

COA 690/790, BSC 492/692 and PCOG 541/620
Special Topics in Oceans and Human Health
Fall 2008, TTh at 1:00 – 2:15 p.m.
D. Jay Grimes & Tim McLean, Southern Miss
Mark Hamann, Ole Miss

Schedule

Lect.	Date	Lecture Topic	Relevant Chapters*
1	Aug 21	Introduction to Ocean Policy (Guest Lecturer: Carolyn Sotka, NOAA/OHHI) The Bad and The Ugly – Waterborne Diseases and HABs	
2	Aug 26	Sampling and Detection	1, 20
3	Aug 28	Sources, Fecal Indicators and Source Tracking	17, 19, 20
4	Sept 2	Viable but Nonculturable Bacteria (H. Gustav, no class)	C&G, handout
5	Sept 4	The Vibrios (Guest Lecturer: Dr. Rita Colwell, Univ. of Maryland)	17, 18, 2 (NRC)
6	Sept 9	Enteric Bacteria	17, 18, 2 (NRC)
7	Sept 11	Gram-positive Bacteria (DJG) and Fungi (Dr. Jinx Campbell) (H. Ike, no class)	17, 18, 2 (NRC)
8	Sept 16	Viruses	17, 18, 2 (NRC)
9	Sept 18	Climate Change and Extreme Weather	2, 3, 4, 1 (NRC)
	Sept 23	EXAM 1	
11	Sept 25	Harmful Algae Blooms: Introduction	8 (B&C), 3 (NRC)
12	Sept 30	HABs-Dinoflagellates	13
13	Oct 2	HABs-Dinoflagellates	14, 16
13	Oct 7	HABs-Diatoms and Other Protists	12
14	Oct 9	HABs-Cyanobacteria	15
15	Oct 14	Epidemiological Studies and Assessing Risks to Public Health (Guest Lecturer: Dr. Amal Mitra, USM)	11
16	Oct 21	Ocean Observing and Detection Systems	handout
17	Oct 23	Emerging Biotechnologies--Algae Isn't All Bad	handout
	Oct 28	EXAM 2	
		The Good - Marine Natural Products	
18	Oct 30	Seafood Safety and Super Critical Fluids	
19	Nov 4	Chemistry and Pharmacology of Marine Toxins	
20	Nov 6	Sustainable Supply and Bacteria-Invertebrate Associations	
21	Nov 11	Immunosuppressive Agents and Inflammation	
22	Nov 13	Cancer	
23	Nov 18	Neuropharmacology and Pain	
24	Nov 20	Infectious Diseases	
25	Nov 25	Tropical and Neglected Diseases	
	Dec 2	EXAM 3	
26	Dec 4	Social and Economic Impact of Oceans and Human Health	5
	Dec 8-11	FINAL EXAM	

***TEXTBOOK:** Walsh, P.J., S.L. Smith, L.E. Fleming, H.M. Solo-Gabriele, and W.H. Gerwick (eds.). 2008. Oceans and Human Health: Risks and Remedies from the Sea. Elsevier, Inc.

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Syllabus

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COURSE DESCRIPTION: 3 hrs. Prerequisite: Organic Chemistry or consent of instructor. An overview of how the oceans and coasts impact human health and well-being.

GOALS AND OBJECTIVES: The goal of Oceans and Human Health is to provide students with an overview of how the oceans affect human health in both positive and negative ways. Oceans and Human Health is an emerging “metadiscipline” that involves oceanography, waterborne and seafood borne diseases, toxicology,

harmful algal blooms, epidemiology, comparative animal physiology, natural products chemistry, pharmacology, social sciences, engineering, and other related areas.

The delivery format will consist of traditional lectures presented at the GCRL in Ocean Springs (first 1/3 of the course), the USM Hattiesburg campus (second 1/3 of the course), and the Ole Miss campus (third 1/3 of the course). The lectures will be delivered to “off campus” sites via the Interactive Video Network (IVN). In other words, the first series of lectures will originate in Ocean Springs and be sent to Hattiesburg and Oxford via the IVN, and so on. There will not be a corresponding laboratory course. The lectures will be supplemented with handouts and PowerPoint presentations. Lecture outlines, handouts, PowerPoints, grades, reading assignments and other items of interest will be sent to students via e-mail. As appropriate, guest lecturers will be asked to speak. Students will receive 3 s.h. credit at their respective university.

GRADING: The final grade is based on 500 total points distributed as follows:

3 100-point exams –	300 points
1 200-point final exam –	<u>200 points</u>
	500 points

Graduate students must submit a term paper worth 100 points. Their grade will therefore be based on a total of 600 points for the course.

The letter grades are based on the following percentages:

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

TERM PAPER: The term paper will consist of a topic relevant to the graduate student’s own area of thesis or dissertation research. A draft of the paper must be submitted by mid-semester for basic content and grammatical review and then it must be revised and submitted for final grading one week before the last exam.

1. Term paper must be at least 12 pages long, in 10 pt. Ariel or 12 pt. Times New Roman, with 1.5 line spacing. MS Word is preferred.
2. Literature citations **must** be done in the a style consistent with the graduate student’s discipline.
3. Final copy must be submitted BOTH in hard copy and electronically.

ADDITIONAL REFERENCES:

Belkin, S. and R.R. Colwell (eds.). 2006. Oceans and Health: Pathogens in the Marine Environment. Springer Science. New York, NY. (B&C)

Colwell, R.R. and D.J. Grimes (eds.). 2000. Nonculturable Microorganisms in the Environment. ASM Press, Washington, D.C.

National Research Council (NRC). 1999. From Monsoons to Microbes: Understanding the Ocean’s Role in Human Health. National Academy Press, Washington, DC. (NRC)