

# Marine Biology

## Syllabus

**Welcome** to Marine Biology! I look forward to working with each of you this semester as we explore the wonderful world of the oceans. This course is for you, so if there are specific ways that I can support you as you work to your goals, please let me know.

**Course Description.** Students in this course will dive into the biology of marine life, from tidepools to trenches. Course themes include the vast diversity of marine organisms, adaptations to distinct marine environments, and human impacts on marine systems. The course consists of lecture and a weekly two-hour lab. Students will also learn methods in marine research and conduct a literature review and presentation on a topic of their choosing. *Prerequisites: Biology Proficiency and BIOL 203.* Credits: 4(3-1).

### Course Meetings.

#### Lecture

Monday, Wednesday, Friday      9:30 – 10:20 am      *ISC 136*

#### Lab

Wednesday      1:30 – 3:20 pm      *ISC 105*

**Instructor.**      Dr. Mackenzie Gerringier      ISC 255      [gerringier@geneseo.edu](mailto:gerringier@geneseo.edu)

**Office Hours.**      Mon. 10:30–11:30 am, Wed. 3:30–4:30 pm, Friday 1:30–2:30 pm,  
and By Appointment

Office hours are your time for getting questions answered, course expectations clarified, advice on pursuing opportunities or careers in science and more! Office hours will be held on Zoom until further notice. Meeting links are available on Canvas. Please email me ([gerringier@geneseo.edu](mailto:gerringier@geneseo.edu)) or chat before/after class if you have questions or would like to set up a meeting outside of office hours.

## Learning Outcomes.

During this course, we will:

- Explore the biodiversity of marine systems across phylogeny and habitat.
- Understand adaptations to marine environments at molecular, organismal, and community levels.
- Develop and practice strategies for reading and critiquing scientific journal articles.
- Engage in critical thinking and discussions about human impacts on marine systems.
- Research, synthesize, and present scientific information effectively through written and oral projects in the classroom and lab.

## How this course fits into your biology education...

This course will help you work toward the following Biology Program Learning Outcomes:

1. Students will have the knowledge base and intellectual (conceptual) framework to use reasoning and problem-solving skills to; (1) read critically, (2) evaluate support for competing hypotheses, and (3) critique experimental design. Level: Reinforcement.
2. Students will have the laboratory and inquiry skills and technical ability to formulate hypotheses, design and run experiments using instruments to test their hypotheses, and analyze and interpret the results. They will be able to build on earlier work to design further experiments. Level: Introduction.
3. Students will be able to communicate biological ideas from literature or their own laboratory investigations to audiences of biologists and non-biologists in a variety of formats including written reports, poster and oral presentations. Level: Reinforcement.
4. Students will recognize the importance of scientific integrity and ethical research and applications of biology to science policy. They will be able to work independently and in teams for life-long learning. Level: Reinforcement.
5. Students will be able to demonstrate a broad and diverse background in biology and related sciences and a strong foundation for graduate and professional programs of study or employment. Level: Reinforcement.
6. Students will recognize evolution as the central tenet of biology, which explains the unity and diversity of life and interrelatedness of levels of biological organization. Level: Reinforcement.

**Course Materials.** *Textbook: Marine Biology: Function, Biodiversity, Ecology.* Jeffrey Levinton, 5<sup>th</sup> Edition, 2017. There is a copy of the textbook available for your use in the library's course reserves. Other editions of this text may also be used. [RedShelf](#) offers a digital rental of the text for \$60. Corresponding readings for lecture topics are provided in the schedule. Page numbers apply to the 5<sup>th</sup> edition of this text.

*Scientific Papers.* We will also explore primary research in marine biology. These readings are available on Canvas. Article response worksheets will help you develop strategies for reading scientific papers. Please submit these article responses for three of the four readings. For one reading, we will have a mini-journal club to discuss the studies, questions we come across, and what we'd do next to advance the field.

*Course Technology.* Additional materials will always be available on Canvas for those looking to dive deeper into these topics. We have discussion threads for questions about the course, material, or research opportunities. If you see internship opportunities or neat marine science news, please share! We will also be learning and using some common tools for accessing and analyzing marine data, including R. All software we use will be freely available to download, with links provided on Canvas.

## Course Expectations.

Much of the value of this course will come from our in-class activities and discussions. Therefore, attendance is expected when safe and possible for you to do so and active participation will be part of your course grade. In class, you will not be graded on whether your answers are right or wrong. Engage with the course materials and activities to the best of your abilities to receive in-class participation credit. If you cannot join a synchronous class session, please plan on participating in our discussions on Canvas and completing an alternative response on Canvas. Submit any participation make-up assignments to Canvas within one week of your absence. Please reach out to me to discuss potential or needed extended absences. The earlier you get in touch about questions or concerns, the more options we will have.

