Invertebrate Zoology
Tuesdays and Thursdays (8:30 am - 5:30 pm)
Earlier than 8:30 am on many morning field trips

Spring Quarter 2014
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Week 1
4/1   08:02/ -0.65 ft.
      07:00  Field Trip to South Cove
      CT  10:00  Lecture: Introduction to class and inverts overview
      CT  10:30  Lecture: Phylum Porifera (Chapter 4, pgs. 75-88)
            13:15  Set up scopes
            14:00  Lab Porifera

4/3   09:30/ -0.28 ft.
      08:00  Field trip to North Jetty
      MW  10:30  Lecture: Phylum Cnidaria (Chapter 6)
      MW  11:00  Lecture: Class Hydrozoa (Chapter 6, pgs. 109-115)
      MW  13:14  Lecture: Class Anthozoa (Chapter 6, pgs. 117-126)
            14:30  Lab: Hydrozoa

Week 2
4/8   14:12/ 1.37ft.
      08:00  Lab: Anthozoan diversity
      10:00  Seminar Lecture: Dr. Chris Kenaley
      11:30  Boat Trip, Lunch on Boat?
      CT  14:00  Lecture: Classes Scyphozoa, Cubozoa & Staurozoa
                (Chapter 6, pgs.102-108, 116)
      MW  15:00  Lecture: Phylum Ctenophora (Chapter 7)

4/10  15:58/ 1.30ft.
      MW  08:30  Lecture: Phylum Platyhelminthes (Turbellarians)
            (Ch. 8, pgs. 147-155)
            10:00  Lab: Platyhelminthes Lab (Turbellarians)
      MW  13:15  Lecture: Platyhelminthes (Parasitic Classes)
            (Ch. 8, pgs. 156-168) + NPR Radiolab “Parasite” Podcast
            15:00  Lab: Dissections for Platyhelminthes  Turn in Lab Notebooks
Week 3
4/15 07:02/ -0.22 ft.
CT 06:30 Field trip to Lighthouse Beach
08:30 Lecture: Nemertea (Chapter 11)
10:00 **Seminar lecture Dr. Felipe Barreto**
13:00 Lab: Nemertea
MW 15:00 Lecture: Phylum Nematoda (Chapter 16)

4/17 08:21/ -0.77 ft.
CT 07:30 Field trip to Portside Mudflat
09:30 Lecture: Phylum Annelida I (Chapter 13)
13:00 Lecture: Annelida II (Chapter 13)
15:00 Lab: Annelida Diversity

Week 4
4/22 12:52/ 0.16 ft.
CT 08:30 Lab: Annelida Dissection
10:30 Lecture: “Phylum” Sipunculida (Chapter 13, pgs. 314-318)
13:15 Lecture: Phylum Mollusca, Class Polycladophora
(Chapter 12, pgs. 215-222, 265-271)
15:00 Lab: Chiton Diversity
18:30 Review Session (optional)

4/24 15:00/ 0.53 ft.
CT 08:30 Lecture: Mollusca, Class Gastropoda (Chapter 12, pgs. 224-236)
10:00 **Seminar Lecture Dr. George von Dassow**
13:00 **Midterm Exam I**
15:00 Field trip to Fossil Pt.

Week 5
4/29 07:01/ -1.08 ft.
MW 06:30 Field trip to Middle Cove
09:30 Lab: Gastropod Demo and Diversity
13:15 Lecture: Mollusca, Class Bivalvia + Class Scaphopoda
(Chapter 12, pgs. 237-255)
15:00 Lab: Bivalve Dissection and Behavior

5/1 08:24/ -1.01 ft.
MW 07:00 Field trip to Domehouse Mudflat
10:00 Lab: Bivalve Diversity
13:15 Lecture: Mollusca, Class Cephalopoda (Chapter 12, pgs. 255-264)
15:00 Lab: Squid Dissection
### Week 6

