FORMAT 1

Submit original with signatures + 1 copy + electronic copy to UAF Governance.

See http://www.uaf.edu/uafgov/faculty/cd for a complete description of the rules governing curriculum & course changes.

TRIAL COURSE OR NEW COURSE PROPOSAL

SUBMITTED BY:

Department	**IMS**	**College/School**	**SFOS**
Prepared by	**John Kelley**	**Phone**	**5585**
Email Contact	**ffjjk@uaf.edu**	**Faculty Contact**	**John Kelley**

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

2. *COURSE IDENTIFICATION:* Dept **MSL** Course # **494** No. of Credits **1**

Justify upper/lower division status & number of credits:	**This undergraduate course in environmental oceanography is a follow-uo to The Oceans (MSL111), a comprehensive survey course. The approach used in this course consists of marine environmental issues presented as self-contained analytical exercises, with information and questions on sustainability. Math proficiency is one of the skills necessary for fully understanding environmental issues and will be emphasized throughout the case studies. Through the exposure to case studies it is the objective of this course to teach students to learn about pressing marine environmental issues using critical thinking and basic math.** **This course will be taught as a 1 credit (1+0) offering at the 400 level. The upper division assignment reflects the greater acuity academic experience expected of the student above the entry lower division level. This course will also be suitable for graduate students wishing to pursue advanced degrees in one of the marine sciences who may find the quantitative case study approach suitable for entry into their graduate program.**

3. *PROPOSED COURSE TITLE:* **Environmental Oceanography**

4. *CROSS LISTED?* *YES/NO* **No** If yes, Dept: [ ] Course # [ ]

(Requires approval of both departments and deans involved. Add lines at end of form for such signatures.)

5. *STACKED?* *YES/NO* **No** If yes, Dept. [ ] Course # [ ]

6. *FREQUENCY OF OFFERING:* **Spring semester**

(Every or Alternate) Fall, Spring, Summer – or As Demand Warrants

7. *SEMESTER & YEAR OF FIRST OFFERING* (if approved) **Spring 2010**

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 one)	[ ] *1* [ ] *2* [ ] *3* [ ] *4* [ ] *5* [X] *6 weeks to full semester*
OTHER FORMAT (specify)	
Mode of delivery (specify lecture, field trips, labs, etc)	**Lecture**

9. CONTACT HOURS PER WEEK: | 1 | LECTURE hours/weeks | 0 | LAB hours /week | 0 | 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/cd/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 ~~4XX~~ 494, **ENVIRONMENTAL OCEANOGRAPHY, 1 credit: This undergraduate course in environmental oceanography is a follow-up to the comprehensive survey course, The Oceans (MSL111). The approach used in this course consists of using marine environmental issues presented as self-contained analytical exercises, with information and questions on sustainability. Math proficiency is one of the skills necessary for fully understanding environmental issues and will be emphasized throughout the case studies. Through the exposure to case studies it is the objective of this course to teach students to learn about pressing marine environmental issues using critical thinking and basic math.**

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 [ ] N = Natural Science [ ] S = Social Sciences [ ]

Will this course be used to fulfill a requirement for the baccalaureate core? [ ] YES [X] 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? [X] YES [ ] NO

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time). **The course contains significant new material each time.**

How many times may the course be repeated for credit? [1] 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:

LETTER: [X] PASS/FAIL: [ ]

RESTRICTIONS ON ENROLLMENT (if any)

14. PREREQUISITES | Instructor Permission or MSL 111X and Math 103

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

RECOMMENDED | MSL 111X; Math 103, Math 107, Math 200X or Math 207X

Classes, etc. that student is strongly encouraged to complete prior to this course.

15. SPECIAL RESTRICTIONS, CONDITIONS | None

16. PROPOSED COURSE FEES | $

Has a memo been submitted through your dean to the Provost & VCAS for fee approval? **Yes/No** | No

17. PREVIOUS HISTORY

Has the course been offered as special topics or trial course previously? **Yes/No** | No

If yes, give semester, year, course #, etc.: N/A

18. *ESTIMATED IMPACT*

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

This course will require a small classroom space and use of powerpoint projection equipment.