## Assignments & Grading.

Course grades will be based on participation in class, reading responses, projects, lab activities, and exams, which are designed to be inclusive for different learning styles and help you track your progress as you build your understanding of marine biology. Assignment summaries are included below, with further details, rubrics, and resources provided on Canvas and in class throughout the semester. Please feel free to reach out if there are questions about grading policies and course expectations. Course scores total 300 points.

### Article Responses

*15% of course grade*

Four scientific journal articles will supplement our textbook reading. For three of these, write a short response on the worksheet provided (*10 points each*). For one other article, meet with the instructor in groups of three on Zoom for

a short (~15 min) journal club discussion on the reading (15 points). Sign up for your article response interview at least one week in advance.

Nonaka <i>et al.</i> 2021	Blackwater Diving for Larval Fishes	Sept. 10 <sup>th</sup>
Gerringer 2019	Trenches & Hadal Snailfishes	Sept. 17 <sup>th</sup>
Bennett <i>et al.</i> 2021	Marine Conservation & Social Equity	Nov. 5 <sup>th</sup>
Dutton & Hofmann 2009	Heat Shock Proteins	Dec. 3 <sup>rd</sup>

Topic Presentation *20% of course grade*

Prepare a talk on a topic in marine biology that excites you. Submit a topic proposal (10 points) and a presentation outline and draft slides (20 points) for feedback. Talks will be given in class, 11/15–11/19 (30 points). Slides for all presenters are due to Canvas by 8 am on 11/15.

Topic Proposal	Sept. 24 <sup>th</sup>	10 points
Outline & Draft Slides	Oct. 29 <sup>th</sup>	20 points
Topic Presentation	Nov. 15 <sup>th</sup>	30 points

Lab *20% of course grade*

For our first month, each lab will have a corresponding worksheet with questions to synthesize the material (5 points each). Lab worksheets are due the following Wednesday at the beginning of lab.

Lab Activity 1	Sept. 8 <sup>th</sup>	5 points
Lab Activity 2	Sept. 15 <sup>th</sup>	5 points
Lab Activity 3	Sept. 22 <sup>nd</sup>	5 points
Lab Activity 4	Sept. 29 <sup>th</sup>	5 points

For our remaining labs, we will conduct an original research project in marine biology. We will work collaboratively and rely on the contributions of everyone to complete the research. Each individual will be graded on their research contribution (10 points), a figure you generate from our data (10 points), and your contribution to our lab research paper (20 points). Further details on expectations will be provided as the project progresses. This is an opportunity for us to do real marine science together this semester.

Research Contribution	Nov. 17 <sup>th</sup>	10 points
Research Figure	Dec. 1 <sup>st</sup>	10 points
Lab Research Paper	Dec. 8 <sup>th</sup>	20 points

## Exams

*30% of course grade*

Exams will cover the material presented in class and the textbook to track our progress and synthesize our understanding. *Mid-Term, 15%*. The mid-term exam will be a written, closed book test held on Monday, October 1<sup>st</sup> (*40 pts*). *Final, 15%*. The final exam will be a closed-book, cumulative synthesis of our course material on Friday, December 15<sup>th</sup>, 12:00–3:30 pm (*50 pts*).

Mid-Term Exam	Oct. 1 <sup>st</sup>	<i>40 points</i>
Final Exam	Dec. 15 <sup>th</sup>	<i>50 points</i>

## Participation

Every Class

*15% of course grade*

Earn full participation credit by engaging with in class activities and discussions or submitting participation make-up assignments for necessary absences (*35 points*). To actively participate in this course, ask questions, share your insights during class discussions, engage with lab activities and research, and post to Canvas discussions each week. For our asynchronous sessions, submit check-in responses to Canvas by the due date for credit (*10 points total*).

## Research Expedition: Alvin 6500 m.

The Expedition. My research centers on the physiology and ecology of deep-sea organisms. I study how animals are adapted to the deep-sea environment, including high pressures, cold temperatures, and lack of sunlight. To study deep-sea animals, I and my colleagues go to sea aboard research vessels for ~10–40 days at a time. We work with gear such as cameras, traps, remotely operated vehicles, and submersibles to understand deep-ocean environments.

Due to my expertise in hadal trenches and proposed research program, I have been invited to participate in an expedition to the Puerto Rico Trench and Mid-Cayman Spreading Center this October. We will be working with the crewed submersible *Alvin* and diving to depths of 6,500 meters, more than 21,000 feet below the ocean's surface, to understand the biology, geology, chemistry, and physics of these incredible habitats.

