

**BY 460/560 - Advanced Invertebrate Zoology
Spring 2015**

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Office: Campbell Hall 252
Office Hours: By appointment

Class Meeting: MWF 11:15 – 12:05 pm

Meeting room: EB 148

Overall Course Goal/Purpose: The course is for upper level undergraduate and graduate students. In this course, we will build upon the basic taxonomy, functional morphology, and physiology of invertebrates by addressing these aspects with a focus on ecological and evolutionary processes that have driven the development of invertebrates. We will focus primarily on an overview of ecology and evolution of Echinodermata and Crustacea. Upon completion of this course students will be familiar with the primary literature and know how to search for relevant primary sources in this field. Students will be able to evaluate recent research as well as construct and present recent research results related to invertebrate ecology and evolution.

Prerequisite: BY 255 Invertebrate Zoology course, a survey course that introduces students to the basic taxonomy, morphology, and biology of invertebrates.

Course Learning Objectives: At the end of this course student will be able to:

1. Identify ecological and economic importance of marine invertebrates (demonstrate comprehension on exams, class discussions, group activities).
2. Explain unique invertebrate adaptations in the context of ecological and environmental interactions (demonstrate comprehension through exams, class discussions, written concept summaries, group activities, and group presentations).
3. Compare and contrast ecological and evolutionary advantages of invertebrate adaptations (demonstrate comprehension through team-based learning activities, group discussions, and group presentations).
4. Evaluate recent research on invertebrate ecology and evolution (through team-based learning activities, group and individual presentations, and group discussions).

Course Requirements

1. Read required materials and come to class ready to discuss the readings.
2. Participate in class discussions and activities.
3. Research, develop, and prepare presentations of recent research.
4. Complete all exams.

Required Readings: No text book. Assigned primary scientific literature. Readings will be made available in class or through Canvas.

Course Assignments

1. There will be three exams to evaluate student comprehension of lecture material (including material presented in guest lectures).
2. Students will be expected to participate in discussions and activities related to lecture material. This will be considered part of the participation grade.
3. Students will participate in group presentations based on research papers in the primary literature.
4. Students will individually develop and give a presentation based on a peer reviewed research paper they select that addresses an aspect of invertebrate functional morphology, physiology or ecology/evolution. Presentation grades will be based on:
 - a. Instructor evaluation of presentation (feedback will be provided).
 - b. Each presenter providing two original short answer questions based on the presented materials (to potentially be included on the class final exam)
5. Students taking the course for graduate credit will be required to write an additional term paper (8 double spaced typed pages, excluding citations) on a relevant topic approved by the instructor.

Undergraduate Credit (BY 460) Grade Rubric

	# Times evaluated	% of grade (ea.)	Total % of grade
Exams	3	15	45
Group presentation	2	5	10
Individual presentation	1	25	25
Class participation*	1	20	20
		Total	100

Graduate Credit (BY 560) Grade Rubric

	# Times evaluated	% of grade (ea.)	Total % of grade
Exams	3	10	30
Group presentation	2	5	10
Individual presentation	1	25	25
Term paper	1	15	15
Class participation*	1	20	20
		Total	100

* Class participation is evaluated once at the end of the semester but is a compilation of above activities.

Course policies

1. Attendance is expected. Students are responsible for all materials presented and discussed during class periods, including instructor, guest lectures and peer presentations.
2. Class participation is a significant portion of this course. There will be individual and/or group activities for which students receive credit as part of their daily class participation. There are no make-ups for missed participation points unless accompanied by an appropriate excuse (see below).
3. If a student is ill or otherwise unable to attend class, contact your instructor **before** you miss class to obtain an alternate assignment to take the place of missed participation points and, if necessary, arrange a make-up exam. If you are ill you must present a dated medical documentation of your illness within one week of the absence.
4. Late assignments will be docked 5% for each day that they are late. Missing assignments (defined as any assignment not turned in) will receive a zero.
5. There will be limited opportunities for extra credit. Extra credit will only be available for the entire class; there will be no individual extra credit. There will not be sufficient opportunities for extra credit to make up for any assignment.
6. Academic dishonesty will not be tolerated. For more on the UAB Academic Honor Code and definition of academic dishonesty, visit the university website or here: <https://www.uab.edu/students/academics/honor-code>.

