: MSL  Course # 494

6. FREQUENCY OF OFFERING:
Alternate Spring
Fall, Spring, Summer (Every, or Even-numbered Years, or Odd-numbered Years) — or As Demand Warrants

7. SEMESTER & YEAR OF FIRST OFFERING (if approved)
Spring 2011

8. COURSE FORMAT:
NOTE: Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council. Furthermore, any core course compressed to less than six weeks must be approved by the core review committee.

COURSE FORMAT:
(check all that apply)

X 6 weeks to full semester

OTHER FORMAT (specify)
Mode of delivery (specify lecture, field trips, labs, etc)

9. CONTACT HOURS PER WEEK:

3  LECTURE hours/weeks

X  LAB hours/week

PRACTICUM hours/week

Note: # of credits are based on contact hours. 800 minutes of lecture=1 credit. 2400 minutes of lab in a science course=1 credit. 1600 minutes in non-science lab=1 credit. 2400-4800 minutes of practicum=1 credit. 2400-8000 minutes of internship=1 credit. This must match with the syllabus. See http://www.uaf.edu/uafgov/faculty/ed/credits.html for more information on number of credits.

OTHER HOURS (specify type)

10. COMPLETE CATALOG DESCRIPTION including dept., number, title and credits (50 words or less, if possible):

MSL 694 Chemical Coastal Processes
3 credits Offered Spring
A study of chemical processes in the coastal ocean. This course will examine chemical interactions at different boundaries, and explore physical and biological controls on the chemistry of coastal environments. Topics include: Photochemical processes; the role of suspended particles; coastal acidification; controls on coastal productivity; future challenges in coastal management.
11. COURSE CLASSIFICATIONS: (undergraduate courses only. Use approved criteria found on Page 10 & 17 of the manual. If justification is needed, attach on separate sheet.)

H = Humanities ☐ S = Social Sciences ☐

Will this course be used to fulfill a requirement for the baccalaureate core? 

YES ☐ NO ☑

IF YES, check which core requirements it could be used to fulfill:

O = Oral Intensive, Format 6 ☐ W = Writing Intensive, Format 7 ☐ Natural Science, Format 8 ☐

12. COURSE REPEATABILITY:

Is this course repeatable for credit? 

YES ☐ NO ☑

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

How many times may the course be repeated for credit? ☐ TIMES

If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course? ☐ CREDITS

13. GRADING SYSTEM: Specify only one.

LETTER: ☑ X PASS/FAIL: ☐

14. PREREQUISITES

General chemistry or graduate standing (600 level) or permission of instructor (400 level)

These will be required before the student is allowed to enroll in the course.

RECOMMENDED

Chemical Oceanography

15. SPECIAL RESTRICTIONS, CONDITIONS

None

16. PROPOSED COURSE FEES

$0

Has a memo been submitted through your dean to the Provost & VCAS for fee approval?

Yes/No

17. PREVIOUS HISTORY

Has the course been offered as special topics or trial course previously?

Yes/No

If yes, give semester, year, course #, etc.: 

18. ESTIMATED IMPACT

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

No impact on budget, facilities/space. The instructor, a recently hired SFOS faculty, is developing this course to help fulfill her teaching workload (2-3 courses per academic year).

19. LIBRARY COLLECTIONS

Have you contacted the library collection development officer (kliensen@alaska.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No ☐ Yes ☑ X

Communication with Anne Christie (Biosciences Library) determined the reading material required for the course is available from the library collection. An updated list of readings will be provided to Anne to ensure all reading material is available to students during the class period.

20. IMPACTS ON PROGRAMS/DEPTS

What programs/departments will be affected by this proposed action?

Include information on the Programs/Departments contacted (e.g., email, memo)

The proposed new course will have a positive impact on the MSL program by increasing the available courses offered to graduate students. A course in chemical coastal processes will be of interest to Fisheries students (graduate and undergraduate) as well as to graduate students in Environmental Chemistry.

21. POSITIVE AND NEGATIVE IMPACTS

Please specify positive and negative impacts on other courses, programs and departments resulting from the proposed action.

No negative impacts are expected from this course. The MSL program will be impacted positively by offering a course that focuses on the coastal ocean, as the course will promote a better understanding of chemical interactions in coastal...
waters, and will be useful for students whose research takes place in coastal environments.

JUSTIFICATION FOR ACTION REQUESTED
The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. Use as much space as needed to fully justify the proposed course.

