

11:216:324 **Invertebrate Zoology**

Fall 2021

Lecture: MTH 9:00 –10:20, CDL-109.

Lab: TH 11 to 2 or 3 to 6 *Bartlett 012 (basement)

*see notes below

INSTRUCTOR

Dr. Kimberly Russell (Kimberly.russell@rutgers.edu; Phone: 2-9383)

Office: 100 Old Blake Hall

Lab: 201 Old Blake Hall

Office Hours: Mondays 11 to 12:30; Th 2 to 3; Other times by appointment:

<https://krussell-rutgersuniversity.youcanbook.me>

Teaching Assistant: Alex Kisurin (ak1667@sebs.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 (20 points, lowest dropped)

1 Beast Profile (30 points)

Lecture total: 370 points

Lab total: 150 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 instant 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. 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.

ASSIGNMENTS

Reading. The textbook is an excellent reference and my lectures will mostly be derived from the material presented in it. 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 2 or 3 PowerPoint slides of basic information that will be included at the end of the day's lecture (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!), why you chose it & find one primary source research paper. 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. Have fun! Presentations begin on September 16th.

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, we have a class party that includes a sampling of tasty invertebrate-themed food.



COURSE EXPECTATIONS AND POLICIES

Lectures. I expect you to attend lecture. Students who regularly attend lecture score significantly higher on tests than students who do not (e.g., C vs. B+), 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 many 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. We must maintain social distancing in the lab room, so we will meet inside infrequently.
- 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 unexcused absences will result in failure of the class.
- 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).**

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. If you have any questions, see the instructor.

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/> .

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: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and

discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at:
<https://ods.rutgers.edu/students/registration-form>

SPECIAL COVID-19 CONSIDERATIONS

This course is classified as hybrid to allow for some flexibility. I intend for all lectures to be in-person and for most labs to be in-person. For field trips, we encourage self-transportation and/or carpooling when possible. If students are uncomfortable travelling or are unable to travel to field sites, they can request to substitute an online activity. We understand that this is an unusual situation and that new and unanticipated issues may arise. It is important to us that you communicate with us if any **special circumstances** make it impossible or risky for you to complete assigned classwork. If you let us know in advance, we can usually find a solution. Also, I may have to modify course delivery from time to time as well. Please check the course announcements on Canvas regularly!

SYLLABUS CHANGE POLICY: This syllabus is a guide for the course and is subject to change. Notice will be given. If you find an error, please contact me.

Tentative Lecture and Lab Schedule

Tentative Lecture and Lab Schedule		
	Week 1	
Sept 2	Introduction: Amazing Invertebrates (Ch. 1)	No lab
	Week 2	
Sept 8	The Aquatic Lifestyle	
Sept 9	Evolution & Systematics	Lab 1: Terrestrial Diversity & Dichotomous Keys (asynchronous)
	Week 3	
Sept 13	Invertebrate Classification (Ch. 2) & The Protozoans (Ch. 3)	
Sept 16	Poriferans & Placozoans (Ch. 4)	Lab 2: Phylogenetic Trees (asynchronous)
	Week 4	
Sept 20	The Hydrostatic Skeleton (Ch. 5)	Quiz 1 (online)
Sept 23	The Cnidarians (Ch. 6)	Lab CANCELLED
	Week 5	
Sept 27	The Ctenophores (Ch. 7)	
Sept 30	The Platyhelminths (Ch. 8)	Lab 3: Stream Beasts [Field trip to Duke Farms]
	Week 6	
Oct 4	The Gnathifera (Ch. 10) The Nemertean (Ch. 11)	
Oct 7	Exam 1	Lab 5: Marine Diversity [FIELD TRIP]
	Week 7	
Oct 11	The Molluscs, Part 1 (Ch. 12)	
Oct 14	The Molluscs, Part 2	Lab 6: Mollusca Comparative Anatomy (Group 1)
	Week 8	
Oct 18	The Molluscs, Part 3	
Oct 21	The Molluscs, Part 4	Lab 7: Mollusca Comparative Anatomy (Group 2)
	Week 9	
Oct 25	The Annelids, Part 1 (Ch. 13)	Quiz 2 (online)
Oct 28	The Annelids, Part 2	Lab 8: Hissing Roach Behavior [individual]
	Week 10	
Nov 1	The Arthropods, Part 1 (Ch. 14)	
Nov 4	The Arthropods, Part 2	Lab 9: Ant Morphometrics [Online]
	Week 11	
Nov 8	The Arthropods, Part 3	
Nov 11	Exam 2	Lab 10: Macroinvertebrates & Water Quality Assessment [Online]
	Week 12	
Nov 15	Tardigrades & Onychophorans (Ch. 15)	
Nov 18	The Nematodes & Relatives (Ch. 16 & 17)	Lab 11: Chelicerata & Myriapoda [Field trip]
	Week 13	
Nov 22	The Lophophorates (Ch. 19)	Quiz 3 (online)

Dec 2	The Echinoderms Part 1 (Ch. 20)	Lab 12: Echinoderm Dissections (Group 1)
	Week 14	
Dec 6	The Echinoderms Part 2	
Dec 9	The Hemichordates, Xenoturbellids & Non-vertebrate Chordates (Ch. 21 - 23)	Lab 12: Echinoderm Dissection (Group 2)
	Week 15	
Dec 13	BEAST FEAST!!!!	
Final Exam Period	Exam 3	