An Opportunity for Marine Science. This expedition includes telepresence, which allows scientists and classes like ours to actively participate from shore. Excitingly, this expedition gives our class an opportunity to engage in active marine research and conduct an original project in our lab. Together, we will be collecting and analyzing data from the expedition study sites. We will write up our study together as a lab group in the format of a scientific journal article.

Course Logistics. I will be at sea aboard the *RV Atlantis* Oct. 5<sup>th</sup>–30<sup>th</sup>. During the expedition, our lecture classes will move to an asynchronous online format. To help us engage with this asynchronous material, there will be a daily check-in on Canvas with a short activity or question for you to test your understanding. Each check-in is due by the end of our lecture days (Monday, Wednesday, Friday) and is worth 1 participation point.

In lab, we will be conducting our original research project in collaboration with the expedition team. Labs will continue to meet in person in ISC 105 while I am at sea and our research will be facilitated by a guest instructor.

Student Support. All assignment instructions, rubrics, and resources are available on Canvas. I will be available via email at [gerringer@geneseo.edu](mailto:gerringer@geneseo.edu) throughout the expedition. Please expect a 24–48-hour response time. Email is the best way to get in touch with me at sea, as I may not have access to our Canvas course each day. Synchronous office hours will resume when I am back onshore. Please reach out anytime with any questions or concerns.

In case of communications loss while I am at sea, or if you need urgent support regarding our course from someone on campus, please contact marine biologist Dr. Sid Bosch at [bosch@geneseo.edu](mailto:bosch@geneseo.edu). Dr. Bosch has access to our Canvas course and is able to provide onsite support while I am away.

Participate in the Expedition. In addition to our lab project, you are also encouraged to participate further in the expedition by joining dives via telepresence. We will discuss ways to participate in class. If you're interested in other ways to be involved or would like to propose a specific project, please come talk to me in office hours or set up an appointment.

## Resources & Policies.

Course Policies. *Late assignments* and make-up assignments will be accepted only with extenuating circumstances. If you have an emergency or foresee a scheduling conflict on an assignment or exam, please contact me as soon as possible and we'll work something out on a case-by-case basis. The earlier you reach out about issues, the more options we have.

Lab Safety. Close-toed shoes and long pants or a long skirt are required for participation in lab. For your safety, eating, drinking, and gum-chewing are not permitted in the lab. If you have any questions or concerns regarding lab safety, please do not hesitate to reach out.

COVID-19 & Course Format. Please be aware that due to the dynamic nature of the COVID-19 pandemic, it is possible that some changes to the syllabus and/or content delivery mode will need to be made after the semester has started. If this is the case, be assured that my priorities are student success, course continuity, and accessibility of information.

Marine Science Resources. Further readings, resources, activities, career and internship opportunities will be available on the Canvas page. Please do not hesitate to reach out if you have questions about the material or want to know more about a topic.

Useful Links for Marine Science.

Review of Latitude & Longitude: <https://www.thoughtco.com/latitude-and-longitude-1433521>

Real-Time Visualization of Winds and Currents: <https://earth.nullschool.net/>

National Data Buoy Center Resources: <http://www.vos.noaa.gov/mwl.shtml>

The Argo Float Network: [http://www.aoml.noaa.gov/phod/argo/how\\_argo\\_works.php](http://www.aoml.noaa.gov/phod/argo/how_argo_works.php)

NOAA *Okeanos Explorer* Live Feed <https://oceanexplorer.noaa.gov/livestreams/welcome.html>

Ocean Networks Canada, Data and Resources: <http://www.oceannetworks.ca/>

Ocean Observatories Initiative: <https://oceanobservatories.org/>

Hawaii Ocean Time Series, 30 years of Oceanographic Data: <http://hahana.soest.hawaii.edu/hot/>

Understanding Climate Change: <http://www.realclimate.org/>

<https://data.giss.nasa.gov/gistemp/news/>

<https://interactive-atlas.ipcc.ch/>

Geneseo Mission and Values. SUNY Geneseo has several core documents that articulate our shared commitments and learning objectives. These include:

- SUNY Geneseo Mission, Vision and Values: <https://www.geneseo.edu/about/mission-vision-and-values>
- Community Commitment to Diversity, Equity, and Inclusion: <https://www.geneseo.edu/diversity/commitment>
- Geneseo Learning Outcomes for Baccalaureate Education: <https://www.geneseo.edu/provost/globe-geneseo-learning-outcomes-baccalaureate-education>

Land Acknowledgment. Land acknowledgements are expressions of sorrow and remembrance to those whose historic territory one resides on. Geneseo resides on the homeland of the Seneca Nation of Indians and Tonawanda Seneca Nation. We are encouraged to learn more about these original occupants and those indigenous to other places we have lived. You may consider using the Native Land app and/or websites such as [sni.org](http://sni.org) to learn more about the community of more than 7,000 enrolled Indigenous Peoples.

