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	**Fisheries Division**	**College/School**	**SFOS**
Prepared by	**Franz Mueter**	**Phone**	**907-796-5448**
Email Contact	**fmueter@alaska.edu** **clneumann@alaska.edu**	**Faculty Contact**	**Franz Mueter**

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

2. COURSE IDENTIFICATION: Dept **FISH** Course # **440** No. of Credits **3**

Justify upper/lower division status & number of credits: **This intermediate level course will provide fisheries students interested in marine fisheries issues with a solid understanding of oceanography and requires some understanding of basic physical, geological, chemical, and biological principles. The course will consist of a total of 3 hours of lectures per week for a total of at least 2400 min.**

3. PROPOSED COURSE TITLE: **Oceanography for Fisheries**

4. To be CROSS LISTED? *YES/NO* [ ] If yes, Dept: Yes Course # MSL 440

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

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

6. FREQUENCY OF OFFERING: **Alternating fall or as demand warrants**

Fall, Spring, Summer (Every, or Even-numbered Years, or Odd-numbered Years) — or As Demand Warrants

7. SEMESTER & YEAR OF FIRST OFFERING (if approved) **Fall 2012** Per Registrar: Fall 2012.

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)	[ ] *1*	[ ] *2*	[ ] *3*	[ ] *4*	[ ] *5*	[X]	*6 weeks to full semester*
OTHER FORMAT (specify)							
Mode of delivery (specify lecture, field trips, labs, etc)	**Lectures, online quizzes, in-class exercises (spreadsheet)**						

9. CONTACT HOURS PER WEEK: **3** LECTURE hours/weeks [ ] 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/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):

FISH 440 / MSL 440: Introductory Oceanography for Fisheries (3 credits)
This course will help students understand how oceanographic processes influence the distribution, recruitment, and abundance of marine vertebrate and invertebrate species from global to local scales and from evolutionary time scales to daily scales. Student will examine how this understanding supports the sustainable management of marine fisheries resources.

TO UAF GOV 12/15/10

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** [X]

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:** [ ]

RESTRICTIONS ON ENROLLMENT (if any)

14. *PREREQUISITES* **FISH 101, BIOL 115, CHEM 105, PHYS 103 (or equivalent) or Permission of Instructor**

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

RECOMMENDED **MSL 111, FISH 288, BIOL 271 or FISH 425**

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

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** **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 impacts beyond normal teaching requirements. The instructor is tenure-track faculty with the Fisheries Department and will teach this course as part of his workload requirements at UAF.

19. *LIBRARY COLLECTIONS*

Have you contacted the library collection development officer (kljensen@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]

E-mailed library collections (Karen Jensen and Anne Christie) on July 24, 2010. No anticipated effects on library/media collections, equipment, and services. I forwarded syllabus to Anne Christie and she will ensure that recommended readings will be available.

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 course will have impacts on the Fisheries Division and on GPMSL.
I contacted Brenda Norcross (in person and by e-mail on 7/26/2010), who teaches a graduate level course in Fisheries Oceanography, to ensure that there is no excessive overlap with her graduate-level course. I also contacted Katrin Iken, academic head of GPMSL (E-mail of 7/26/2010), and she commented that the course would have "positive impacts for GPMSL students and for the future minor". The latter refers to the minor in Marine Science that GPMSL is currently trying to develop.

21. *POSITIVE AND NEGATIVE IMPACTS*

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

Anticipated positive impacts on Fisheries and on the quality of research by Fisheries students:
The course will help undergraduate and graduate students in fisheries who are interested in or working on marine fisheries issues to understand the oceanographic basis for the patterns of variability and to assess the range of natural variability in exploited fish populations. Such an understanding is important for researchers and managers as management agencies increasingly adopt an ecosystem-based approach to fisheries management. Some basic understanding of oceanography is essential for anyone working on marine fisheries issues.

Anticipated negative impacts
No negative impacts on other courses, programs, departments are anticipated although there are obvious overlaps with a graduate level course in Fisheries Oceanography (MSL 640).

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.

This course is aimed at both undergraduate and graduate students in Fisheries to fill a need that is not currently met by existing courses. Many of our fisheries students, particularly in Juneau, work on marine fisheries issues but have either no previous background or a minimal background in oceanography (MSL 111). There is currently no intermediate level course that addresses the fundamental importance of oceanographic processes to fish populations and fisheries. Many of our students get employment in fisheries research or management agencies that place increasing emphasis on ecosystem-based approaches to management and would greatly benefit from a better understanding of the geological, physical, chemical, and biological processes that have structured marine ecosystems and their fish populations over millennia and continue to influence the productivity of marine fisheries resources.

