**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