19. *LIBRARY COLLECTIONS*

Have you contacted the library collection development officer (ffklj@uaf.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] July 22, 23 2009

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)

This course will be of potential benefit to both the MSL and Fisheries programs as it deals with case histories and basic multidisciplinary oceanographic principles.

21. *POSITIVE AND NEGATIVE IMPACTS*

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

I have taught MSL 111X in the classroom for many years and currently teach this course by web. Many of my students inquire about availability of follow-up courses. Nearly all of the MSL courses are at the graduate (600) level. This course will offer an opportunity to apply basic skills acquired in the student's lower division courses plus life experiences to the solution of contemporary problems and emerging issues in the marine sciences. A possible negative impact might be the loss of students in the MSL 111X course who might desire a more rigorous and quantitative approach to the marine sciences. This course should not have any impact on other SFOS or UAF courses. I taught another course for the past 20 years (MSL 411, Current Topics in Oceanographic Research). There would be no impact on this course expected as it relied on reading and discussing articles published in the marine science journals.

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 SFOS does not have an undergraduate program yet there are students who express an interest in follow-up course availability in one or more of the marine science disciplines. This course will offer the student, particularly those who have had a general exposure to oceanographic principles in MSL 111X, an opportunity to apply their knowledge and critical thinking to real-world problems in a quantitative manner. For those students who have not taken the survey course, The Oceans, there will be sufficient introductory material offered in the course through lecture and individual study assignments.

APPROVALS:

	Date	8/4/09	
Signature, Chair, Program/Department of:	GPHSL		
	Date	8/25/09	
Signature, Chair, College/School Curriculu Council for:	SFOS Curriculum Committee		
	Date	8/03/09	
Signature, Dean, College/School of:	SFOS		
	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

	Date	

Signature, Chair, UAF Faculty Senate Curriculum Review Committee

ADDITIONAL SIGNATURES: (If required)

	Date	
Signature, Chair, Program/Department of:		
	Date	
Signature, Chair, College/School Curriculu Council for:		
	Date	
Signature, Dean, College/School of:		

ATTACH COMPLETE SYLLABUS (as part of this application).
Note: syllabus must follow the guidelines discussed in the Faculty Senate Guide 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 ❑ Student Learning Outcomes (more specific)**
6. **Instructional methods:**
   ❑ Describe the teaching techniques (eg: lecture, case study, small group discussion, private instruction, studio instruction, values clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).
7. **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.
8. **Course policies:**
   ❑ Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and plagiarism/academic integrity.
9. **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.)
10. **Support Services:**
    ❑ Describe the student support services such as tutoring (local and/or regional) appropriate for the course.
11. **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 (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities."

SYLLABUS
ENVIRONMENTAL OCEANOGRAPHY

1. MSL ~~4XX~~ 494
   1 credit, letter grade
   Prerequisites: MSL 111X and Math 103 or instructor's permission
   Location: Fairbanks
   Meeting time: One hour per week

2. Instructor Information:
   John Kelley
   331 Irving 2
   8:00 am to 5:00 pm Monday to Friday
   474 5585
   jjkelley@alaska.edu

3. Course Readings/Materials
   Environmental Oceanography: Topics and Analysis
   Authors: Daniel C. Abel
   Robert L. McConnell
   Edition/Publisher: 2010/Jones and Bartlett
   Supplementary Readings: Current scientific journal articles selected by instructor and presented to students for discussion. Required.
   Supplies: None

4. Course Description:
   Content: Environmental Oceanography is an interactive /case studies course that is designed to teach students to learn about pressing marine environmental issues using critical thinking about basic math. The course uses the approach to teaching environmental oceanography, consisting of marine environmental issues presented as self-contained analytical exercises, with information and questions on sustainability.