The coastal ocean is particularly vulnerable to environmental change. Understanding interactions among physical, chemical, and biological processes is necessary to predict and address the effects of ongoing environmental changes. Recent developments, including coastal acidification, eutrophication, and hypoxia in productive coastal regions highlight the need for understanding the chemical interactions involved. Currently the MSL program only offers one graduate course (MSL F626) that focuses on coastal/shelf processes, and it does so from a physical standpoint. Two chemistry-focused courses offered (MSL 660 and MSL 270) address the global ocean, touching only briefly on chemical coastal processes. The proposed course will provide students with a detailed study of chemical processes in the coastal ocean, adding depth and complementing information from the existing courses.

APPROVALS:

Signature, Chair, Program/Department of: ________________________________
Date ________________

Signature, Chair, College/School Curriculum Council for: ________________________________
Date ________________

Signature, Dean, College/School of: ________________________________
Date ________________

Signature of Provost (if applicable)
Offerings above the level of approved programs must be approved in advance by the Provost.

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

Signature, Chair, UAF Faculty Senate Curriculum Review Committee ________________________________
Date ________________

ADDITIONAL SIGNATURES: (As needed for cross-listing and/or stacking)

Signature, Chair, Program/Department of: ________________________________
Date 8/23/2010

Signature, Chair, College/School Curriculum Council for: ________________________________
Date 8/23/2010

Signature, Dean, College/School of: ________________________________
Date 8/23/2010
ATTACH COMPLETE SYLLABUS (as part of this application).
Note: The guidelines are online: http://www.uaf.edu/uafgov/faculty/cd/syllabus.html
The department and campus wide curriculum committees will review the syllabus to ensure that each of the items listed below
are included. If items are missing or unclear, the proposed course change will be denied.

SYLLABUS CHECKLIST FOR ALL UAF COURSES
During the first week of class, instructors will distribute a course syllabus. Although modifications may be made
throughout the semester, this document will contain the following information (as applicable to the discipline):

1. Course information:
   □ Title, □ number, □ credits, □ prerequisites, □ location, □ meeting time
   (make sure that contact hours are in line with credits).

2. Instructor (and if applicable, Teaching Assistant) information:
   □ Name, □ office location, □ office hours, □ telephone, □ email address.

3. Course readings/materials:
   □ Course textbook title, □ author, □ edition/publisher.
   □ Supplementary readings (indicate whether □ required or □ recommended) and
   □ any supplies required.

4. Course description:
   □ Content of the course and how it fits into the broader curriculum;
   □ Expected proficiencies required to undertake the course, if applicable.
   □ Inclusion of catalog description is strongly recommended, and
   □ Description in syllabus must be consistent with catalog course description.

5. □ Course Goals (general), and (see #6)
6. □ Student Learning Outcomes (more specific)

7. Instructional methods:
   □ Describe the teaching techniques (e.g.: lecture, case study, small group discussion, private instruction, studio
   instruction, values clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).

8. Course calendar:
   □ A schedule of class topics and assignments must be included. Be specific so that it is clear that the instructor
   has thought this through and will not be making it up on the fly (e.g. it is not adequate to say "lab". Instead, give
   each lab a title that describes its content). You may call the outline Tentative or Work in Progress to allow for
   modifications during the semester.

9. Course policies:
   □ Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and
   plagiarism/academic integrity.

10. Evaluation:
    □ Specify how students will be evaluated, □ what factors will be included, □ their relative value, and
    □ how they will be tabulated into grades (on a curve, absolute scores, etc.)

11. Support Services:
    □ Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

12. Disabilities Services:
    The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF
    students have equal access to the campus and course materials.
    □ State that you will work with the Office of Disabilities Services (208 WHIT, 474-5655) to provide reasonable
    accommodation to students with disabilities.”
MSL 663/463: Chemical Coastal Processes
Instructor: Dr. Ana M. Aguilar-Islas  Class meeting times: TBA
School of Fisheries and Ocean Sciences  Location: TBA
335A Irving II  Office Hours: TBA
474-1524
amaguilarislas@alaska.edu

Prerequisites: Graduate standing; upper-division undergraduate with permission of instructor.
Recommended: General Chemistry, Chemical Oceanography

Course Description
This course investigates chemical processes in the coastal ocean. We will examine chemical interactions at different boundaries, and gain an understanding of how physical and biological processes affect the chemistry of coastal environments. In addition to participation during lectures, students will be evaluated based on four homework assignments, a research paper (graduate students), an oral presentation (all students), two midterms and a final.

