

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	SFOS	College/School	GPMSL
Prepared by	Rolf Gradinger	Phone	907 474 7407
Email Contact	rrgradinger@alaska.edu clneumann@alaska.edu	Faculty Contact	Rolf Gradinger

1. ACTION DESIRED**(CHECK ONE):**

Trial Course

New Course

☒**2. COURSE IDENTIFICATION:**

Dept

MSL

Course #

449

No. of Credits

3

Justify upper/lower division status & number of credits:

This class is already offered as a 3 credit graduate level class, and we want to add the 400 level requirements to make this class also an option for students in the newly designed minor in marine science. The proposed marine science minor has been submitted concurrently.

3. PROPOSED COURSE TITLE:**Biological Oceanography****4. CROSS LISTED?**

YES/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

yes

If yes, Dept:

MSL

Course #

650**6. FREQUENCY OF OFFERING:****Each fall**

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

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

☐

1

☐

2

☐

3

☐

4

☐

5

☒

x

6 weeks to full semester

OTHER FORMAT (specify)

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

Lectures, long distance offered**9. CONTACT HOURS PER WEEK:****3**

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 449/650, Biological Oceanography, 3+0 credits****Prerequisites for undergraduate students: MSL 212, upper division standing in a science major**

Survey of biological processes emphasizing organic matter synthesis and transfer including topics essential to a basic understanding of contemporary biological oceanography. Primary and secondary production, standing stocks, distribution, and structure and dynamics of phytoplankton and zooplankton populations. The transfer of organic matter to higher trophic levels and food webs. Nutrient cycling, especially but not exclusively nitrogen, phosphorus and silicon, microbiological processes relevant to nutrient cycling. Heterotrophic production, benthic communities coastal ecosystems, the influence of organisms on the composition of seawater, particularly with reference to oxygen and carbon dioxide regimes. Aspects of regional oceanography.

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 ☒ 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:**

LETTER: ☒ PASS/FAIL: ☐

RESTRICTIONS ON ENROLLMENT (if any)

14. **PREREQUISITES** *Prerequisites for undergraduates: MSL 212, Upper-division standing in a science major.*

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

RECOMMENDED

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

15. **SPECIAL RESTRICTIONS, CONDITIONS**

none

16. **PROPOSED COURSE FEES**

none

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.

There is no additional space or facility requirements, as the class is already offered as MSL650. The class will be offered as part of the regular workload of the instructors (Hopcroft, Grading). The paperwork for the minor has been submitted concurrently.

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

☐

No additional requirements, as the class has been already offered at the 600 level. Discussed with Anne Christie (Biosci Libr) on Dec 15, 2010.

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 change will benefit the minor in marine science (forms submitted).

21. **POSITIVE AND NEGATIVE IMPACTS**

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

This course will contribute to minor in marine science. The marine science minor has been submitted concurrently. We see no negative impacts. This class will offer students a broad educational experience in regards to the biology of the oceans.

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.

It will broaden the opportunities for undergraduate students with majors in science in other disciplines. Over the last years, a few undergraduate students took MSL650, however had to take the exams and complete an assignment with the graduate students. The following differences exist regarding undergraduate and graduate students taking the stacked class (as outlined in the syllabus): Undergraduates do not have to write the essay assignment. The essay assignment for the graduate level is a major component with high impact on final grade. The graduate level students have to read peer-reviewed publications and other primary literature to provide a critical review using the literature well beyond the textbook level. They will be guided to see the state of the art/cutting edge science in the discipline of biological oceanography, which provides a completely different quality of expectations compared to the undergraduate students, where textbook knowledge is sufficient. Also, we will provide different midterm and final exams fore the graduate and the undergraduate students to reflect different expectations on the undergraduate vs graduate level.

