

BZ 212 INVERTEBRATE BIOLOGY

COURSE SYLLABUS

FALL 2023

INSTRUCTIONAL TEAM

Instructor	Email	Drop-In Sessions
Dr. Liz Harp	Elizabeth.Harp@colostate.edu	TBD
GTAs / Lab Instructors		
Aemilia Mosswood	Aemilia.Geddes@colostate.edu	Mondays ^z & Wednesdays ^z 10:00 – 11:00 AM
Lydia Garner	Lydia.Garner@colostate.edu	Wednesdays ^z 11:00 AM – 12:00 PM 4:00 – 5:00 PM
Sydney Hedberg	Sydney.Hedberg@colostate.edu	Thursdays ^z 1:00 – 2:00 PM 3:30 – 4:30 PM
Annalise Schaaf	Annalise.Schaaf@colostate.edu	Fridays ^z 8:00 – 10:00 AM
Charli Geer	Charli.Geer@colostate.edu	Fridays ^l 9:00 – 11:00 AM

^l Drop-in sessions located in the laboratory classroom, Biology room 104

^z Drop-in sessions via Zoom (meeting details in the Course Information module in Canvas)

CLASS MEETING INFORMATION

Course Dates:

First day of class: Tuesday, August 22, 2023

Last day of class: Thursday, December 7, 2023

Final Exam: Thursday, December 14, 2:00 – 4:00 PM

Lecture: Tuesdays & Thursdays 2:00 – 3:15 PM, Yates 104

Lab: Biology building, Room 104

Lab Section	Day	Time	Instructor
L09	Tuesday	8:00 AM – 10:50 AM	Aemilia Mosswood
L01	Tuesday	11:00 AM - 1:50 PM	Aemilia Mosswood
L02	Tuesday	4:00 PM - 6:50 PM	Lydia Garner
L03	Wednesday	8:00 AM - 10:50 AM	Charli Geer
L04	Wednesday	11:00 AM - 1:50 PM	Charli Geer
L05	Wednesday	2:00 PM - 4:50 PM	Sydney Hedberg
L06	Wednesday	5:00 PM - 7:50 PM	Sydney Hedberg
L07	Thursday	8:00 AM - 10:50 AM	Annalise Schaaf
L08	Thursday	11:00 AM - 1:50 PM	Lydia Garner
L10	Thursday	4:00 PM – 6:50 PM	Annalise Schaaf



Laboratory classes will meet in Biology room 104 starting the first week of classes. Make sure you know which section you are registered for through RamWeb. Students will not be allowed to attend a laboratory class section they are not registered for due to seating capacity restrictions.

Attendance during the scheduled lecture is expected. Attendance during scheduled laboratory classes is required. If you miss a lecture or laboratory class, it is your responsibility to get in touch with another student to find out what you missed (for lecture only, you can watch the recorded lecture on Echo360 accessible from the Canvas course shell, labs are not recorded).

COMMUNICATION POLICY

Please respect the time of your instructional team; before emailing us with a question, please make sure your question is not already answered in assignment/quiz/exam instructions; the course syllabus; course announcements; the **"Ask the Instructional Team" discussion forum**; and other likely places on Canvas.

Any e-mail correspondence must originate from your @colostate.edu account, have your full name in the body of the e-mail, and contain **"BZ 212" in the subject line**. E-mails not meeting these requirements may not be recognized by our e-mail filters, and thus may not be answered. The subject line should also indicate the reason for the email. If you email us, please use the **@colostate email** address (and not from within Canvas). Messages sent from within Canvas are not sent to an email address – they go to the Canvas Inbox, which is not checked as frequently as email.

Responses to emails will be provided within 36 hours Mondays – Thursdays. If you have not received a response to an email within 36 hours Monday - Thursday, please feel free to send a gentle follow-up. Emails do go missing from time to time, or we just get overly busy, and we do not mind at all if you provide a gentle reminder that your email has not yet been answered (though we hope you will not have to do this!). Please wait at least 36 hours before following up on an unanswered email.

