**FISH 310 Biology of Shellfish**

**Lab Supplies**

**Spring 2012**

**March 28 – May 31**  
General Supplies  
Variety of glass dishes for examining live animals (lots)  
Dissecting trays (lots)  
Petri dishes  
Scalpel handles and blades, probes, forceps, dissecting scissors  
Depression slides  
Slides  
Cover slips  
Soap  
Paper Towels  
Transfer pipettes  
Aquaria (FSH 06)  
Gloves (all sizes)  
Permanent markers (sharpies)  
Masking Tape  
310 box of animal slides   
  
**March 28-March 29**  
Lab Introduction and Classical Taxonomy  
Equipment needed:  
•    1 compound scope  
•    1 dissecting scope

**April 2-3**  
Ocean Acidification Part I  
Equipment needed:  
•    air stones

* glass containers/aquaria for animals (check with Emma)
* pH probes
* parafilm and/ or pieces of plexiglass to serve as lids for containers/aquaria
* thermometers
* refractometer
* counters
* stop watches
* balance
* water baths
* hot plates
* dissolved oxygen probes
* 250 mL beakers
* seawater
* CO2 tank with regulator (regulator provided by Roberts lab)

Animals Needed:

* mussels-**40,** **LIVE**
* oysters-**40,** **LIVE**
* clams-**40,** **LIVE**
* larval oysters – (will be provided by Roberts Lab)

**April 4-5**  
Intro to Cnidaria  
Equipment needed  
•    Compound microscopes  
•    dissecting microscopes  
•    Dilute acetic acid  
•    Particles for feeding if no brine shrimp larvae  
•    Lined bucket for mort waste (biohazard bags necessary?)  
  
Animals needed  
•    **LIVE**: Several representative members of hydrozoa (thecate and athecate), anthozoa, and scyphozoa   
•    **LIVE**: 18 Anthopleura  
•    Brine shrimp larvae  
•    Any preserved cnidaria specimens  
  
**April 9-10:**   
Ocean Acidification Part II  
Equipment needed:  
Carry-over from Part I

**April 11-12**  
Writing Workshop  
  
**April 16-17**  
Mollusc 1: Introduction to Mollusca  
Equipment needed:  
•    Dissecting Scopes  
  
Animals needed   
•    Representatives of 5 classes of molluscs—can be alive or preserved, as appropriate (animals A-E)

o    Polyplacophora (chiton) - **LIVE**  
o    Cephalopoda (squid, octopus or cuttlefish)  
o    Scaphopoda (tusk shell)  
o    Bivalvia - **LIVE**  
o    Gastropoda - **LIVE**

•    Additional gastropods, bivalves and cephalopods to examine  (can be others, as available, alive or preserved, as appropriate)

o    True limpet - **LIVE**  
o    Moon snail - **LIVE**  
o    Clam - **LIVE**  
o    Dog whelk   
o    Nudibranch - **LIVE**  
o    Squid (B)  
o    Chiton (3 species) - **LIVE**

•    Molluscs to observe pedal morphology

o    Giant chiton  
o    Clam  
o    Squid  
o    Nudibranch  
o    Limpet  
o    Moonsnail

**April 18-19**  
Mollusc 2: Bivalves  
Equipment Needed  
•    Dissecting Scopes  
•    Compound Scopes  
•    Lined bucket for waste disposal (biohazard bag necessary?)  
•    Yeast or chalk powder  
•    Food coloring  
•    Bivalve key  
  
Animals needed  
•    **LIVE**: mussels (1 per student) ~36  
  
Preserved, shells, etc needed  
•    Manila clam valve  
•    Plastic block clam dissection  
•    Filibranch and eulamellibranch shells (other than below?)  
•    Shells:

o    Horseclam  
o    hardshell clam  
o    scallop  
o    mussel  
o    oyster  
o    cockle  
o    geoduck  
o    paddock  
o    tellin clam  
o    giant clam  
o    jingle shell  
o    shipworm  
o    softshell  
o    razor clam