APPROVALS:

	Date	
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

	Date	
Signature, Chair, UAF Faculty Senate Curriculum Review Committee		

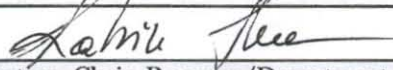
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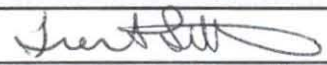
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It will broaden the opportunities for undergraduate students with majors in science in other disciplines. Over the last years, a few undergraduate students took MSL650, however had to take the exams and complete an assignment with the graduate students. The altered syllabus of MSL 449 will allow undergraduate students to take the class and pass at a more appropriate level. The following differences exist regarding undergraduate and graduate students taking the stacked class (as outlined in the syllabus): Undergraduate students do not have to write the essay assignment. Also we will provide different midterm and final exams for the graduate and the undergraduate students to reflect different expectations on the undergraduate versus graduate level.

APPROVALS:

 Date 12/16/10
Signature, Chair, Program/Department of: GPHSL

 Date 12/16/10
Signature, Chair, College/School Curriculum Council for: SPOS

 Date 12/15/10
Signature, Dean, College/School of: STARO

 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

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."

MSL 449 Biological Oceanography

Fall 2011

Instructors

Rolf Grading
Irv II, room 231
907 474 7407

rgrading@ims.uaf.edu
office hours: Fri 3.30-4.30pm

Dr. Russ Hopcroft
120 O Neill
(907) 474-7842

hopcroft@ims.uaf.edu
office hours: Mon-Fri 3.30-4.30pm

Textbook

Biological Oceanography – C.M. Miller, Wiley-Blackwell (~\$60)

See also:

Biological Oceanography: An introduction (2nd Edition) – C.M. Lalli & T.R. Parson, Butterworth/Heinemann

Dynamics of Marine Ecosystems. 3rd ed – K.H. Mann & J.R.N. Lazier, Wiley-Blackwell

Marine Ecological Processes. 2nd ed I. Valiela, Springer

Course format:

- 3 lectures per week MWF 2:15-3:15pm, O'Neill 201
- Mid-term Examination 1: October 3, 2:15-3:15pm
- Mid-term Examination 2: November 2, 2:15-3.15pm
- Last Day of Classes: Dec 13.
- Final Examination: Wednesday December 17, 1:00-3:00 pm O'Neill 201
- Note: all class presentations will be posted as powerpoint slides on blackboard. Instructors will use blackboard system to communicate with students.

Biological Oceanography: The study of why we find organisms where and when we do. In particular, how are distribution, abundance, biomass and production influenced by the physical (and chemical) environment and the interaction with other organisms.

In practice, most biological oceanographers work on organisms in the water column, exclusive of fishes (i.e. a fisheries oceanographer) and mammals (i.e. marine mammalogist), while those working on benthic organisms typically consider themselves marine biologists or marine ecologists. This course will be taught from the perspective of that reality.

Course description:

MSL 449/650, Biological Oceanography, 3+0 credits

Prerequisite: MSL 212, upper division standing in a science major (for undergraduate students)

Survey of biological processes emphasizing organic matter synthesis and transfer including topics essential to a basic understanding of contemporary biological oceanography. Primary and secondary production, standing stocks, distribution, and structure and dynamics of phytoplankton and zooplankton populations. The transfer of organic matter to higher trophic levels and food webs. Nutrient cycling, especially but not exclusively nitrogen, phosphorus and silicon, microbiological processes relevant to nutrient cycling.

Heterotrophic production, benthic communities coastal ecosystems, the influence of organisms on the composition of seawater, particularly with reference to oxygen and carbon dioxide regimes. Aspects of regional oceanography.

Learning objectives:

- Understand basic physical and chemical structure of the oceans, regional differences
- Knowledge of major taxonomic groups represented in the ocean (from microbes to invertebrates)
- Understand relevance of size for nutrient uptake, sinking, viscosity, food web interactions
- Describe the ocean carbon and nitrogen cycling (including traditional food webs and microbial network)
- Understand the regional differences in the Alaskan Oceans (from Pacific to Arctic)
- Basic knowledge on history in oceanography

Important contact information for long distance delivery students (to be adjusted each semester)

Phone numbers: Lecture room 201 O Neil in FAI: 907 474 5377

VCS (video conferencing problems): 800 910 9601

In case all is not working: conference call:

800 570 3591

Your PIN: XXXXXXXXXX (will only work when instructor has started a conference)

Evaluation for undergraduate students:

25% Mid-term Examination 1
25% Mid-term Examination 2
50% Final Examination.