Important course information will be sent using the Announcements tool in Canvas. Announcements are accessible in the Canvas course shell by clicking on the *Announcements* link in the left navigation menu. **Make sure to set your Canvas notification preferences so that you are receiving announcements and other important messages.** Find information about how to do this at: [How do I set my Canvas notification preferences as a student?](#)

We do not generally answer course content questions via email. Class meetings and drop-in sessions are the best places to get your course content questions answered. You can also post questions in the *Ask the Instructional Team* discussion forum on Canvas. We will periodically check the *Ask the Instructional Team* discussion forum between 9:00 AM and 4:00 PM, Mondays – Thursdays (at a minimum). You are also encouraged to answer each other's questions as long as you are not simply providing answers to assignment questions (i.e., just the final answer with no explanation). Being able to clearly answer somebody else's question about a topic is one of the best ways to determine if you actually understand the material.

You can ask your classmates questions about the class directly in the *Cyber Café* discussion forum. This is also a great place to set up study groups. The instructional team does not monitor this forum. As always, please be respectful and make sure you are adhering to the [Core Rules of Netiquette](#) and [CSU's Principles of Community](#). If you feel somebody needs a reminder of these rules and principles, please make sure to let us know right away.

PREREQUISITES FOR THIS COURSE

BZ 110 and BZ 111; or LIFE 103

COURSE DESCRIPTION & OBJECTIVES

This course introduces students to the diversity, evolutionary relationships, and general biology of the invertebrates. The vast majority of animal species are invertebrates, and thus we cannot possibly give each group the coverage it deserves within the confines of a single semester. Instead, we will survey the major invertebrate animal groups in the context of their evolutionary history and ecological importance. As we examine each group we will focus on: differences and similarities in development, morphology, physiology, natural history, and ecology; evolutionary relationships; and conservation issues.

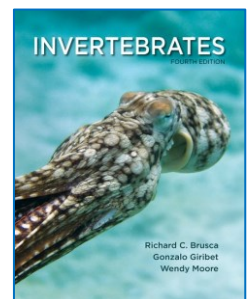
Upon the completion of this course, students will be able to:

- Describe evolutionary relationships between modern and ancestral groups of invertebrates.
- Differentiate between the various invertebrate phyla and selected classes based on: morphology, physiology, reproduction and development; behavior; and habitat.
- Explain how morphological, behavioral, and physiological adaptations that allow invertebrates to survive in distinct habitats.
- Analyze and explain the role of invertebrates in social and ecological systems.
- Evaluate scientific hypotheses, interpret data, and synthesize published research.

REQUIRED RESOURCES

Required Textbook: Invertebrates by Brusca, Giribet, and Moore (2023)

- ISBN 9780197554418 (paperback) | 9780197637173 (epub)
- Older versions of the textbook are substantially different from the 4th edition and thus will not be sufficient for this course (in particular, taxonomy and phylogenetic relationships of many groups has changed significantly since the 3rd edition). We will be using this textbook in future semesters, so you should be able to sell your textbook back to the CSU bookstore at the end of the semester. If you plan to go on to a career that involves invertebrates, you may want to keep the textbook, as it is an excellent and often-cited reference.
- **Lab handouts will refer to figures in the textbook.** If you purchase a physical copy, you will need to bring it with you to lab. There are computers available in the lab for you to access digital copies of the textbook.



There is no required laboratory manual, but you will need to purchase a basic student **dissection kit** if you do not already have one.

Additional readings and resources will be posted in or linked from the course site found in Canvas.

Students are responsible for having lab handouts and worksheets accessible during lab, either on a suitable electronic device, or by printing them and bringing them to lab. You should also bring a notebook and pencil(s)



for sketching diagrams of organisms you examine in lab. You may find colored pencils particularly useful for highlighting specific features in your diagrams. There will be two midterm lab practicals and a comprehensive laboratory practical at the end of the semester; the drawings you make during lab will be invaluable for helping you do well on the lab practical.

EXPECTED TIME COMMITMENT

Academic credit is a measure of the total *minimum* time commitment required of a typical student in a specific course. This is a four-credit course; you can expect to spend a **minimum** of 8 – 12 hours each week on coursework, including time spent in drop-in sessions, completing required assignments, readings, videos, and general studying. Achievement of course goals may require more than the minimum time commitment depending on an individual student's academic background and interests. (*Calculated from the [Federal Credit Hour Definition, 34CFR 600.2](#)*)

To best manage your time, you should schedule specific times that you plan to spend on this course – this will make it less likely that you will find yourself trying to complete assignments and prepare for lab at the last minute.

