

MARINE INVERTEBRATES
Biology 211

Fall 2006

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Lecture: Tuesday/Thursday 0930- 1050
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Course Description: This object of this course is to survey the major marine invertebrate phyla, classes and orders. We begin with the simplest, single celled organisms, and finish with the most complex. For each group we will explore internal and external anatomy, feeding, and reproduction, and relate these anatomical and morphological features to the invertebrate's mode of life. Laboratory work involves examining live and prepared specimens and field trips to local habitats. It is hoped that by the end of the course you will be familiar with the common marine taxa and understand the relationship between the form and function for each.

Text: Pechenik, J.A. 2005. Biology of the Invertebrates 5th Edition. Wm. C. Brown Publishers.

Articles: I have assigned a few primary research articles. These are listed by the author's last name and date in the syllabus on the day they should be read and a full citation is given at the end of the syllabus in the reading list. You can get some of these articles on line (indicated in the reading list); the others are in Ladd Library and few copies may be placed in the laboratory. Please only remove the articles for a short time to copy. If you are in doubt as to how to retrieve articles on line, see the reference librarian in Ladd Library.

Grading:

Midterm Exam	20%
Final Exam	30
Laboratory Exams	25 (@ 12.5 each)
Participation	5
Lab project	20

Seminars: Occasionally, there are Biology Department or College seminars which are relevant to the invertebrate zoology. The 1 November Department of Biology seminar is on the syllabus and attendance is required. Other opportunities that arise will be mentioned in class or by e-mail.

Office Hours: I try to always make my office hours, but occasionally I am in a meeting or they coincide with low tide and I am in the field. It is best to make an appointment. My office is always open and I am generally available for students anytime I am on campus. Do not plan on trying to see me just before class.

Communication: I will communicate changes in schedule and insights on assignments etc. via e-mail to the class list (fbio211a). It is your responsibility to read your e-mail. If you have a question of general interest, you should send it to the class list.

<u>Date</u>	<u>Lecture</u>	<u>Reading</u>
Week 1		
7 Sept.	Orientation/Generalities	Chs 1 & 2
Week 2		
12 Sept.	Protozoans	Ch 3
14 Sept.	Porifera	Ch 4
Week 3		
19 Sept.	Hydrostatic Skeleton & Cnidaria	Chs 5 & 6 Chornesky 1983
21 Sept.	Ctenophora	Ch 7
Week 4		
26 Sept.	Platyhelminthes	Ch 8 Scharer <i>et al.</i> 2004
28 Sept.	Rotifera, Nematoda, Kinorhyncha, Priapulida, Loricifera, Gastrotricha	Chs 10, 16 & 17 Ch 18 (445-455)
Week 5		
3 Oct.	Nemertea	Ch 11
5 Oct.	Mollusca: polyplacophora, aplacophora, monoplacophora gastropoda	Ch 12 (207-230) de Vooy 2006
Week 6		
10 Oct.	LABORATORY EXAM I	
12 Oct.	LECTURE EXAM	
Week 7		
17 Oct.	Molluscs: bivalvia, scaphopoda cephalopoda Film-Bivalve Feeding	Ch 12 (230-284)
19 Oct.	BREAK	

Date	Lecture	Reading
Week 8		
24 Oct.	Annelids :Polychaeta Film-Annelid Diversity	Ch 13 (285-302) Mattila 1997
26 Oct.	Annelids: clitellata, echiura, pogonophora Sipuncula	Ch 13 (302-328) Dorgan <i>et al.</i> 2005
Week 9		
31 Oct.	Arthropoda: General Characteristics	Ch 14 (329-338; 373-383)
1 Nov.	Seminar: "Sex in the sea: is fertilization in sea Urchins limited by sperm availability" Dr. Phil Yund 1610, 204 Carnegie	
2 Nov.	Arthropoda: chelicerata	Ch 14 (338-345)
Week 10		
7 Nov.	Arthropoda: crustacea	Ch 14 (358-373) Cowles <i>et al.</i> 1998
9 Nov.	Lophophorata	Ch 19
Week 11		
14 Nov.	Echinodermata	Ch 20 (485-497) Sewell <i>et al.</i> 2004
16 Nov.	Echinodermata	Ch 20 (497-514) Hudson <i>et al.</i> 2005
Week 12	THANKSGIVING BREAK	
Week 13		
28 Nov.	Hemichordata	Ch 21
30 Nov.	Non-vertebrate Chordates	Ch 22
Week 14		
5 December	Extra time	
7 December	REVIEW	
Week 15	COMPREHENSIVE FINAL EXAM	

Reading List
(*available on line, + Bates subscribes to Journal)

- *+Chornesky, E.A. 1983. Induced development of sweeper tentacles on the reef coral *Agaricia agaricites*: A response to direct competition. *Biol. Bull.* 165:569-
- +Cowles, T.J., R.J. Olsen, and S.W. Chisholm 1988. Food Selection by copepods: Discrimination on the basis of food quality. *Mar. Biol.* 100:41-50.
- *+Dorgan, K.M., P.A., Jumars, B. Johnson, R.B. Bourdreau, and E. Landis 2005. Borrow extension by crack propagation. *Nature* 433:475.
- * de Vooy, C.G.N. 2006. Protection against suspended sand: the function of the branchial membrane in the blue mussel *Mytilus edulis*. *Helgolander Marine Research*.60:239-242.
- *Hudson, I.R., F.D. Wigham, M. Solan and R. Rosenberg 2005. Feeding behavior of deep-sea dwelling holothurians: Inferences from a laboratory investigation of a shallow fjordic species. *Journal Marine Systems* 57:201-218.
- *+Mattila, J. 1997. The importance of shelter, disturbance, and prey interactions for predation rates of tube-building polychaets (*Pygospio elegans* (Claparède)) and free living tubificid oligochaetes. *J. Exp. Mar. Biol. Ecol.* 218:215-228.
- *+Schärer, L., G. Joss, and P. Sandner 2004. Mating behavior of the marine tubellarian *Macrostomum* sp.: these worms suck. *Mar. Biol.* 145:373-380.
- *+Sewell, M.A. M.J. Cameron, and B.H. McArdle 2004. Developmental plasticity in larval development in the echinometrid sea urchin *Evechinus chloroticus* with varying food ration. *J. Exp. Mar. Biol. Ecol.* 309:219-237.