5/6  **12:12/ 0.95 ft.**  
MW  08:30  Lecture: Phylum Arthropoda (Chapter 14, pgs. 341-350)  
CT  09:30  Lecture: Arthropoda, Chelicerata (Chapter 14, pgs. 350-358)  
    11:00  Field trip to the docks (plankton tow)  
MW  13:15  Lecture: Arthropoda, Crustacea I (Classes Copepoda, Ostracoda, Cirripedia) (Chapter 14, pgs. 373, 381-391)  
    15:00  Lab: Crustacea I, crustaceans in plankton

5/8  **14:04/ 1.47 ft.**  
MW  08:30  Lecture: Arthropoda, Crustacea II - Intro. Malacostracans + Decapods (Chapter 14, pgs. 373-379)  
    10:00  Lab: Crab Dissection  
CT  13:15  Lecture: Arthropoda, Crustacea III - Peracarida  
    15:00  Lab: Malacostracan diversity  
    18:30  Review (optional)

### Week 7

5/13  **06:00/ -0.54 ft.**  
    06:00  Field trip (optional)  
    08:30  **Midterm II**  
MW  11:00  Lecture: Phylum Echinodermata (Chapter 20)  
CT  13:15  Lecture: Echinodermata, Class Stelleroidea (Chapter 20, pgs. 503-509)  
    15:00  Lab: Asteroid Dissection

5/15  **07:22/ -1.47 ft.**  
    06:30  Field trip Squaw Island  
MW  09:30  Lecture: Echinodermata, Classes Echinoidea & Holothuroidea (Chapter 20, pgs. 509-521)  
    13:15  Lab: Holothurian Dissection

### Week 8

5/20  **11:24/ -0.55 ft.**  
    08:30  Lab: Echinoidea and Ophiuroidea Diversity  
    09:30  Field trip to North Cove  
    13:15  Student talks  
            **Hand in lab notebooks**

5/22  **13:24/ 0.53 ft.**  
    08:30  Student talks
13:15  Student talks

Week 9
5/27  06:04/-1.07 ft.
  06:30  Field trip to Sunset Bay
MW  09:30  Lecture: Lophophorates (Chapter 19)
MW  10:30  Lecture: Phylum Bryozoa (Chapter 19, 480-489)
CT  13:15  Lecture: Phylum Phoronida (Chapter 19, 474-476)
CT  14:15  Lecture: Phylum Brachiopoda (Chapter 19, 476-480)
      15:00  Lab: Lophophorate Diversity (IDs)

5/29  07:25/-1.30 ft.
  05:30  Field trip to Cape Blanco
MW  13:15  Lecture: Phylum Hemichordata (Chapter 21)

Week 10
6/3   10:38/ 0.18 ft.
CT  08:30  Lecture: Phylum chordata, Subphylum Tunicata (Urochordata)
       (Chapter 23)
      10:30  Field trip to the docks
KM  13:15  Lecture: Chordata, Subphylum Cephalochordata (Chapter 23, pgs. 548-551)
      15:00  Lab: Ascidian diversity

6/5   12:07/ 1.09 ft.
  08:30  Field trip to the Oregon Coast Aquarium
       Review in vans

Week 11
6/10  04:52/-0.33 ft.
  08:30  Midterm III + Hand in lab notebooks
  13:15  Lab Clean-Up

Required Textbook

You will have access to the lab 24/7. We will be in the lab Tuesdays and Thursdays and likely on campus Wednesdays as well. Cynthia will be in lab most Tues and Wed evenings. Also, you are welcome to drop by Maya’s office (top floor of Terwilliger building at the end of the hall) if you have questions. If we are unavailable at that time, we can make an appointment to meet you.
We will have field trips to local habitats, sometimes during class time but often earlier depending on the tides.