Learning Objectives:
1. Become familiar with chemical processes occurring in coastal/shelf waters.
2. Identify physical and biological controls affecting the distribution and behavior of chemical species.
3. Critically evaluate the direction of future coastal/shelf research.
4. Apply topics examined during lectures to Alaskan coastal waters

Course Policies and Requirements
Lecture attendance and active participation in class is expected from all students. Class participation will count for 10% of the final grade.

Email communication will be used to distribute class information, updates and changes.

Four homework assignments will be given. Collaboration among students is encouraged. However, each student is expected to submit their own work. Homework assignments will not be accepted after the due date, unless arrangements have been made in advance with the instructor.

Exams. There will be two midterms and one final which are to be completed during the regular class period. The exams will be closed-book, and will require short-essay and diagrammed answers. The final exam will be comprehensive with an emphasis on material covered after the second midterm.

Background Readings. There is no required textbook. Reading assignments will come from several books and the primary literature. Chapters from textbooks will be found on eReserves (http://eres.uaf.edu/eres/default.aspx) PASSWORD: TBA. Primary literature articles will be obtained from the library (http://library.uaf.edu/findarticles). Contact the instructor or a librarian if you need help obtaining articles.
**Research Paper.** Graduate students will choose and investigate a well-defined, focused topic that will be written as a paper. You are to choose an Alaskan coastal region and synthesize 2 to 4 key journal articles on the particular chosen topic and write a synthesis overview.

1. Topics will be selected during the first week of April. You will need instructor approval before moving ahead. This is to ensure you are “on track” with a focused topic.
2. An outline with chosen references will be due on April 12.
3. The paper will be due in class on April 26.
4. The body of the term paper should have 1.5 line spacing, size 12 font (Time or Times New Roman) and 1 inch margins – it should be approximately 9 to 10 pages with appropriate figures and tables inserted into the text.
5. All tables and figures need to have proper headings or captions, they need to be properly referenced, and will be incorporated into the main body of the text.
6. Reference format:
   In the body of the text “The concept of new production (Epplley and Peterson, 1979) has provided valuable insight …”
   In the Reference section at the end of the paper:
7. The synthesis needs to be in your own words. It is OK to directly use a sentence from one of the articles as long as you use quotes and reference it properly.

Topic selection – remember that it has to be a focused paper from a chemical coastal process perspective. For example, a paper on trace metals in seawater is not acceptable, but a focused paper on sources of mercury in the Aleutian Archipelago would be acceptable. Similarly, a paper on organic matter in seawater is not acceptable, but a focused paper on input of organic matter by the Yukon River would be acceptable.

**Student Presentations:** All students will make an oral presentation. Graduate students will present highlights from their research paper. Undergraduate students will present highlights from one journal article describing a chemical process within an Alaskan coastal region (topic and reference to be approved by instructor by April 21st). Presentations will take place during the last week of lecture (May 3rd and 5th).

Lack of academic integrity including plagiarism is not acceptable and will not be tolerated.
### Points and grading scale:

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<tr>
<th>Component</th>
<th>Possible points</th>
<th>% of Total</th>
</tr>
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<tbody>
<tr>
<td>Attendance and active class participation</td>
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<td>10</td>
</tr>
<tr>
<td>Homework (4 assignments)</td>
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<td>20</td>
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<td>Midterm 1</td>
<td>75</td>
<td>15</td>
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<tr>
<td>Midterm 2</td>
<td>75</td>
<td>15</td>
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<tr>
<td>Paper/Presentation</td>
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<td>20</td>
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<tr>
<td>Final</td>
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<tr>
<td><strong>Total</strong></td>
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<tr>
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<td>70-72%</td>
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<tr>
<td>D+</td>
<td>67-69%</td>
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<tr>
<td>D</td>
<td>63-66%</td>
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<td>D-</td>
<td>60-62%</td>
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<tr>
<td>F</td>
<td>&lt; 60%</td>
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</table>