ATTENDANCE

Attendance during the scheduled lecture, either in-person or remotely, is expected. If you miss a lecture class, it is your responsibility to get in touch with another student and watch the recorded Echo360 lecture video to find out what you missed.

Attendance during your scheduled lab class is required. If you know in advance that you will miss a lab class, you should see if you can attend lab at a different time. Because of seating limitations, you must arrange this in advance by contacting both your lab instructor and the instructor of the lab class you want to attend. Because of seating limitations attending a lab class you are not registered for will not always be a viable option.

ETIQUETTE

Students are expected to contribute to the maintenance of an environment that is conducive to learning and that is respectful of others. Because respect for the learning process is critical for success in this class, no behavior that disrupts any student's ability to learn will be tolerated.

If you choose to bring a laptop to use during lecture classes, please choose a seat at the back of the classroom so as not to distract other students. Note that research suggests **taking notes on a laptop results in shallower processing and reduced performance on assessments** compared with taking notes by hand (Mueller and Oppenheimer 2014: <https://doi.org/10.1177/0956797614524581>).

GRADING AND ASSESSMENTS

Individual assignment, quiz, or exam grades will not be curved, but if the class average at the end of the semester is less than 75%, final grades will be curved to bring the class average to 75%. Individual students' fractional grades will be rounded to the nearest whole number (e.g., 69.6 = 70 and 69.4 = 69).

Final course grades will be assigned on the following scale:

Grade	Range		Grade	Range
A	90% to 100%		C+	77% to 79%
B+	87% to 89%		C	70% to 76%
B	83% to 86%		D	60% to 69%
B-	80% to 82%		F	0% to 59%

As a student enrolled in this course, one of your responsibilities is to submit course work by the due dates listed in Canvas. With that said, we take our roles as your instructors very seriously, and, in fact, we care about how well you do in this course and that you have a satisfying, rewarding experience.

To that end, it is our commitment to you to respond individually to the work you submit in this class and to grade your work and provide feedback in a timely manner. Smaller assignments and quizzes will typically be graded within five business days, and major assignments, exams, and discussions within ten business days. (If, however, due to unforeseeable circumstances, the grading of your work takes longer than the times listed here, we will keep you informed of our progress and make every effort to grade your work and provide feedback as soon as we can.)

Points earned in this course will come from participation, attendance, iClicker assessments, assignments, quizzes, exams, and lab practicals, and will count towards your final grade according to the following breakdown:

ASSESSMENT	NUMBER (DROPPED)	PTS EACH	TOTAL POINTS	PERCENT OF TOTAL
Discussion: Class Introduction	1	10	10	1
Syllabus & Canvas Scavenger Hunt Quiz	1	15	15	2
iClicker participation	~100	0.5	40	4
Module Quizzes	15 (1)	10	140	16
Lab Attendance & Participation	13	5	65	7
Lab Assignments*	12 (1)	20	220	24
Invertebrate Photo Collection	1	50	50	6
Lab Practical	2	50	100	11
Mini-Exams	4 ⁺	40	160	18
Cumulative Final Exam	1	100	100	11
TOTAL POSSIBLE			900	100%

* To receive credit for lab assignments, you must have been present and actively participated during the entire lab class associated with that assignment. Individual student grades for group assignments are subject to adjustment if a student does not adequately contribute to the project.

⁺ If you earn at least 70% on the final exam, you can replace your lowest mini-exam grade with your final exam grade (assuming it is higher). This means your final exam score would be counted twice, once as the final exam, and once as a replacement grade for your lowest mini-exam grade.

iCLICKER PARTICIPATION

There will be several iClicker questions for you to answer during each class using the iClicker Cloud app; these will count toward your final grade in this course. These cannot be made up if you miss a class, but there will be enough points available to account for a reasonable number of missed classes. We encourage you to work with classmates to answer questions. Questions are worth a total of $\frac{1}{2}$ point each ($\frac{1}{4}$ point for answering and $\frac{1}{4}$ point for correct answer).

