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

MSL 449 Biological Oceanography

Fall 2011

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 case all is not working: conference call:

800 570 3591

Your PIN: XXXXXXXXX (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	Chapter4
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

MSL 650 Biological Oceanography

Fall 2011

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: disference

MSL 449/650, Biological Oceanography, 3+0 credits
Prerequisite: MSL 212 (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.

In case all is not working: conference call:

800 570 3591

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

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 tasks needs to be completed by Nov 22, 2009. Please submit by email to Hopcroft@ims.uaf.edu and rgradinger@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%	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

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!