**Support and Disability Services**

At UAF, the Office of Disability Services (203 WHIT; 474-5655; TTY 474-1827; fydso@uaf.edu) ensures that students with physical or learning disabilities have equal access to the campus and course materials. If you have specialized needs, please contact this office or the instructor to make arrangements.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lecture Topic</th>
<th>Assignment</th>
<th>Reading</th>
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<tbody>
<tr>
<td>1</td>
<td>1/20</td>
<td>Introductions, overview, logistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1/25</td>
<td>Coastal zone classification review</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1/27</td>
<td>Chemical composition and mixing</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>2/1</td>
<td>Residence time and input variability</td>
<td></td>
<td>Eyre, 1998</td>
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<tr>
<td></td>
<td>2/3</td>
<td>Flocculation processes</td>
<td>hmw1 Due</td>
<td>Boyle et al., 1974; Sholkovitz, 1976</td>
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<tr>
<td>4</td>
<td>2/8</td>
<td>Organic speciation of trace metals</td>
<td>hwk1 returned</td>
<td>van den Berg, 2000; Buck et al., 2005</td>
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<tr>
<td></td>
<td>2/10</td>
<td>The role of Suspended particles</td>
<td></td>
<td>Turner and Millward, 2002</td>
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<td>5</td>
<td>2/15</td>
<td>Photochemical Processes</td>
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<td>Sulzberger, 2000</td>
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<td>2/17</td>
<td>Photochemical Processes (cont.)</td>
<td>hmw2 Due</td>
<td>Moran &amp; Zepp, 2002</td>
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<td>2/22</td>
<td>Midterm 1</td>
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<td>2/24</td>
<td>Carbonate system; Coastal Acidification</td>
<td>Midterm 1 returned</td>
<td>Emerson &amp; Hedges Ch.4</td>
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<tr>
<td></td>
<td>3/1</td>
<td>Coastal Acidification (cont.)</td>
<td></td>
<td>Borges &amp; Gypens, 2010</td>
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<tr>
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<td>3/3</td>
<td>Dissolved Oxygen; hypoxia/anoxia</td>
<td></td>
<td>Grantham et al., 2004</td>
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<td>7</td>
<td>3/8</td>
<td>Interactions at sediment/water interface</td>
<td>hmw3 Due</td>
<td>Presley and Trefry 1980; Libes Ch.12</td>
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<td></td>
<td>3/10</td>
<td>Sedimentary transformation of organic matter</td>
<td></td>
<td>Artemyev Ch. 4</td>
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<td>8</td>
<td></td>
<td>SPRING BREAK</td>
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<tr>
<td>9</td>
<td>3/22</td>
<td>Sedimentary transformation of trace metals</td>
<td></td>
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<td></td>
<td>3/24</td>
<td>The role of bacteria</td>
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<td>10</td>
<td>3/29</td>
<td>The influence of sea ice</td>
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<td>3/31</td>
<td>Midterm 2</td>
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<td>11</td>
<td>4/5</td>
<td>Isotopes as tracers</td>
<td>Topic Due, Midterm 2 returned</td>
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<td>Swarzenski et al., 2000</td>
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<td>4/12</td>
<td>Upwelling, fronts and eddies review</td>
<td>Outline/References Due</td>
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<td></td>
<td>4/14</td>
<td>Controls on coastal productivity</td>
<td>hmw4 returned</td>
<td>Alongi Ch 7</td>
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<td>13</td>
<td>4/19</td>
<td>Controls on coastal productivity (cont.)</td>
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<td>Hutchins et al., 1998</td>
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<td>Interdisciplinary coastal research</td>
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<td>Oceanography, 21(4): 90-107,</td>
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<td>Coastal Observing Systems</td>
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<td>4/28</td>
<td>Future challenges and coastal management</td>
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<td>Valiela Ch 14</td>
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<td>15</td>
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<td>Student Presentations</td>
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<tr>
<td>16</td>
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<td>Final Exam</td>
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Texts

Articles
Curriculum Committee SFOS

Members:  Trent Sutton (Chair)
          Katrin Iken
          Jeremy Mathis

20 August 2010

Trial Course
Course Number: MSL 494/694
Course Title: Chemical Coastal Processes
Instructor: Ana Aguilar-Islas
First Time of Offering: Yes

General Recommendations:

None

Faculty Senate Form:

Clarify and Address the following:

- Please change the course from a new to a trial course by checking the trial course box.
- Please add Christina Neumann's email address (cneumann@alaska.edu) to the email contact line in addition to your email address.
- For prerequisites, the committee believes that this line should state "General chemistry or graduate standing (600 level) or permission of instructor (400 level)." The only recommended course then would be Chemical Oceanography.
- Section 15, state "None" for special restrictions.
- Section 16, state "$0" for course fees.
- In the justification, eutrophication is misspelled.

Syllabus:

- Looks great, no suggestions.