HOMEWORK QUIZZES

Homework quizzes will be administered through Canvas. Check regularly to make sure you know when the quizzes are “open” and when they are “closed.” Questions will focus on the course content a single module corresponding to the quiz number (e.g., HWQ 1 covers material from module 1).

EXAMS

There will be five mini-exams administered online through Canvas. These will cover lecture material, class discussions, and posted material. Although they are open book, the mini-exams should not be completed with classmates. The Final Exam will be taken in-person during the scheduled final exam time; it will be cumulative, with an emphasis on material covered since the last mini-exam. Exams will be timed, and may include a mix of multiple choice, short answer, and problem-solving questions. Exams will be taken outside of the scheduled class time. See the course schedule for exam dates. There will be no make-up exams without valid documentation of extenuating circumstances (e.g., illness). Make-up exams may be entirely essay and short answer style. Exam availability and due dates are in the course schedule.

LABORATORY ASSIGNMENTS, PRACTICALS, ATTENDANCE, AND PARTICIPATION

See Lab Syllabus for details.

COURSE POLICY FOR LATE ASSIGNMENTS

There is a **point deduction of 20% per day** (24 hours), up to 2 days, for any late homework assignments; the penalty begins as soon as the assignment is late (e.g., 10 minutes late = 20% penalty). **No work is accepted after it is two days late.** Please be aware that for assignments submitted online, the penalty is applied automatically by Canvas. This means that if you submit an assignment even one minute late, it will be subject to the point penalty.

Keep in mind that computers and printers can fail at the most inopportune times. **Computer crashes, printer failures, internet outages, and similar circumstances will not be considered valid excuses for late work** – please plan to complete your work in plenty of time to allow for technology failures and other circumstances that could delay completion of your work.

Because all assignments for this class are submitted online via Canvas, the 24-hour period includes weekends. For example, if an assignment is due online Thursday at 11:59 PM, the 2-day cutoff for submitting the assignment (with penalties, as noted previously), will be Saturday at 11:59 PM.

Grading late assignments requires considerably more time than assignments handed in on time, and so grading and return of late assignments may be delayed significantly.



You are allowed to submit one Module Quiz or Lab Assignment within 24 hours after the due date without penalty. This policy is intended to compensate for any unexpected internet outages, other technical difficulties (e.g., computer failure), and other situations that might prevent you from submitting a Module Quiz or Lab Assignment on time. To claim your “penalty-free” late assignment, you must send an email to your lab instructor with your request before 5:00 PM on the day the assignment is due; there is no need to explain the reason your assignment will be late. Requests sent after the due date & time are not guaranteed to be seen in time for you to take advantage of the 24-hour window.

REGRADE REQUESTS

If students have concerns about grading, they must submit a written request for regrading within two business days (48 hours, not including weekends) of when the assessment grade was released.

All regrade requests must clearly indicate the questions being submitted for regrading along with a clear and detailed explanation of why you believe the question(s) should be regraded. Simply stating “*I don’t understand why I lost points*” is not sufficient. Submit regrade requests through Canvas, being careful to follow all instructions. **Regrade requests sent via email will not be considered.**

For any regrade requests, the entire assessment (not just individual questions) may be regraded. Therefore, it is possible to *lose* points on a regrade if we find that credit was mistakenly given for incorrect answers.

PARTICIPATION/BEHAVIORAL EXPECTATIONS

All students must be enrolled in a laboratory section. Laboratory classes will meet in Biology room 104. Make sure you know which section you are signed up for. You must attend your assigned section. Students will not be allowed to attend a laboratory class section they are not registered for due to seating capacity restrictions.

All laboratory handouts, readings, required videos, and other resources will be posted on Canvas by the Monday before each lab. Attendance and participation during lab count toward your grade (see lab syllabus for details).

ETIQUETTE

Students are expected to contribute to the maintenance of an environment that is conducive to learning and that is respectful of others. Because respect for the learning process is critical for success in this class, no behavior that disrupts any student’s ability to learn will be tolerated.

If you choose to bring a laptop to lecture classes for the purpose of taking notes, please choose a seat at the back of the classroom so as not to distract students sitting nearby. However, research suggests **that taking notes on a laptop results in shallower processing and reduced performance on assessments** compared with taking notes by hand (Mueller and Oppenheimer 2014: <https://doi.org/10.1177/0956797614524581>)

CSU COVID REPORTING REQUIREMENTS

All students are directed to report any COVID-19 symptoms to the university immediately, as well as exposures or positive test results from a medical provider or home test.