We will be employing the following grading system for the course:

A+>95%	B-: >70-75%	
A>90-95%	C+:>67-70%	
A->85-90%	C: >63-67%	
B+:>80-85%	C-: >60-63%,	
B:>75-80%	D:50-60%,	F<50%

Students should be familiar with the UAF Honor Code (you find it in the catalog). Neither cheating, plagiarism nor fabrication will be tolerated. Any student found cheating during the exams or to have plagiarized or fabricated statements (including passages from web pages) will receive an automatic 'F' for the **class**.

The use of cell phones, texting or other electronic communication during the class is considered not appropriate.

Learning disabilities: All disabilities have to be documented by UAF's Center for Health & Counseling, and instructors receive a formal letter requesting that we make accommodations for any student with disabilities. Please contact us at the beginning of the course about your special requirements you might need. Contact us after the lessons, in our offices, by phone or mail within the first week of the semester.

Schedule for Biological Oceanography
Fall 2011

Date	Topic	Reading (in Miller)
Sep 3	Introduction, syllabus discussion	-
Sep 8	History of Oceanography	Based on powerpoint
Sep 10-17	Introduction phys + chem oceanography	Based on powerpoint
Sep 20-29	The primary production cycle	Chapter 1

Oct 1 - Oct 8	Major algal taxonomic groups, regional differences, relations to nutrient regime	Chapter 2+3
Oct 3	Mid term 1	
Oct 11-20	Microbial loop	Chapter 5
Oct 22-25	Major zooplankton taxa	Chapter 6
Oct 27- Nov 1	Zooplankton production	Chapter 7
Nov 2	Mid term 2	
Nov 3-8	Zooplankton population biology	Chapter 8
Nov 10-15	Numerical modeling	Chapter 4
Nov 17-22	Marine biogeography	Chapter 9
Nov 24-29	Biomes and provinces	Chapter 10
Dec 1- 5	Climate Change issues	Based on power points
Dec 8-13	Alaskan Waters, review	Based on power points
Dec 17		Final exam (cumulative, with emphasis after midterm) 2hrs: 1-3pm, 201 O Neill

You are expected to read the relevant chapter prior to the first lecture on that topic. This greatly facilitates dialog during lectures!

MSL 650 Biological Oceanography

Fall 2011

Instructors

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rgrading@ims.uaf.edu

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Evaluation for graduate students:

20% Mid-term examination 1 (specific for graduate students)

20% Mid-term examination 2 (specific for graduate students)

40% Final exam (specific for graduate students)

20% essay (only for graduate students)

Essay topic (graduate students only):

What are implications of large-scale iron fertilization of the oceans (as a remediation measure for climate change).

Starting references in: Theme section. Mar. Ecol. Prog. Ser. **364: 213-309**

Provide us with an essay plus a complete bibliography of all used resources. This task needs to be completed by Nov 22, 2009. Please submit by email to

Hopcroft@ims.uaf.edu and rgrading@ims.uaf.edu.

The essay assignment for the graduate level students is a major component with high impact on final grade. The graduate level students will read peer-reviewed publications and other primary literature to provide a critical review using the literature well beyond the textbook level. They will be guided to see the state of the art/cutting edge science in the discipline of biological oceanography, which provides a completely different quality of expectations compared to the undergraduate students, where textbook knowledge is sufficient.

Format: 3000 to 3500 words (preferred: 12 pt Times Roman font, single line spacing, 1" margins), plus references. For citation style follow the journal *Polar Biology* (see web).

We will be employing the following grading system for the course:

A+>95%

A>90-95%

A->85-90%

B+:>80-85%

B:>75-80%

B-: >70-75%

C+:>67-70%

C: >63-67%

C-: >60-63%,

D:50-60%,

F<50%

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