Academic Support Services. The campus provides a range of support services to help students thrive in their classes. These services include tutoring, both drop-in and by-appointment, with student

tutors in the Writing Learning Center, the Math Learning Center, and a range of department-based tutoring centers

- Online tutoring through the SUNY-wide STAR-NY system
  - ([www.starny.org/tutoring\\_schedule](http://www.starny.org/tutoring_schedule))
- Supplemental Instruction: Trained student assistants review lecture material from specific classes. Information on times and locations is available through the Center for Academic Excellence website at <https://www.geneseo.edu/academic-support-services>.

Additionally, the college offers a number of peer mentoring programs that are designed to reinforce good academic habits. These include:

- Academic Peer Mentors in the Office of Academic Planning and Advising provide students with promising study strategies and can host on-going appointments with students seeking an "accountability buddy". More information is available at: [https://www.geneseo.edu/dean\\_office/academic-peer-mentors-0](https://www.geneseo.edu/dean_office/academic-peer-mentors-0).
- The ONYX Academic Success workshop series sponsored by the GOLD Leadership Program introduces students to a variety of study skills, time management techniques, and instruction on how to access campus resources for academic and career guidance. A full list of GOLD workshops can be accessed at <https://www.geneseo.edu/gold/app/browse>.
- Tutoring, both drop-in and by-appointment, with student tutors in the Writing Learning Center, the Math Learning Center, and a range of department-based tutoring centers.

Library Research Help. Fraser Hall Library has an award-winning staff trained in finding the best information using library resources and advanced search strategies. Students may ask questions about using library services, locating materials, or conducting research projects. There is a librarian who specializes in the subject matter for each major. Librarians meet with students through a variety of ways, including chat, email, and in-person and virtual one-on-one research consultations. Learn more at <https://www.geneseo.edu/library/help-students> or email [libraryhelp@geneseo.edu](mailto:libraryhelp@geneseo.edu). The librarian for our course is Dr. Jonathan Grunert, [grunert@geneseo.edu](mailto:grunert@geneseo.edu).

- Students, faculty, and staff can schedule research consultations with librarians in-person or via Zoom.
  - Special appointment hours for Biology research can be scheduled here— [JG Research Help Appointments](#)
  - General research help can be found here— <https://www.geneseo.edu/library/researchconsultations>
  - You can email Dr. Grunert directly with research help questions— [grunert@geneseo.edu](mailto:grunert@geneseo.edu)
- Librarians will be available for drop-in help in Fraser Hall 203 on weekdays during the semester.
- Additionally, librarians will continue to staff LibChat, a service that allows for online, chat-based synchronous communication. LibChat is available weekdays during the semester. Access it by clicking on the green owl icon, located throughout the library website.



Academic Integrity and Plagiarism. The library offers workshops to help students understand how to paraphrase, quote, and cite outside sources properly. With your Topic Presentation Proposal submission, you'll be asked to complete the [Avoiding Plagiarism Tutorial](#) on Canvas to help clarify expectations. This online course are meant to educate about the importance of using original ideas and language, and how to incorporate paraphrases and quotes into writing. The complete list of library workshops can be found at [www.geneseo.edu/library/library-workshops](http://www.geneseo.edu/library/library-workshops).

Academic dishonesty includes cheating, knowingly providing false information, plagiarizing, and any other form of academic misrepresentation, including self-plagiarism. Academic dishonesty will not be tolerated in this course. Plagiarism will result in a zero for the assignment and reporting to the college and could be grounds for an E course grade. College policies and procedures regarding academic dishonesty are available at [www.geneseo.edu/handbook/academic-dishonesty-policy](http://www.geneseo.edu/handbook/academic-dishonesty-policy).

Technology Support. [CIT provides a range of technology support resources](#). When you are in Canvas, the Help menu on the left side of the screen will also direct you to a number of CIT supports, including self-help resources and options to request technology assistance. For assistance with your computer or mobile device, visit the CIT HelpDesk in Fraser. Geneseo students, faculty and staff have free access to the entire [LinkedIn Learning training library](#) (over 7,500 courses, including tutorials for software, digital tools, web development, programming, and design) through Geneseo's site license. For more information, [visit this self-help document](#).

[\(https://wiki.geneseo.edu/display/cit/LinkedIn+Learning+Training+Library\)](https://wiki.geneseo.edu/display/cit/LinkedIn+Learning+Training+Library)

Course Accessibility. SUNY Geneseo is dedicated to providing an equitable and inclusive educational experience for all students. The Office of Accessibility will coordinate reasonable accommodations for persons with documented physical, emotional, or cognitive disabilities, as well as medical conditions related to pregnancy or parenting. Students with letters of accommodation should submit a letter to each faculty member at the beginning of the semester and discuss specific arrangements. Please contact the Office of Accessibility Services for questions related to access and accommodations.