- If you suspect you have symptoms, or if you know you have been exposed to a positive person or have tested positive for COVID (even with a home test), you are directed to fill out the [COVID Reporter](#).
- If you know or believe you have been exposed, including living with someone known to be COVID positive, or are symptomatic, it is important for the health of yourself and others that you complete the online [COVID Reporter](#). Do not ask your instructor to report for you.
- If you do not have internet access to fill out the online [COVID-19 Reporter](#), please call (970) 491-4600.
- You may also report concerns in your academic or living spaces regarding COVID exposures through the [COVID Reporter](#). You will not be penalized in any way for reporting.
- When you complete the COVID Reporter for any reason, the CSU Public Health Office is notified. Students who report symptoms or a positive antigen test through the [COVID Reporter](#) may be directed to get a PCR test through the CSU Health Network's medical services for students.

For the latest information about the university's COVID resources and information, please visit the [CSU COVID-19 site](#).

CANVAS INFORMATION & TECHNICAL SUPPORT

Canvas is where course content, grades, and communication will reside for this course.

- Canvas Login: canvas.colostate.edu

The [Technical Requirements](#) page identifies browsers and operating systems that work best with Canvas.

- Canvas Support: info.canvas.colostate.edu

For passwords or other computer-related technical support, contact [Central IT Technical Support Help Desk](#).

- (970) 491-7276
- help@colostate.edu

ACADEMIC INTEGRITY & CSU HONOR PLEDGE

This course will adhere to the CSU [Academic Integrity/Misconduct](#) policy as found in the General Catalog and the [Student Conduct Code](#).

It is not acceptable to copy answers from another student's assignment, the text, or any other source. Unless the source and author are cited and the work placed in quotation marks, a copied answer is plagiarism. Furthermore, even if a work is properly cited, it is as unacceptable to copy someone else's work or any other resource. Recognizably copied answers will receive zero credit and be considered cheating.

Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, I will ask that you affirm the CSU Honor Pledge as part of completing your work in this course.

Referring to solutions manuals, looking at assignments from previous semesters, and working in groups on assignments is perfectly acceptable (working in groups is especially encouraged), but your submitted work must be in your own words.



UNIVERSAL DESIGN FOR LEARNING/ACCOMMODATION OF NEEDS

I am committed to the principle of universal learning. This means that our virtual spaces, our practices, and our interactions be as inclusive as possible. Mutual respect, civility, and the ability to listen and observe others carefully are crucial to universal learning.

If you are a student who will need accommodations in this class, please contact me to discuss your individual needs. Any accommodation must be discussed in a timely manner. A verifying memo from [The Student Disability Center](#) may be required before any accommodation is provided.

The Student Disability Center (SDC) has the authority to verify and confirm the eligibility of students with disabilities for the majority of accommodations. While some accommodations may be provided by other departments, a student is not automatically eligible for those accommodations unless their disability can be verified and the need for the accommodation confirmed, either through SDC or through acceptable means defined by the particular department. Faculty and staff may consult with the SDC staff whenever there is doubt as to the appropriateness of an accommodative request by a student with a disability.

The goal of SDC is to normalize disability as part of the culture of diversity at Colorado State University. The characteristic of having a disability simply provides the basis of the support that is available to students. The goal is to ensure students with disabilities have the opportunity to be as successful as they have the capability to be.

Support and services are offered to student with functional limitations due to visual, hearing, learning, or mobility disabilities as well as to students who have specific physical or mental health conditions due to epilepsy, diabetes, asthma, AIDS, psychiatric diagnoses, etc. Students who are temporarily disabled are also eligible for support and assistance.

Any student who is enrolled at CSU, and who self-identifies with SDC as having a disability, is eligible for support from SDC. Specific accommodations are determined individually for each student and must be supported by appropriate documentation and/or evaluation of needs consistent with a particular type of disability. SDC reserves the right to ask for any appropriate documentation of disability in order to determine a student's eligibility for accommodations as well as in support for specific accommodative requests. The accommodative process begins once a student meets with an accommodations specialist in the SDC.