Disability Support Services

Students needing accommodations or modifications should contact and arrange to meet with the course instructor. Students with disabilities must be registered with Disability Support Services (DSS) and provide an accommodation letter to the course instructor before receiving any adjustments or modifications.

For more information on DSS and the types of accommodations available, please visit their website at: <http://www.uab.edu/students/services/disability-support-services>.

Campus resources – tutoring and academic support

For writing additional writing assistance, please contact the UAB University Writing Center (<http://www.uab.edu/writingcenter/>). Consultations are free for all UAB students.

Advanced Invertebrate Zoology - Spring 2015 Course Schedule

Date	Topic	Format
Wed. 1/07	Syllabus Overview/Scientific literature searches	Lecture
Fri 1/09	Arthropod/Crustacean overview	Lecture
Mon 1/12	Crustacean Endocrinology	Lecture
Wed 1/14	Crustacean Molting	Lecture
Fri 1/16	<i>Guest lecture: Crustacean Invasion</i>	<i>Dr. Jim McClintock</i>
Mon 1/19	Martin Luther King Holiday	
Wed 1/21	Crustacean Molting; Article rev rough draft due	Lecture
Fri 1/23	Stomatopoda I	Lecture
Mon 1/26	Stomatopoda II	Lecture
Wed 1/28	Decapods II	Lecture
Fri 1/30	Guest lecture: Amphipoda in depth, Grp Pres slides due	Lecture
Mon 2/02	<i>Decapods II; Article rev due</i>	<i>Maggie Amsler</i>
Wed 2/04	Crustacean paper presentations	Group Presentations
Fri 2/06	Exam 1	Exam
Mon 2/09	Isopoda/Amphipoda	Lecture
Wed 2/11	Cephalocarids/Branchiopods/Ostracods/Copepods	Lecture
Fri 2/13	Cirripedia	Lecture
Mon 2/16	Echinoderm overview, Article rev rough draft due	Lecture
Wed 2/18	<i>Guest lecture: Invertebrates in research</i>	<i>Dr. Katie Gibbs</i>
Fri 2/20	Echinoderm overview	Lecture
Mon 2/23	Echinoidea, Grp Pres slides due	Lecture
Wed 2/25	Classes cancelled - weather	No class
Fri 2/27	Holothuroidea	Lecture
Mon 3/02	Echinoderm paper presentations	Group Presentations
Wed 3/04	<i>Guest lecture: Holothuroidea & regeneration</i>	<i>CJ Brothers</i>
Fri 3/06	<i>Guest lecture: Antarctic ecology: Echinoderm roles</i>	<i>Dr. Jim McClintock</i>
Mon 3/09	Crinoidea; Article rev due	Lecture
Wed 3/11	Ophiuroidea	Lecture
Fri 3/13	Exam 2	Exam
Mon 3/16	Asteroidea; Deadline for pres subject approval	Lecture
Wed 3/18	<i>Guest lecture: Echinoderm aquaculture & nutrition</i>	<i>Dr. Mickie Powell</i>
Fri 3/20	Echinoderm Fossil Field Trip	Field Trip
Mon 3/23-3/27	Spring Break	
Mon 3/30	<i>Guest lecture: Sponge symbioses</i>	<i>Kenan Matterson</i>
Wed 4/01	<i>Guest lecture: Sponge biogeography</i>	<i>Dr. Cole Easson</i>
Fri 4/03	Connor Stein; Amanda Clark	Student Presentations
Mon 4/6	Tennessee Aquarium Field trip	Field Trip
Wed 4/8	TBA	Student Presentations
Fri 4/10	TBA	Student Presentations
Mon 4/13	TBA	Student Presentations
Wed 4/15	TBA	Student Presentations
Fri 4/17	TBA	Presentation/review
20-Apr	Exam 3 - 10:45 am - 1:15pm	Exam