Office of Accessibility Services  
Erwin Hall 22  
(585) 245-5112  
[access@geneseo.edu](mailto:access@geneseo.edu)  
[www.geneseo.edu/accessibility-office](http://www.geneseo.edu/accessibility-office)

All course materials are available on Canvas and in our in-person classes and I've made every attempt to ensure that they are accessible to everyone. If you have difficulties accessing any materials (including needs for alternative formats), please let me know as soon as possible and I will rectify the situation.

Attendance at In Person Sessions. In the context of the COVID-19 pandemic, it is vital that we all do what we can to protect the health and safety of each other. If you are experiencing symptoms associated with COVID on a day that class meets in-person, do not attend. Remember that it is better to stay home if you are not feeling well than to attend class and risk spreading illness to others. Throughout the semester, please be proactive in communicating about absences and contact the Dean of Students if you expect to be out for an extended period of time.

Getting Help with Online Classes. CIT has developed a number of [resources that can help you formulate good strategies for success in online courses](#). These include general strategies for keeping on track with your courses as well as more specific resources about learning experiences that you may encounter in an online course. The Office of the Dean for Academic Planning and Advising has also introduced the new [KOALA \(Knights' Online Academic Learning Assistance\)](#) course support resource. Throughout the semester, if you need help with online learning strategies, you can contact the KOALA support desk, which will assist you with identifying resources and strategies for success.

[CIT also provides a range of technology support resources](#). When you are in Canvas, the Help menu on the left side of the screen will also direct you to a number of CIT supports, including self-help resources and options to request technology assistance.

Religious Observations and Class Attendance. New York State Education Law 224-a stipulates that “any student in an institution of higher education who is unable, because of [their] religious beliefs, to attend classes on a particular day or days shall, because of such absence on the particular day or days, be excused from any examination or any study or work requirements” (see <https://www.geneseo.edu/apca/classroom-policies>). SUNY Geneseo has a commitment to inclusion and belonging, and I want to stress my respect for the diverse identities and faith traditions of students in my class. If you anticipate an absence due to religious observations, please contact me as soon as possible in advance to discuss your needs and arrange make up plans. The New York State Department of Civil Service maintains a calendar of major religious observations for [2021](#) and [2022](#).

Military Obligations and Class Attendance. Federal and New York State law requires institutions of higher education to provide an excused leave of absence from classes without penalty to students enrolled in the National Guard or armed forces reserves who are called to active duty. If you are called to active military duty and need to miss classes, please let me know and consult as soon as possible with the Dean of Students.

Bias-Related Incidents.

*We are here to listen, to learn, to teach, to debate, to change, to grow. We should all be safe to pursue these goals at SUNY Geneseo while being who we are. Together, we commit ourselves to pluralism, cultivating a community that respects difference and promotes a sense of inclusion and belonging.*

As this excerpt from our Community Commitment to Diversity, Equity, and Inclusion states, here at SUNY Geneseo, we want to provide a space where everyone feels welcome to learn and grow in their identities as well as in their role as students, faculty, and staff. In the unfortunate instance you experience an incident of bias, we encourage you to reach out to the Chief Diversity Officer ([routenberg@geneseo.edu](mailto:routenberg@geneseo.edu)) and/or our University Police Department. You can also contact the Biology Department's Diversity, Equity, and Inclusion Committee at [bio-diversity@geneseo.edu](mailto:bio-diversity@geneseo.edu). In trying to create an environment that facilitates growth through diverse thoughts and ideas, reporting incidents of bias—including threats, vandalism, and microaggressive behaviors—can help bring a better understanding of our campus climate as well as provide opportunities for learning and restoring harm. Hateful speech or actions will not be tolerated in our class.

Everyone has the right to be addressed by the name and pronouns that correspond to their gender identity, including non-binary pronouns, for example: they/them/theirs, etc. Rosters do not list gender or pronouns so you may be asked to indicate the pronouns you use so that I don't make assumptions based on your name and/or appearance/self-presentation (you are not obligated to do so). If you use a chosen name other than what is in KnightWeb, please let me know. Chosen names and pronouns are to be respected at all times in the classroom. Mistakes in addressing one another may happen, so I encourage an environment of openness to correction and learning. I will not however, tolerate repeated comments which disrespect or antagonize students who have indicated pronouns or a chosen name. Chosen name and personal pronouns may evolve over time, so if at any point during the semester you would like to be addressed differently, please let me know.