**Course Requirements and Evaluations:**
Your final grade will be determined by a combination of three midterm exams, your laboratory notebook, and a presentation on a phylum or class of invertebrates that Cynthia and I are unable to cover this term (see attached list of potential phyla/classes and further discussion below). Material covered on midterms will include lectures, lab materials, and assigned readings (see above schedule). Attendance on all field trips, in all laboratory sessions, and all lectures and student talks is required.

Notebooks – 30% (10% each time hand in)
Midterms – 60% (20% each)
Student presentation – 10%

**You need to have:**

1) Pechenik textbook (above)
2) A lecture notebook
3) A separate lab notebook – loose leaf notebook with unlined paper in 3-ring binder is best
4) Rite-n-Rain notebook for field notes (in office)
5) Dissecting tools – forceps, scissors, scalpel, disposable blades, probe, plastic ruler
6) Memory stick
7) Full raingear and rubber boots

**Lab Notebook**
We will not have a formal lab manual that guides you through each lab. Instead you will be drawing a diversity of organisms for most taxonomic groups, combined with dissections and notes on any exercises we do in lab. You will not have to draw every animal we collect for each group, but you might want to.

**Your lab notebook should include:**

1. Drawings, descriptions, and observations of live animals observed in lab
2. Classification for each animals (starting with Phylum and working down)
3. Accurate labeling of anatomy of live and dissected animals
4. Some indication of scale for each drawing (field of view and magnification)
5. Notes on lab exercises
6. Field information on animal habitats and ecological relationships
Jenna Valley’s (former invert zoo student) lab notebook is on display in the back of the lab as an A+ sort of notebook. But note, artistic ability is not graded, just thoroughness!

The notebook will be graded on:

1. Number of animals drawn (a good representative number for each taxonomic group available in lab) (30 pts.)
2. Description of organism/correct anatomical labeling (30 pts.)
3. Classification and scale for each specimen drawn (20 pts.)
4. Observations (e.g. ecology, habitat collected from, lifecycle, if pertinent) (10 pts.)
5. Detailed notes on fellow student talks (all must be present) (10 pts.)

Student Interest Talk

Invertebrates represent 97% of all animal species on the planet. In this course we will focus on marine invertebrates, particularly those we can introduce you to from our local habitats. Even so, there are many phyla and large classes of invertebrates that we will not be able to cover given time constraints. With that said, many of the taxonomic groups are awesome, unique, and exciting and we would like to know which of these interests you. With that in mind, we are asking you to find a phylum, class or other group we are not covering this term (see attached list of possibilities or run another group by us) and give a 15 min. presentation on the group. We will have a sign-up sheet in the lab so each person will cover a different group of inverts.

These talks should include:

1. Taxonomic placement (brief mention so we know where we are at)
2. Important morphological characteristics
3. Important systems (e.g. digestive, reproductive etc.)
4. Whatever you find most interesting about the group of inverts (e.g. lifecycle, feeding, locomotion, ecology, symbiotic relationships, whatever).

Your talk will be evaluated based on the average scores of your peers, combined with instructor scores.
Potential Taxa for Student Presentations

I. Phylum Placozoa
II. The Mesozoans
III. Phylum Rotifera
IV. Phylum Acanthocephala
V. Phylum Gnathostomulida
VI. Phylum Micrognathozoa
VII. Phylum Mollusca, Class Aplacophora
VIII. Phylum Mollusca, Class Monoplacophora
IX. Phylum Arthropoda – any small groups we don’t get to cover (marine insects)
X. Phylum Tardigrada
XI. Phylum Onychophora
XII. Phylum Nematomorpha
XIII. Phylum Priapulida
XIV. Phylum Kinorhyncha
XV. Phylum Loricifera
XVI. Phylum Gastrotricha
XVII. Phylum Chaetognatha
XVIII. Phylum Cycliphora
XIX. Phylum Xenoturbellida
XX. Phylum Chordata, Subphylum Urochordata, Class Larvacea
XXI. Phylum Chordata, Subphylum Urochordata, Class Thaliacea