

BIO310 Invertebrate Zoology Laboratory Syllabus, Spring 2012

L21 Wednesday, Friday, 9 – 10.50am (MH414)

Instructor: Dr. Ryan Fisher

Office Hours: Tues: 9 - 10am

Office: MH 418

Weds: 1 – 2pm

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Thurs: 9-10am

Email: ryan.fisher@salemstate.edu

Fri: 12 – 1pm

Class Time: Weds. and Fri. 9-10.50am **Classroom:** MH414

If you need to see me urgently outside the office hours above please contact me by phone or email.

IMPORTANT: No food or drink is allowed in the laboratory. Eye goggles must be worn in wet labs.

Course Description:

The morphology, physiology, ecology, taxonomy, and systematics of invertebrates are studied. Required field trips, including two full day trips, perhaps on weekends, to local habitats and scientific institutions for observation of aquatic and terrestrial invertebrates will be conducted. Three lecture hours and two two-hour laboratories per week.

Course Goals:

1. To acquire an understanding of the evolutionary relationships that link the invertebrate animal phyla
2. To acquire an appreciation of the diversity of the invertebrate animal phyla
3. To acquire an understanding of the increasing complexity of anatomies across the invertebrate animal phyla
4. To acquire an understanding of the various scientific techniques including: specimen preparation, handling, observation, identification, microscopy, library research and, critical and analytical thought processes required in scientific essay writing.

Course Objectives:

After completing this course students should be able to:

1. Apply what you have learned in lecture to your understanding of lab experiments.
2. Demonstrate competent use of the dissecting and compound microscope.
3. Demonstrate competent specimen preparation, handling and identification techniques.
4. Demonstrate competent dissection techniques.
5. Describe and identify the major evolutionary steps that have occurred between the Phylum Porifera and Chordata.
6. Identify and describe organisms from the invertebrate phyla.
7. Relate organism adaptations to their specific environment.
8. Explain and appreciate the ways in which organisms interact with the living (including humans) and non-living components of their ecosystems.
9. Research both primary and secondary literature using the library and online resources.

- Be able to work cohesively in small groups to complete laboratory and field-based tasks.

BIO 310 – Learning Objective- Assessment Matrix for Spring 2012

<i>Learning Objective</i>	<i>Where Addressed</i>	<i>How assessed</i>
1. Apply what you have learned in lecture to your understanding of lab tasks	All labs	Practical exams, lab manual
2. Demonstrate competent use of the dissecting and compound microscope.	All labs	Practical exams 1,2,3
3. Demonstrate competent specimen preparation, handling and identification techniques.	All labs	Practical exams 1,2,3; lab manual
4. Demonstrate competent dissection techniques.	All labs	Practical exams 1,2,3
5. Describe and identify the major evolutionary steps that have occurred between the Phylum Porifera and Chordata.	All labs	Practical exams 1,2,3, lab manual
6. Identify and describe organisms from the invertebrate phyla.	All labs	Practical exams 1,2,3, lab manual
7. Relate organism adaptations to their specific environment.	All labs	Practical exams 1,2,3, lab manual, field trip report, project presentation
8. Explain and appreciate the ways in which organisms interact with the living (including humans) and non-living components of their ecosystems.	All labs; field trips	Lab manual, field trip report, project presentation
9. Research both primary and secondary literature using the library and online resources.	Project Preparation	Field trip report, project presentation
10. Be able to work cohesively in small groups to complete laboratory and field-based tasks.	Project work and field trips	General lab work, field trips, project work

Texts: Fisher R., 2012. Salem State University Biology Department, BIO310 Invertebrate Zoology – Laboratory Manual.

Instruments: dissection kit, approved eye goggles, small field notebook

Laptops in Lab

We will be using laptops in lab to access an excellent web site called BIODIDAC. This site has a plethora of labeled diagrams and photographs that will assist you in your lab work.

Grading:

Your overall grade is made up as follows:

	<u>Points</u>
Practical Exam One – February 22 nd	15
Practical Exam Two – March 23 rd	15
Practical Exam Three – April 18 th	15
Project Presentation	10
Field Trip Reports	10
Lab Notebook	35
Total	100%

Grades are based on a standard grading scale: A – 90-100%, B – 80-89.9%, C-70-79.9% etc. You are responsible for completing all course requirements whether you are present or not.

Plagiarism:

Plagiarism in any form will not be tolerated. Students should never copy the work of another student and present it as their own work. Cheating by using written material during an exam is also forbidden. Anyone caught cheating or plagiarizing work will receive zero for that exam or assignment and may receive an F as the final course grade. Further action may be taken in accordance with the Academic Dishonesty policy.

This can be accessed at:

http://catalog.salemstate.edu/content.php?catoid=13&navoid=1295#Academic_Integrity

Electronic Devices during Assessments

According to Department policy, **NO electronic devices may be used during assessments.** Stand-alone calculators or devices pre-approved by the instructor are the only exceptions. Any student with a visibly exposed electronic device may receive a **ZERO** for that exam/quiz.