All-Gender Restroom Access. The nearest all-gender restroom to our classroom is ISC 116.

Student Well-Being is a priority in this class, to support the achievement of academic goals and alleviate stress. Eating nutritious foods, getting enough sleep, exercising, avoiding drugs and alcohol, maintaining healthy relationships, and building in time to relax all help promote a healthy lifestyle and general well-being. Concerns about academic performance, health situations, family health and wellness (including the loss of a loved one), interpersonal relationships and commitments, and other factors can contribute to stress. Students are strongly encouraged to communicate their needs to faculty and staff and seek support if they are experiencing unmanageable stress or are having difficulties with daily functioning. Please feel free to reach out to me if you have questions or concerns. The Dean of Students (585-245-5706) can also assist and provide direction to appropriate campus resources. For more information, see [www.geneseo.edu/dean\\_students](http://www.geneseo.edu/dean_students).

Mental Health Resources. As a student, you may experience a range of challenges that can impact your mental health and thus impact your learning; common examples include increased anxiety, shifts in mood, strained relationships, difficulties related to substance use, trouble concentrating, and lack of motivation, among many others. These experiences may reduce your ability to participate fully in daily activities and affect your academic performance.

SUNY Geneseo offers free, confidential counseling for students through the Lauderdale Center for Student Health and Counseling and seeking support for your mental health can be key to your success at college. You can learn more about the various mental health services available at [health.geneseo.edu](http://health.geneseo.edu).

Health and Well-Being in a Stressful Time. The changes brought on by COVID-19 have impacted us all in a number of ways and will continue to do so at various times and to varying degrees during the upcoming semester. Your health and wellbeing are foundational to your ability to learn, and if you find that you are feeling unwell (physically or mentally) and it is impacting your ability to complete your coursework, please reach out. Because the learning environment will continue to be different than it has been in the past, the indicators that usually let you know something is wrong may not be as clear to you or those around you as they would be during a typical semester. Additionally, the ways in which you normally engage in self-care may have been disrupted. Please remember that it's never too late to ask for help. The [Dean of Students](http://www.geneseo.edu/dean_students) (585-245-5706) can assist and provide direction to appropriate campus resources. The college also has collected resources in a [Coping with COVID webpage](#).

In a similar way, I may occasionally ask for some patience and flexibility on your part. The pandemic is affecting faculty as well as students and creating demands that would not be present in an ordinary semester. You will never suffer any disadvantage in the course because of delays on my part.

Parents. Students who are parenting will be supported in this class. I ask that all students work with me to create a welcoming environment that is respectful to all forms of diversity, including diversity in parenting status. All exclusively breastfeeding babies are welcome in our class sessions as often as is necessary. For older children and babies, I understand that unforeseen disruptions in childcare and pandemic-related changes often put parents in the position of having to miss class to care for a child. While not a long-term childcare solution, occasionally bringing a child to class to cover gaps in childcare is perfectly acceptable. If babies and children come to class, I ask that you be mindful to avoid disrupting learning for other students. Finally, I understand that often the largest barrier to completing your coursework as a parent is the tiredness many parents feel in the evening once children have gone to sleep. While I maintain the same high expectations for all students in my classes regardless of parenting status, I am happy to problem-solve with you in a way that makes you feel supported as you strive for school-parenting balance.

Food Security for SUNY Geneseo Students. There are resources available for students who are food insecure. If you're unfamiliar with the phrase "food insecurity," you can learn more at the following link: [Understanding Food Insecurity](https://hungerandhealth.feedingamerica.org/understand-food-insecurity/). (<https://hungerandhealth.feedingamerica.org/understand-food-insecurity/>) The Food Security Advocates (FSA) is a student group run out of the Center for Community who support access to food for those who are food insecure (on campus and in the community). Food pantry interns facilitate an on campus pantry in collaboration with the local Geneseo Groveland Emergency Food Pantry.

Any student who is food insecure can submit a request here: [Food Pantry Request Form](https://docs.google.com/forms/d/e/1FAIpQLSfFL6VrdsV5kxTLd6yK_mXOL8NGeZtv5x8mzYAhHyiRJepLxA/viewform?usp=sf_link) ([https://docs.google.com/forms/d/e/1FAIpQLSfFL6VrdsV5kxTLd6yK\\_mXOL8NGeZtv5x8mzYAhHyiRJepLxA/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSfFL6VrdsV5kxTLd6yK_mXOL8NGeZtv5x8mzYAhHyiRJepLxA/viewform?usp=sf_link)) to receive a bag of food that will provide them with items that will last a few days. Once submitted, interns will connect directly with the student to communicate next steps and the time and location of your pick up (most pickups will take place in the MacVittie College Union). This program will provide individuals with a bag of food up to two times a month. We will do our utmost to ensure anonymity, while also working to destigmatize food insecurity in our community. Students are also able to access the Geneseo Groveland Emergency Food Pantry on their own if that is their preference. The pantry is open for walk-ins Tuesdays & Thursdays 10am - 2pm and Wednesdays 4 - 6:30. It is located at 31 Center Street, Geneseo, NY, lower level of Central Presbyterian Church. No appointment is necessary to access the pantry. If you have any questions about this process or anything relating to food insecurity, or have a need beyond what is outlined above, please contact Garth Freeman, director of student volunteerism and community engagement at [freeman@geneseo.edu](mailto:freeman@geneseo.edu) / 585-245-5893.

