11:216:324 **Invertebrate Zoology** Fall 2024
Lecture: MTH 12:10 –1:20, RAB 207
Lab: W 10:20 to 1:20 (Section 01) or 2:00 to 5:00 (Section 02) Bartlett 012 (basement)

INSTRUCTOR
Dr. Kimberly Russell (she/her/hers)
Kimberly.russell@rutgers.edu
Office Hours: Mondays 2 to 3:30; W 8:30 to 10am (best to schedule anyway); Other times by appointment: https://krussell-rutgersuniversity.youcanbook.me

Teaching Assistant: Jeewantha Bandara (jeewantha.bandara@rutgers.edu)

COURSE MATERIALS
Text: Biology of the Invertebrates, by Jan A. Pechenik, 7th Edition (2014). McGraw-Hill Education. ISBN-10: 0073524182, ISBN-13: 978-0073524184.
Lab: Lab materials will be posted on the course website (Canvas). Students are responsible for downloading, printing and bringing to class. Please purchase a three -ring binder to hold lab materials.

COURSE DESCRIPTION
Invertebrates make up 99% of all animal life on our planet with over 2 million described species dispersed among 30+ phyla. In some ways, it is INSANE to attempt to discuss the diversity of these creatures in a single semester. Instead, we can place these organisms into an evolutionary history that highlights the differences and similarities between groups. The goal of this course is both to introduce you to the diversity of life on this planet and to give you an appreciation of the utility, beauty and relevance of these fantastic creatures.

LEARNING GOALS
• Demonstrate an understanding of the fundamental differences among invertebrate taxa, and the relationships among taxa.
• Demonstrate knowledge of basic phylogenetic principles.
• Demonstrate the ability to make careful observations of specimens.
• Demonstrate the ability to classify organisms based on morphology.
• Gain an appreciation for the diversity of animals (& enjoy yourself at the same time).

GRADES
3 Exams (100 points each)
3 Lecture Quizzes (25 points, lowest dropped)
Homework (35 points)
1 Beast Profile (25 points)
Lecture total: 415 points
Lab total: 100 points (details on separate syllabus)

Late Assignment Policy: 10% will be deducted for each day an assignment is late. No excuses needed.

Instructor Accessibility. I will be available for meetings (either via Zoom or in-person) or quick e-mail replies during the hours listed at the top of this document. For students who are unavailable during the hours listed, I have a limited amount of time for appointments at other times, so please just use my

scheduling site. In addition, I will respond to e-mails outside of those hours within reason. You can expect a response within 24 hours, usually less, for e-mails received during the week (M to F).

ASSIGNMENTS

Reading. The textbook is an excellent reference and my lectures will mostly be derived from the material presented in it. It will be difficult for you to earn an A in this course without using the textbook. You have been warned!! Believe it or not, we will get through the whole thing!

Beast Profile. Each student will be expected to present to the class a profile of one critter of your choosing (based on awesomeness, horror or disgust). Presentations will be 3 to 5 minutes. At a minimum, you will need to provide 3 to 5 PowerPoint slides of basic information about your chosen species (e-mail me your slides before class). Basic information should include a picture, the scientific name of the organism, how it fits in the tree of life (must be consistent with your textbook! Don't trust Wikipedia!) and why you chose it. You must also include at least one primary source research paper concerning your species. Other than that, be creative. You can bring props, costumes, you can sing about it. The only thing you CANNOT do is show a video narrated by someone else or use AI. Have fun! Presentations begin on September 16th.

Homework. There will be 8 homework assignments, designed to help you review the lecture material and prepare for quizzes/exams. You will be given a prompt to create either a set of mock exam questions (5) or a review activity of some kind (e.g. game, crossword, etc.). These will be submitted to Canvas. Students are allowed to miss 1 assignment without penalty. For each assignment, Dr. Russell will award a bonus point to the student(s) who have created the most useful activity, which will be incorporated into the in-class review.

Lab Assignments. These will be turned in directly to your TA. See the lab syllabus for details and dates.

Beast Feast. Traditionally, during the last day of lecture or lab, we have a class party that includes a sampling of tasty invertebrate-themed food. Vegetarian/Vegan options will be available.

****COURSE EXPECTATIONS AND POLICIES**

Lectures. I expect you to attend lecture, as this will be how course material is delivered. Students who regularly attend lecture score significantly higher on tests than students who do not, plus I am more likely to bump up your final grade if I know who you are! Regardless of whether you are in class or not, however, you are responsible for everything which is discussed in lecture, everything which is assigned as class reading, and any handouts which are given in class. You are expected to make your own arrangements for access to class notes or handouts that you missed (FYI, I do some of my lectures on the board). As a study aid, I will post the lecture slides on Canvas by the end of each week. PLEASE resist the

urge to print them out, but if you feel you must, be sure to print multiple slides per page to conserve paper. Keep in mind that the slides only form an outline for the material covered in class and are therefore not a good substitute for class attendance. If you choose to use a laptop for taking notes during class, please refrain from checking e-mail or browsing the Internet – if you are caught doing so, I will ask you to put your computer away immediately.