While much of the material in this course is covered in greater detail in an existing graduate level course in 'Fisheries Oceanography', this does not meet the need of undergraduate students in fisheries and is not accessible to many of our graduate students that have not had any prior exposure to oceanography.

APPROVALS:

[signature]	Date	12/10/2010
Signature, Chair, Program/Department of:	Fisheries Division	
[signature]	Date	12/10/2010
Signature, Chair, College/School Curriculum Council for:	SFOS	
[signature]	Date	10 Dec 2010
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

	Date	

Signature, Chair, UAF Faculty Senate Curriculum Review Committee

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

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

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 (eg: 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."

FISH 440: Oceanography for Fisheries

Course syllabus

1. Course information:

Title: Oceanography for Fisheries
Number: Fisheries (FISH) 440; Marine Science and Limnology (MSL) 440
Credits: 3
Prerequisites: FISH 101, BIOL 115, CHEM 105, PHYS 103, or equivalent, or permission of instructor. MSL 111, FISH 288, and BIOL 271 or FISH 425 are recommended.
Location: Juneau, TBD; Fairbanks; TBD; other locations by demand
Meeting times: Lectures: twice weekly for 1.5 hours each (TBD)

2. Instructor:

Franz Mueter, office: 315 Lena Point; Office Hours: TBD or by appointment,
Phones: Office: 796-5448; email: fmueter@alaska.edu

3. Course readings:

Course textbook: "Essentials of Oceanography" (9th or 10th ed.) by A. Trujillo and H.Thurman or similar introductory text.
Supplementary Readings: "Dynamics of marine ecosystems: biological-physical interactions in the oceans" by K.H. Mann & J.R.N. Lazier (available electronically through UAF library).
Other web-based materials / electronic documents may be provided for recommended reading and a reference list will be provided for each topic. Students will have to select a case study from the literature for a term paper and presentation.

4. Course description:

This course will help students understand how oceanographic processes influence the distribution, recruitment, and abundance of marine vertebrate and invertebrate species from global to local scales and from evolutionary time scales to daily scales. Geological, physical, chemical, and biological oceanographic processes are examined from a functional perspective to appreciate how they have shaped and continue to shape marine ecosystems. We will explore how fish and shellfish populations have adapted to key oceanographic features and how they respond to oceanographic variability. Students will examine how a better understanding of these adaptations and responses can contribute to the sustainable management of marine fisheries resources.

5. Course goals:

- To develop an appreciation for the effects of oceanographic processes on the abundance, distribution, and productivity of marine fish and shellfish populations.
- To develop critical thinking and synthesis skills about the relevance of oceanographic processes in the context of fisheries research and management.
- To develop professional-level written and oral communication skills as marine scientists.

6. Student learning outcomes

- Familiarity with and understanding of key oceanographic processes affecting fish and shellfish populations and communities.
- Ability to recognize potential links between variability in fish populations and underlying oceanographic processes.
- Familiarity with field and analytical methods that are used by researchers studying such links.
- Ability to compute commonly used oceanographic variables.
- Understanding of how oceanography can contribute to the management of fisheries and familiarity with relevant case studies.

7. Instructional methods:

Most of the class will follow a lecture format with periodic group discussions pertaining to reading assignments. Short spreadsheet exercises will be used to illustrate basic oceanographic principles, analytical techniques, and computations of oceanographic quantities. Blackboard is used for class organization, reading assignments, and source of supplemental reading. Class materials (PowerPoint slides, videos, spreadsheets for calculations) will be made available through Blackboard prior to each class.