US Election Day. Tuesday, November 2<sup>nd</sup> is Election Day in the US. Visit [vote.gov](https://www.vote.gov) to register and for further information.

Emergency Funding. The college has two sources of emergency funding for students experiencing short-term financial crises. The [Camiolo Student Emergency Loan Fund \(SELF\)](#) provides short-term loans to students for situations both temporary and beyond their control. The SELF was established with the expectation that students who use the fund seek to "pay it forward" as soon as they are able

by contributing to the fund so other students can be helped, too. While there is not a legal obligation, the donors hope that student loan recipients respect and honor the value of community and helping others in their time of crisis. The [One Knight Student Aid Emergency Fund](#) assists Geneseo students who are facing financial emergencies mainly related to the COVID-19 pandemic. The fund offers grants (one-time award) depending on a student's documented financial need. If you are experiencing financial hardship, please contact the Dean of Students (585-245-5706), who can assist and provide direction to appropriate campus resources.

Accessing Feedback on Canvas. Feedback will be provided through Canvas, in the form of general comments, rubrics, and through specific comments on the documents themselves. Access specific comments by following the 'View Feedback' link. Here is a video detailing this process: [https://www.youtube.com/watch?v=Jcl1NOUFYf8&ab\\_channel=RichardRafferty](https://www.youtube.com/watch?v=Jcl1NOUFYf8&ab_channel=RichardRafferty)

Diversity and Equity. It is my intent to create a learning environment that supports all students. I believe the diversity that you bring to this class should be viewed as a resource, strength, and benefit. I want to present materials and activities that are respectful of identity across gender, sexuality, disability, age, socioeconomic status, ethnicity, race, nationality, religion, and culture. Your suggestions are encouraged to improve the course's effectiveness and inclusivity, for you personally or for other students or student groups. I recognize that this feedback may not be easy to give. I will listen to feedback in whatever form it is given and work to be mindful of my own power and privilege. For ideas, questions, or concerns related to diversity, equity, and inclusion in the Biology Department, please reach out to [bio-diversity@geneseo.edu](mailto:bio-diversity@geneseo.edu).

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# BIOL 313: MARINE BIOLOGY

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## SCHEDULE

### Week 1: [Our Blue Planet](#)

Aug. 30	Welcome to Marine Biology	<i>Ch. 1: 1–11</i>
Sept. 1	The Oceans	<i>Ch. 2: 12–17</i>
Sept. 1	<u>Lab 1</u> : Our Blue Planet	
Sept. 3	Properties of Seawater	<i>Ch. 2: 17–21</i>

### Week 2: [Oceanography](#)

Sept. 6	<i>Labor Day, No Classes</i>	
Sept. 8	Currents, Waves, & Tides	<i>Ch. 2: 21–32</i>
Sept. 8	<u>Lab 2</u> : Thermohaline Circulation	
	Due: Lab 1 Activity	
Sept. 10	A Brief History of Marine Biology	
	Due: <u>Article Response</u> Nonaka <i>et al.</i> 2021 Blackwater Diving	

### Week 3: [Marine Research](#)

Sept. 13	Methods of Marine Research	<i>Ch. 4: 46–57</i>
Sept. 15	Marine Ecology	<i>Ch. 4: 58–73</i>
Sept. 15	<u>Lab 3</u> : Oceanography in R	
	Due: Lab 2 Activity	
Sept. 17	Productivity & Food Webs	<i>Ch. 12: 239–254</i>
	Due: <u>Article Response</u> Gerring 2019 Hadal Snailfishes	

### Week 4: [Marine Organisms](#)

Sept. 20	Marine Microbes	<i>Ch. 8: 145–149, Ch. 13: 256–267</i>
Sept. 22	Marine Zooplankton	<i>Ch. 8: 149–158</i>
Sept. 22	<u>Lab 4</u> : Marine Biodiversity	
	Due: Lab 3 Activity	