Also:

- Labs will be a mixture of outdoor, online and in-lab activities. The lab room does not have great ventilation, so while the weather is nice, we will be outside!
- For synchronous labs, attendance is mandatory. One unexcused absence from lab will reduce your class grade one letter (e.g., a B becomes a C). Two unexcused absences will reduce your class grade two letters (e.g., a B becomes a D). Three absences ***for any reason*** will result in failure of the class and/or an Incomplete depending on the circumstances.
- If you must miss an exam or a laboratory, you must clear it in advance directly with me or your TA. I will require official documentation of your excuse (e.g., doctor's or dean's note) before scheduling a make-up exam or lab.
- Missed exams without permission from the instructor will result in a grade of 0 points.
- **I expect you to check your e-mail for class announcements!!!!**
- **Academic dishonesty of any kind will not be tolerated (see below).**

Disability Services. Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation. If the documentation supports your request for reasonable accommodations, your campus's disability services office will contact your Instructors for you. To begin this process, please complete the Registration form on the ODS web site at: https://ods.rutgers.edu/students/getting-registered

**note: I require students to invoke their accommodations when needed. I.e., if your accommodation is extra time on exams, you need to inform me of that in advance so we can make the necessary arrangements.*

STATEMENT OF DIVERSITY AND INCLUSION

It is our intention that students of all backgrounds will be well served by this course. We will work to create an environment of **inclusion** which respects and affirms the inherent dignity, value, and uniqueness of all individuals, communities and perspectives. We are lucky to have a diverse university. Diverse voices and life experiences enhance the learning process and we welcome students to share their personal experiences. We will not tolerate disrespectful language or behavior against any individual or group. If you feel as though you have been disrespected or treated unfairly by the instructors or any other individual please let us know. You may speak with the instructors in person, over email or report anonymously using the feedback note box. You may also report bias to the Rutgers Diversity and Inclusion initiative using this link: http://inclusion.rutgers.edu/report-bias-incident/ .

ACADEMIC HONOR CODE

Each student has the responsibility (1) to uphold the highest standards of academic integrity in the student's own work, (2) to refuse to tolerate violations of academic integrity in the university community, and (3) to foster a high sense of integrity and social responsibility on the part of the university community. ***Cheating and Plagiarism:*** Plagiarism is defined as the use of any information, published, or unpublished without acknowledgement or copying and pasting the exact words of someone even with acknowledgement. Cheating occurs when you use the work of another student in place of your own. None of these will be tolerated. It is extremely important that you distinguish your own ideas from those of others. You must always acknowledge sources. Using any AI (ChatGPT, etc.) on any assignment is considered cheating and is not allowed. If you have any questions, see the instructor.

Tentative Lecture and Lab Schedule

	Week 1	
Sept 5	Introduction: Amazing Invertebrates (Ch. 1)	
	Week 2	
Sept 9	The Aquatic Lifestyle	
Sept 11	Lab 1: Collection Techniques & Terrestrial Diversity	**Campus Field Trip!**
Sept 12	Evolution & Systematics	
	Week 3	
Sept 16	Invertebrate Classification (Ch. 2)	HW#1 due 9/16
Sept 18	Lab 2: Stream Beasts	**Field Trip to The Watershed Institute**
Sept 19	Protozoans & Poriferans (Ch. 4)	
	Week 4	
Sept 23	Placozoans & The Hydrostatic Skeleton (Ch. 5)	HW#2 due 9/23
Sept 25	Lab 3: Water Quality Analysis using Stream Data	
Sept 26	The Cnidarians (Ch. 6)	Quiz 1 (online)
	Week 5	
Sept 30	The Ctenophores (Ch. 7)	
Oct 2	Lab 4: Marine Diversity	**[Field trip to Laurence Harbor]**
Oct 3	The Platyhelminths (Ch. 8)	
	Week 6	
Oct 7	The Gnathifera (Ch. 10)	HW#3 due 10/7
Oct 9	Lab 5: Cnidaria & Platyhelminths (live specimens!)	
Oct 10	The Nemerteans (Ch. 11)	
	Week 7	
Oct 14	Exam Review Games & Phylum Mollusca, Part 1	HW#4 due 10/14
Oct 16	Exam 1	
Oct 17	The Molluscs, Part 2	
	Week 8	
Oct 21	The Molluscs, Part 3	HW#5 due 10/21
Oct 23	Lab 6: Mollusca Comparative Anatomy	Barlett
Oct 24	Molluscs, Part 4 & Quiz review activity	Quiz 2 (online)
	Week 9	
Oct 28	The Annelids	
Oct/30	Lab 7: Arthropod Morphology & Classification	
Oct 31	The Arthropods, Part 1 (Ch. 14)	
	Week 10	
Nov 4	The Arthropods, Part 2	HW#6 due 11/04
Nov 6	Lab 8: Madagascar Hissing Roaches (Behavior & Morphology)	
Nov 7	The Arthropods, Part 3	
	Week 11	
Nov 11	Exam Review	
Nov 13	Exam 2	Barlett
Nov 14	Tardigrades & Onychophorans	
	Week 12	

Nov 18	The Nematodes & Relatives (Ch. 16 & 17)	HW#7 due 11/18
11/20	Lab 9: Beneficial Nematodes	
Nov 21	The Lophophorates (Ch. 19)	
	Week 13	
Nov 25	The Echinoderms Part 1 (Ch. 20)	
Nov 26	The Echinoderms Part 2	Quiz 3 (online)
	Week 14	
Dec 2	The Hemichordates, Xenoturbellids (Ch. 21 & 22)	
Dec 4	Lab 9 Pt. 2: Beneficial Nematodes	Barlett
Dec 5	Non-Vertebrate Chordates (Ch. 23)	
	Week 15	
Dec 9	Beast Feast!!!	HW#8 due 12/09
Dec 11	Lab 10: Echinoderm Dissections	Barlett
Dec 19	**Exam 3 (12 to 3pm)**	**Exam 3**