Spring 2016  
MSCI 102-501 (Honors), The Living Ocean  (4 Credits)  
Lecture: T,TH 2:50-4:05 PM, EWS 604  
Lab: W 3:30-6:30 PM, EWS 111  

Instructor: Dr. Ron Benner, Professor of Marine and Biological Sciences (Office: SUM 346, 777-9561; email: benner@mailbox.sc.edu; office hours immediately following class or by appointment)

Course Description: A study of the origin, evolution, and diversity of marine life, biological production, trophic dynamics, nutrient cycles, marine resources, and environmental concerns.

1. Course Objectives (stated as Learning Outcomes):
Upon completion of the course, the student should be able to:
- Apply the principles and languages of the natural sciences and associated techniques to historical and contemporary issues
- Discuss theories about early life forms and processes in the ocean
- Describe the processes of photosynthesis and respiration
- Describe the major groups of photosynthetic organisms in the ocean
- Understand the factors that limit primary production in different ocean regions
- Compare marine food chains and food webs
- Describe trophic levels and carbon and energy transfer
- Understand the concepts of the Biological Pump and the Microbial Loop
- Compare the ocean carbon and nitrogen cycles
- Identify the major problems facing marine fisheries

2. Required Resources:
An Introduction to the World’s Oceans by Sverdrup and Armburst. McGraw-Hill


3. Instructional Delivery Strategy:
The course will include classroom lectures (55%), class discussion of assigned readings (35%), and exams (10%).

4. Course Requirements:
Three mandatory exams will be administered according to the following schedule:
February 4       (Exam #1)
March 17         (Exam #2)
April 19         (Exam #3)
A comprehensive final exam will be given on Thursday, April 28, at 12:30 pm. This exam is optional, but you are encouraged to take it because your overall exam grade will be based on your 3 best exam scores. Taking the final either helps your grade or is not counted. No make-up exams will be given. You are required to take the final exam if you miss any of the scheduled exams.

For the lab portion of MSCI 102, the Graduate Instructor will administer a combination of quizzes, tests and lab reports (to be announced separately). The lab section of MSCI 102 counts for 30% of your overall grade.

Written summaries (240-260 words) of assigned chapters from Mapping the Deep are due in class on the day the chapter is discussed in class. Summaries should include the title of the Chapter, your name and the total word count of your summary (double space). The summaries should be focused and capture the essence of the assigned reading. Students should be prepared to participate in classroom discussions.

Final grades will be calculated as follows:
- 50% best 3 out of 4 exam scores (3 exams + optional final exam)
- 30% laboratory grades based on quizzes and reports
- 20% written summaries and participation in discussion

Grading scheme (90-100=A; 87-89=B+; 80-86=B; 77-79=C+; 70-76=C; 67-69=D+; 60-66=D; <60=F)

5. Outline of Topics to be Covered:
- Origins and evolution of life (Ch 2 Sverdrup, Ch 1,15 Kunzig)
- Life in the ocean (Ch 14 Sverdrup)
- Marine autotrophs and primary production (Ch 15,16 Sverdrup, Ch 11 Kunzig)
- Nutrients and biogeogemical cycles (Ch 15 Sverdrup)
- Matter, energy and trophic dynamics (Ch 15,16 Sverdrup, Ch 9 Kunzig)
- Marine food webs and communities (Ch 15 Sverdrup, Ch 6,7 Kunzig)
- Marine ecosystem diversity (Ch 16,17,18 Sverdrup, Ch 8,10 Kunzig)
- Marine resources (Ch 13 Sverdrup, Ch 12 Kunzig)
- Oceanic and global environmental concerns (Ch 13 Sverdrup, Ch 14 Kunzig)

6. Attendance Policy and Class Expectations:
- attend every class period
- come to class prepared to contribute and learn
- do assigned readings before class and take notes during class
- all cell phones should be turned off during classes

7. Office of Student Disability Services policy statement:
Any student with a documented disability should contact the Office of Student Disability Services at 803-777-6142 to make arrangements for appropriate accommodations.