Attendance:

It is not advisable to miss any labs as specimens are ordered for each lab and cannot be reordered. Certain reasons may warrant exemption from the above, for example: death in the family, doctors or dentists letter, jury duty. Only in the most special circumstances will you be able to make up the lab in the other lab class. You may, if you have acceptable reasons, miss a maximum of two labs.

Make-ups:

There are no lab make-ups due to the reason mentioned above.

Practical Exams:

The 3 exams will ask you to apply what you have learnt about the biology of organisms covered in preceding labs. Everything covered in the lab during observation and dissection is testable. However, hints will be provided as each lab as to what is most important.

Project Presentation

The class will work through identifying the invertebrate fauna of Central Campus Salt Marsh. You will be assigned a team mate and an animal group/s. During March and April you will undertake trips to the marsh to determine what animals live there. You will

record taxonomy, general abundance and the habitat in which they live. You will also take digital photos to use in your poster presentation in the last class of the semester.

Lab Notebook:

You will keep a bound notebook of unlined pages in which you will make sketches and observational notes during each field trip and for your project.

Field Trip Reports

You will produce reports on the 2 field trips. Two will be as a class– rocky shore (Nahant) and sediment flats (Forest River Park and neighboring beaches). The trips will take place during April when the weather is warmer.

Dissection Kit:

You will need to have a dissection kit (available at the bookshop) for every lab. The kit must include scalpel and blades, forceps (blunt and fine tipped), scissors and, probes. You must have a dissection kit for the first lab.

Safety:

You must abide by the safety rules and return the waiver form you will receive in the first lab. **No food or drink is allowed in the laboratory.**

Laboratory Culture:

The laboratory is a forum for learning and as such should be respected. A relaxed, informal environment is conducive to learning but there are basic standards of behavior. So that everyone may have the same opportunity to learn please be mindful of the following:

1. Please be on time for the lab – walking in late not only distracts the instructor but also fellow students.
2. Please keep talking to a minimum unless you are asking questions in which case do not be shy.
3. Please be tolerant of others questions – we all learn at different speeds and another’s question may actually help those who are too shy to ask.
4. Food and drink are not allowed in the lab at any time.

Please turn off your electronic devices during labs ie pagers and cell phones.

Assistance:

Salem State University has excellent facilities to help students be successful. These include: the Reading Laboratory (Campus Center Lower Level, 542-6214); the Writing Center (220 Meier Hall, 542-6847); the Mathematics Laboratory (Sullivan 306, 542-6348). If you have a disability the Office for Students with Disabilities can assist you (Meier Hall 102, 542-6217). Please make use of these services if you are having trouble.

Access Policy:

Salem State University is committed to providing equal access to the educational experience for all students in compliance with Section 504 of the Rehabilitation Act and The Americans with Disabilities Act and to providing all reasonable academic accommodations, aids and adjustments. Any student who has a documented disability requiring an accommodation, aid or adjustment should speak with the instructor immediately. Students with Disabilities who have not previously done so should provide

documentation to and schedule an appointment with the Office for Students with Disabilities (Meier Hall 102, 978 542 6217) and obtain appropriate services.

Lab Schedule – Spring 2012

Week of:	Lab:	Topic:
January 16 th	W F	No Lab Introduction and Microscopes
January 23 rd	W F	Protozoa Phylum Porifera
January 30 th	W F	Phylum Cnidaria I Phylum Cnidaria II
February 6 th	W F	Phylum Platyhelminthes Phylum Nemertea - Rotifera
February 13 th		Darwin Festival – Labs Open
February 20 th	W F	Practical Exam One Phylum Nematoda I
February 27 th	W F	Phylum Nematoda II Phylum Annelida I
March 5 th	W F	Phylum Annelida II Phylum Arthropoda I
March 12 th		Spring Break! No labs
March 19 th	W F	Phylum Arthropoda II Practical Exam Two
March 26 th	W F	Lesser Known Phyla Phylum Mollusca I
April 2 nd	W F	Phylum Mollusca II Phylum Echinodermata
April 9 th	W F	Nahant Field Trip Forest River Park Field Trip
April 16 th	W F	Practical Exam Three Phylum Bryozoa and Chordata
April 23 rd	W F	Project/Field Trip Work Poster Presentations

Rubric for Lab Notebook Grading

'A' level work	'B' level work	'C' level work	'F' level work
Work is neat, all questions answered, notes about form and function, notes linking what is seen in lab to the animal's life in nature	Work is neat, some questions omitted, some notes on form and function and linking animal to nature missing	Work is untidy with numerous questions omitted and only few notes on form and function	Book is very untidy with many omissions
Sketches are neat using 'connected lines', have scale bars and appropriate labels	Sketches are neat but have some scale bars and labels missing	Sketches beginning to get untidy with numerous scale bars and labels missing	Sketches are untidy with many missing labels, scale bars