THIRD-PARTY TOOLS/PRIVACY

Please note that this course may require you to use third-party tools (tools outside of the Canvas learning management system), such as Zoom and others. Some of these tools may collect and share information about their users. Because your privacy is important, you are encouraged to consult the privacy policies for any third-party tools in this course so that you are aware of how your personal information is collected, used and shared.

COPYRIGHTED COURSE MATERIALS

Please do not share material from this course in online, print, or other media. Course material is the property of the instructor who developed the course. Materials authored by third parties and used in the course are also subject to copyright protections. Posting course materials on external sites (commercial or not) violates both



copyright law and the CSU Student Conduct Code. Students who share course content without the instructor's express permission, including with online sites that post materials to sell to other students, could face appropriate disciplinary or legal action.

UNDOCUMENTED STUDENT SUPPORT

Any CSU student who faces challenges or hardships due to their legal status in the United States and believes that it may impact their academic performance in this course is encouraged to visit [Student Support Services for Undocumented, DACA & ASSET](#) for resources and support. Additionally, only if you feel comfortable, please notify your professor so they may pass along any additional resources they may possess.

TITLE IX/INTERPERSONAL VIOLENCE

For the full statement regarding role and responsibilities about reporting harassment, sexual harassment, sexual misconduct, domestic violence, dating violence, stalking, and the retaliation policy please go to: [Title IX – Sexual Assault, Sexual Violence, Sexual Harassment](#).

If you feel that your rights have been compromised at CSU, several resources are available to assist:

- [Student Resolution Center](#), 491-7165
- [Office of Equal Opportunity](#), 491-5836

A note about interpersonal violence: If you or someone you know has experienced sexual assault, relationship violence and/or stalking, know that you are not alone. As instructors, we are required by law to notify university officials about disclosures related to interpersonal violence. Confidential victim advocates are available 24 hours a day, 365 days a year to provide support related to the emotional, physical, physiological and legal aftermath of interpersonal violence. Contact the [Victim Assistance Team](#) at: 970-492-4242.

RELIGIOUS OBSERVANCES

CSU does not discriminate on the basis of religion. Reasonable accommodation should be made to allow individuals to observe their established religious holidays. Students seeking an exemption from attending recitation or completing assigned course work for a religious holiday will need to fill out the [Religious Accommodation Request Form](#) on the Division of Student Affairs website.

Once turned in, the Division of Student Affairs will review the request and contact the student accordingly. If approved, the student will receive a memo from the Dean of Students to send to their instructor.

Students are asked to submit the request form as soon as the conflict is noticed. Similarly, unanticipated conflicts requiring a religious observance, such as a death in the family, can also be reviewed.



CSU PRINCIPLES OF COMMUNITY

Inclusion: We create and nurture inclusive environments and welcome, value and affirm all members of our community, including their various identities, skills, ideas, talents and contributions.

Integrity: We are accountable for our actions and will act ethically and honestly in all our interactions.

Respect: We honor the inherent dignity of all people within an environment where we are committed to freedom of expression, critical discourse, and the advancement of knowledge.

Service: We are responsible, individually and collectively, to give of our time, talents, and resources to promote the well-being of each other and the development of our local, regional, and global communities.

Social Justice: We have the right to be treated and the responsibility to treat others with fairness and equity, the duty to challenge prejudice, and to uphold the laws, policies and procedures that promote justice in all respects.

DIVERSITY AND INCLUSION

The [Mission and Vision web page](#) of the CSU Commission on Diversity and Inclusion includes a comprehensive statement of CSU's commitment to diversity and inclusion.

Additional resources and information about CSU's commitment to diversity and inclusion can be found on the [web page of the CSU Office of the Vice President for Diversity](#).

I am committed to fostering and maintaining a positive learning environment where *all* students feel welcomed, respected, and safe. If you feel that these values are not being upheld by one or more members of our online community, I encourage you to let me know and/or to get in touch with a member of the Office of the Vice President for Diversity. Visit <https://diversity.colostate.edu/about/our-team/> to view the directory of the members of the Vice President for Diversity Team.

Thank you for taking time to read the syllabus! Please post questions about syllabus content in one of the informal discussion boards on Canvas: The *Cyber Café* discussion board or the *Ask the Instructor* discussion board.

~Dr. Harp