8. Course calendar:

Tentative outline (weeks 1-14):

1. The geological history of the oceans and the evolutionary history of fishes
    a. Plate tectonics
    b. Species diversity across ocean basins
    c. Earth's magnetic field and homing of fishes: Salmon, sea turtles, elasmobranchs
    d. Sea mounts & coral reefs
2. Marine provinces and biogeography of the oceans
    a. Ocean bathymetry and major habitats
    b. Large Marine Ecosystems: Definition and classification, productivity, and fisheries catches
    c. Latitudinal clines in fishes
3. Marine sediments, fish habitat, and productivity
    a. Mapping the ocean floor: Uses in research, assessment and management
    b. Paleo-oceanography: long-term fluctuations in fish stocks
    c. Sediments from the air: Dust storms and ocean productivity
4. Seawater properties and the vertical structure of the ocean: Life in a 2-layered ocean
    a. Primary productivity in the ocean: the role of stratification
    b. Primary productivity and fisheries production
    c. Adaptations: the vertical distribution and migration of fishes
5. The pelagic environment
    a. Characteristics and challenges of the deep sea
    b. Pelagic food webs and adaptations of fishes to life in the pelagic
    c. Deep sea fishes, myctophids, squid, and salmon

d. Assessment, fisheries, and management

6. The benthic environment
    a. Benthic food webs and adaptations of fishes to life on the sea floor
    b. Gadids, crustaceans, and flatfish
    c. Assessment, fisheries, and management

[Mid-term exam]

7. Large-scale circulation of the oceans 1: the large ocean gyres
    a. Physical basis: Coriolis and wind stress
    b. Adaptations: Eels, salmon, and tuna
8. Large-scale circulation of the oceans 2: Boundary currents & upwelling
    a. Boundary currents: Physical basis, adaptations, and case studies
    b. Upwelling systems: Ekman transport, dynamics of small pelagics
9. Turbulence, eddies, and rings
    a. Turbulence in the ocean and adaptations of fishes
    b. Mesoscale eddies, ocean productivity, and implications for fish
10. Fronts
    a. Convergence and divergence
    b. Shelf break fronts, tidal fronts
    c. Adaptations and responses of fishes to frontal structures
11. Waves
    a. Waves and wave action in the coastal ocean: Fishes in the intertidal
    b. Internal waves, nutrient dynamics, and implications for fisheries
    c. Kelvin waves and Rossby waves: El Nino and its effect on fishes
12. The tidal cycle
    a. The origin and nature of tides and tidal currents
    b. Adaptations: tides and larval transport, feeding, spawning activity
13. The Coastal Ocean
    a. Continental shelf systems: Breadbasket of the oceans
    b. Estuarine dynamics and estuaries as nursery grounds
14. Oceanographic drivers of fish populations and management responses
    (Student presentations: selected case studies)

9. Course policies:

a. Attendance is mandatory unless excused beforehand
b. Tardiness is unacceptable and will impact evaluations
c. Class participation is encouraged and will be part of your grade. You are encouraged to ask questions and comment as you feel appropriate in class. You will be expected to make a short presentation during the semester.
e. I will try to schedule exams to avoid conflicts. However, there are some unavoidable

circumstances that may take precedence (such as field work or attendance at a scientific conference). If you inform me in a timely manner, I will arrange for makeup exams.

f. Cheating, plagiarism, and other forms of academic dishonesty are unacceptable and will result in a failing grade for the assignment or for the class.

Please also consult the Student Code of Conduct in the UAF Catalog: (http://www.uaf.edu/catalog/current/academics/regs3.html).

10. Evaluation

Final grades will be based on online quizzes, a mid-term exam, a term paper, a presentation in class, and class participation:

Item	**Date**	**Percent of Grade**
1. Online quizzes (6)	Throughout semester	30
2. Mid-term exam	Mid-term	25
3. Student presentations	Last week of classes	15
4. Final (term paper)	Due on the last day of classes	20
5. Class participation	Throughout semester	10
TOTAL		100

Letter grades will be assigned based on the total number of points obtained as follows:

Points	Grade
90 - 100 points	A (≤92.5: A-, ≥ 97: A+)
80 – 89.5 points	B (≤ 82.5: B-, ≥ 87: B+)
70 – 79.5 points	C (≤ 72.5: C-, ≥ 77: C+)
60 – 69.5 points	D (≤ 62.5: D-, ≥ 67: D+)
< 60 points	F

11. Support Services

Please see instructor if you have any special needs. Additional help, non-subject oriented, can be obtained through the SFOS Academic Coordinator's office:

Christina Neumann
Phone: 907- 474-5840
email: clneumann@alaska.edu

12. Disabilities Services

The instructor will work with the Office of Disabilities Services to provide reasonable accommodation to students with disabilities to ensure equal access to campus and to course materials in accordance with UAF policy and the ADA.