   The course begins with sections on review of the scientific method. Principles of critical thinking and logic. Next is an integrative exercise on the regulatory role of government, an introduction to sustainability and marine environmental issues and an overview of essential principles of physical oceanography and marine ecology. Included will be ten interactive issues drawn from a much larger pool. Each issue begins with a discussion of a pressing marine environmental issue followed by a self-contained activity

designed to develop students' critical thinking skills. These issues require students to integrate topics from a range of subdisciplines gained through previous courses to measure, analyze and evaluate the issue.
Expected Proficiencies: Students must be familiar with and be able to use a few simple and basic mathematical procedures and units of the metric system to quantify the issues that are presented. Students must rigorously and continuously assess their thinking and apply certain critical thinking skills and techniques when discussing the implications of their calculations.

5. Course Goals:
   General—Present a multidisciplinary course on environmental oceanography, consisting of marine environmental issues, in which students will be able to critically evaluate the implications to nature and society.
   Students Learning Outcomes—At the conclusion of the course, through their critical analysis of ten interactive issues, students should be able to address and analyze issues that are among the most important marine issues facing society today. These issues will help students understand and appreciate the complexities of the global environment and the fact that many environmental issues are interrelated. Another major goal is help develop the kind of math literacy needed to properly quantify environmental issues.

6. Instructional Methods:
   The primary instructional method will be in-classroom lectures and use of case studies to present critical issues. Students will work individually or in groups to prepare analytical papers related to selected marine issues. It is likely that some students will not be located on the Fairbanks campus, but will be accommodated by videoconferencing. The lectures will begin with a topical overview followed by discussion of issue papers. This trial course can be expanded to a two or three credit course with the inclusion of additional issue papers.

7. Course Calendar:
   The course is divided into the following sections:
   Week 1. Introduction to Science and the Use of Information
   Application of the scientific method and a discussion of Science and Public Policy.

   Week 2. Principles of Oceanography
   Towards Sustainable Oceans

Elements of Physical, Chemical and Geological Oceanography
Essentials of Marine Ecology
Addressing Environmental Impact at the International Level

Week 3. Human Population Growth
Overview and Global Trends
Coastal Population Growth
Unsustainable Coastal Development

Week 4. Global Climate Change
What Causes Climate Change

Week 5. Marine Pollution
Human Impacts on Estuaries, Shipping, Dead Zones

Week 6. Ecology of Large Marine Vertebrates
Highly migratory fishes
Threats to Cetaceans

Week 7. Midterm Examination

Week 8. Tropical Marine Ecosystems
The Value of the World's Coral Reefs
Mangroves

Week 9. Fisheries and Aquaculture
State of Global Fisheries
Can Aquaculture Replace Capture Fisheries?
Trawling and the Ocean Floor

Week 10. Invasive Species
Why Are Invasive Species a Problem

Week 11. Energy From the Ocean
Renewable Energy from the Seas: Is it limitless?

Week 12. Methane Hydrates
Climate Implications

Week 12. Oil and Gas Issues in the Arctic

Week 13. Student Presentation of Issue Papers

Week 14. Student Presentation of Issue Papers

Week 15. Final Examination

8. Course Policies
   Course policies will follow UAF rules and regulations. Specific policies for the course are that attendance will not be taken, however, all students will be responsible for submission of assignments. There will be no penalty for tardiness if the late submission is accompanied by prior arrangement or other extenuating circumstance. University rules on plagiarism will be followed.

9. Evaluation:
   Students will be evaluated primarily on the basis of written assignments and two examinations. A letter grade will be assigned based on: Issue Papers (40 points), Midterm (20 points) and Final Examination (40 points). Absolute scores will be used to assign grades (no half grades): 90 – 100 = A. 80 – 89 = B, 70 – 79 = C, 60 – 69 – D, 59 and lower will be an F grade.

10. Support Services:
    Tutoring for this course, if needed, will be provided by the instructor.

11. Disabilities Services:
    I will work with the Office of Disabilities Services to provide reasonable accommodation to students with disabilities.