**April 23-24**  
Mollusc 3: Hatchery Field Trip  
No supplies required!  
  
**April 25-26**  
Mollusc 4: Gastropods and Cephalopods  
Equipment needed:  
•    flour  
•    glass slides  
  
Animals needed:  
•    **LIVE**: Helix  
•    **LIVE:** Nudibranchs  
•   **LIVE:** Neogastropods

**April 30-May 1**  
Arthropoda/ Crustacea 1: Introduction  
Equipment needs:  
•    Dissecting scopes  
  
Animal needs:   
•    Chelicerates

o    **LIVE**: 1 big terrestrial spider  
o    Horshoe crab

•    Crustaceans

o    Pericarida

•    **LIVE**: Isopod  
•    Amphipod  
•    Pillbug

o    Eucarida

•    **LIVE:** shrimp  
•    Shrimp (large, preserved)  
•    **LIVE:** hermit crabs  
•    Crab (large, preserved or **LIVE**)

* **LIVE**: Barnacles

**May 2-3**  
Crustacean 2: Crab Dissection  
Equipment Needs:  
•    Dissecting Scopes  
•    Compound Scopes  
•    Bucket with bag for mort trash  
  
Animal Needs  
•    **LIVE:** Enough large crabs (Cancer spp. and/or Pugettia producta) for dissection (~18)  
  
**May 6 (Sunday)**

Field Trip to Alki

* field guides
* clip boards

**May 7-8**

No lab – No supplies needed

**May 9-10**  
Crustacean 3: Crustacean Development/ Mysids/ Euphausiids/ Copepods/ Branchiopoda/ Shrimplike critters  
  
Equipment Needs:  
•    Clicker counters   
•    Transfer pipettes  
•    Sand (so crangon can go into bowls of water with sand on bottom)

•    Compound Scopes  
•    Dissecting Scopes  
•    2 tanks with 1 crab inside each  
•    Mussel Juice  
  
Animal Needs:  
•    **LIVE:** Large crab  
•    **LIVE:** Artemia nauplii (TA will hatch)  
•    **LIVE:** Crangon shrimp  
•    **LIVE:** Salt water plankton tow

o    Barnacle nauplius  
o    Brachyuran crab zoea  
o    Copepods

•    **LIVE:** Freshwater plankton tow

o    Copepods

•    Preserved  King Crab Zoea (slide)

o    Porcelain crab zoea (slide)  
o    Dungeness crab (Cancer magister) megalops (slide)  
o    Phyllosoma larva of a spiny lobster (preserved)  
o    Mysids (preserved)  
o    Euphausiids   
o    Branchipoda

•    Anostraca  
•    Notostraca  
•    Cladocera  
•    Conchostraca  
  
Preserved/molts/slides:  
•    Mysid statoscyst (slide from **Greg?**)  
•    Shrimp eye and crab eye slides (slide from **Greg?**)

**May 14-15**

Ecninoderms: Asteroidea, Holothuroidea, and Ophiuroidea  
Equipment Needs:  
•    Seastar keys (by Greg Jensen - see Kristi)  
•    Dissecting scopes  
•    Compound scopes  
•    Stages of urchin development slides

o    Blastula  
o    Gastrula  
o    Pluteus

Animal Needs:  
**LIVE**  
•    Cucumaria piperata  
•    Other species of cucumbers (Parastichopus and ??)  
•    Brittlestars

**May 16-17**  
Shellfish Parasites  
Histo slides

* healthy abalone (Friedman)
* WS abalone (Friedman)
* Perkinsus oyster (Friedman)
* WSSV shrimp (Friedman)

Preserved  
•    Whale barnacle  
•    Fish louse  
•    parasitic isopod  
•    Rhizocephalan barnacle

Animal needs:

* Isopod - **LIVE**

•    Live shrimp carrying a bopyrid isopod parasite on its abdomen/gill-**LIVE**  
•    Any other cool examples of crustacean parasites

**May 21-22**

Species Report Presentations – No supplies needed

**May 23 - 24**  
 NO LAB – (Saturday field trip)

**Saturday May 26**  
Samish Bay Field Trip

36 pair of boots on Friday for Saturday field trip

**May 28-29**  
Holiday

**May 30-31**  
Review Session