Sept. 24 Marine Invertebrates *Ch. 9: 159–161; Ch. 14: 268–295*  
Due: Topic Presentation Proposal, [Avoiding Plagiarism Tutorial](#)

Week 5: **Marine Organisms**

Sept. 27 Marine Fishes *Ch. 9: 161–171*  
*Mid-Term Evaluations Part I*

Sept. 29 Mammals, Birds, & Reptiles *Ch. 9: 171–188*

Sept. 29 Lab 5: Introduction to Our Class Research Project

Oct. 1 Mid-Term Exam

Week 6: **Marine Habitats**

Oct. 4 The Deep Sea *Ch. 18: 409–433*

Oct. 5 *Dr. Geringer at Sea, Contact by Email: [geringer@geneseo.edu](mailto:geringer@geneseo.edu)*

Oct. 6 Benthic Ecology *Ch. 15: 297–316*  
*Online Asynchronous, Check-In Due*

Oct. 6 Lab 6: Class Research Project

Oct. 8 Pelagic Ecology *Ch. 10: 189–197; 201–210*  
*Online Asynchronous, Check-In Due*

Week 7: **Marine Habitats**

Oct. 11 *Fall Break, No Classes*

Oct. 13 The Intertidal *Ch. 16: 317–341*  
*Online Asynchronous, Check-In Due*

Oct. 13 Lab 7: Class Research Project

Oct. 15 Coral Reefs *Ch. 17: 382–408*  
*Online Asynchronous, Check-In Due*

Week 8: **Marine Habitats**

Oct. 18 Seagrasses, Kelp Forests, Mangroves *Ch. 16: 341–364; Ch. 17: 365–382*  
*Online Asynchronous, Check-In Due*

Oct. 20 Polar Seas *Ch. 19: 434–444*  
*Guest Speaker: Dr. Amanda Ziegler*  
*Online Asynchronous, Check-In Due*

Oct. 20 Lab 8: Class Research Project

Oct. 22 Synchronous Online: Life at Sea  
*Check-In Due*

Week 9: **Marine Life Cycles**

Oct. 25 Reproduction in the Ocean *Ch. 7: 109–126*  
*Online Asynchronous, Check-In Due*

Oct. 27 Life History & Growth *Ch. 7: 126–144*  
*Online Asynchronous, Check-In Due*

Oct. 27 Lab 9: Class Research Project

Oct. 29 Movement of Marine Organisms *Ch. 10: 197–201*  
*Online Asynchronous, Check-In Due*

Due: Topic Presentation Outline & Draft Slides

**Oct. 30** *Dr. Geringer Onshore*

Week 10: **Changing Oceans**

Nov. 1 Climate Change Climate Emergency *Ripple et al. 2021*

Nov. 3 Changing Oceans

Nov. 3 Lab 10: Class Research Project

Nov. 5 Discussion: Climate Change & Ecoanxiety

Due: Article Response Bennett *et al.* 2021 Conservation & Equity

Week 11: **More Human Impacts**

Nov. 8 Human Impacts on the Marine Environment *Ch. 22: 504–529*  
*Mid-Term Evaluations Part II*

Nov. 10 Marine Biodiversity *Ch. 20: 445–470*

Nov. 10 Lab 11: Class Research Project

Nov. 12 Marine Conservation *Ch. 21: 471–502*

Week 12: **Topic Presentations**

Nov. 15 Topic Presentations  
Due: All Slides Due at 8 am

Nov. 17 Topic Presentations

Nov. 17 Lab 12: Data Analysis for Class Research Project  
Due: Research Contribution Reflection

Nov. 19 Topic Presentations



Week 13: [Careers in Marine Biology](#)

Nov. 22 Careers in Marine Biology; Review & Check-In

Nov. 24–26 *Thanksgiving Break, No Classes*

Week 14: [Marine Physiology](#)

Nov. 29 Salinity & Oxygen *Ch. 5: 86–92*

Dec. 1 Temperature & Pressure *Ch. 5: 74–85*

Dec. 1 Lab 13: Our Research Paper: Writing Workshop

Due: Research Project Figure

Dec. 3 Light & Vision *Ch. 5: 92–97*

Due: Article Response Dutton & Hofmann 2009 Heat Shock

Week 15: [Life in a Fluid Medium](#)

Dec. 6 Fluid Dynamics & Marine Organisms *Ch. 6: 98–101*

Dec. 8 Life in a Fluid Medium *Ch. 6: 101–108*

Dec. 8 Lab 14: Wrap-Up on Class Research Project

Due: Lab Research Paper

Dec. 10 Sound in the Sea

Week 16: [Putting it Together](#)

Dec. 13 Putting it Together: Final Review

Dec. 15 Final Exam, 12 – 3:20 pm