

Zoology 303: Biology of Aquatic Invertebrates

Summer, 8-week session (May 23- July 17), 3 credits

Instructor: Nazan Gillie, 262-2741, atilla@wisc.edu

COURSE DESCRIPTION:

We will be exploring form, function, development of marine and freshwater invertebrates in the context of their environment. We will discuss how physical and chemical factors influence the ecology and physiology of these organisms, their adaptations to their habitats and their role at community level ecology. One of the goals of this course, combined with its lab component, is to guide students to make the connections between these organisms and the current research and environmental topics. The lectures will be delivered in a lab where live and preserved animals will be available for observations to better understand their feeding, movement, and behavior.

LECTURES: Mondays and Wednesdays, 9:30-11:30am, 261 Noland Hall.

LABORATORY: Meets: Thursdays, 9am-12pm, 521 Noland Hall.

Nazan's office hours: Immediately after lecture on Mondays and Wednesdays, 11:30am-12:30pm in 261 Noland Hall or by appointment.

Textbook: Students are not required to buy a textbook. The Instructor will provide notes and readings. A textbook will be available to the class and another copy will be reserved at the library.

COURSE REQUIREMENTS AND EVALUATION:

8-week summer session is short and intensive. It is important to attend all lectures. Because unexpected happens, you are allowed to miss 2 lectures and 1 lab. Beyond this, the attendance will count towards your grade.

The course will heavily rely on student inquiry, hands on practice and in class discussions. Biology, ecology and diversity of species will be linked through discussions and the question/answer sessions during the lecture.

You have the opportunity to earn 200 points in the class.

Attendance: 5%

Exams: 65% of the grade (essay and short answer questions). There are four exams, one every two weeks. None of the exams are cumulative. We will have reviews on exam dates.

Attendance to review sessions is optional. Review will begin on the class begin time and will be for one hour. The exam will start immediately following the review.

Observation notes/Lab Notebooks: 20% of the grade. Each lecture we'll take time to observe live and/or preserved specimens. You will record your observations in a notebook that will be collected each week to be graded. Observations from the field trips and data collection following the field samplings will be recorded in the lab notebooks.

Lab Presentations: 10% of the grade. Students will form groups to give an overview of the invertebrate communities associated with each habitat we explored. Students will prepare a lab report and make an oral presentation of the findings during the final lab.

GRADE SCALE (BASED ON FINAL PERCENTAGE)

A=92-100%

AB= 89-91.9%

B = 82-88.9%

BC=79-81.9%

C=70-78.9%

D= 60-69.9%

F<60

A tentative course outline:

5/23	1	Intro to aquatic habitats, phyla and diversity, development
5/25	2	Protozoans, Porifera
6/1	3	Hydrostatic skeleton, Cnidaria, Ctenophores
6/6	4	Review, Exam 1
6/8	5	Platyhelminths, Molluscs
6/13	6	Molluscs (cont'd), Annelids
6/15	7	Review, Exam 2
6/20	8	Arthropods
6/22	9	Arthropods, Life at low Reynolds numbers
6/27	10	Nematodes, Lophophorates and Entoprocts
6/29	11	Review, Exam 3
7/6	12	Echinoderms
7/11	13	Hemichordates, Urochordates, Cephalochordates
7/13	14	Review, Exam 4

LABORATORY COMPONENT:

We will sample a variety of different habitats and describe the invertebrate community associated with a particular environment. We will identify the similarities and differences among the communities of different habitats.

Some labs will be a combination of observation of the animals covered in the lecture that week plus short field sessions to learn different sampling methods and sample processing. Some labs will be entirely dedicated to field work. By sampling different habitats we will better understand the similarities and differences among communities that live in different habitats.

During each lab, students will spend time on their projects (design, data collection and analysis). There will be a brief introduction at the beginning of each lab, outlining the activities of the day.

Students are required to take detailed notes of the field trips, documenting location, methods, and data in lab notebooks. Students will also study invertebrate specimens (live and preserved) and document their observations in drawings and notes in their lab notebooks. The lab notebooks will be due at the end of each lab to be graded. Students will give a brief presentation and lab report on a habitat we choose and study. The lab notebook will be 20% and the report and the presentation will be 15% of their grade.

Stream ecology lab is a field trip to Black Earth Creek.

Water column community lab will be on R/V Limnos (research boat) on Lake Mendota (A nice summer day on the water!)

Life in sediments (benthos) and hard substrates will be sampled during the second lab.

A tentative laboratory schedule: The order of the labs may be different depending on weather.

Week 1	Observation of organisms: Sponges. Types of invertebrate habitats along the south shore of Lake Mendota, UW campus. Sample collection and examination (sediment, water column, plants and hard substrates).
Week 2	Flatworms and Rotifers. Students will form groups for each habitat type. Sediment, hard substrate and plant associated communities sampling.
Week 3	Mollusks. Groups develop project outlines. Discussions.
Week 4	Stream Organisms – Black Earth Creek
Week 5	Arthropods, nematodes. Group work on projects.
Week 6	Water column organisms and their distribution – Lake Mendota; Group work
Week 7	Echinoderms and chordates. Group work on projects.
Week 8	Presentations, Q&A, discussions