Animal Physiology

Syllabus

Welcome to Animal Physiology! I look forward to working with each of you this semester as we explore the wonderful world of animals. 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. Lectures and laboratories are concerned with the mechanisms by which animals function. The prevailing theme is the biology of the whole animal. Regulative and integrative mechanisms in animal organ systems are examined. Students may receive Biology elective credit for this course or BIOL 365/366 but not both. Restricted to majors. *Prerequisites:* Proficiency in Basic Requirement and BIOL 300 or BIOL 335. Offered every spring. Credits: 0–4.

Course Meetings.

Monday, Wednesday, Friday	9:30 am – 10:20 am	*Bailey 204*
Thursday Lab	9:30 am – 12:20 pm	*ISC 203*

Instructor. Dr. Mackenzie Gerringer ISC 255 gerringer@geneseo.edu

Office Hours. Drop-In: Mon. 1:30 – 2:20 pm & Fri. 10:30 am – 12:20 pm in ISC 232 &
By Appointment

Office hours are your time for getting questions answered, course expectations clarified, advice on pursuing opportunities or careers in science and more. You can also come and work and listen in to other content questions peers are asking. Office hours are an important opportunity for us to connect and learn. Please consider office hours as a regular part of this course, rather than remedial. Please email me (gerringer@geneseo.edu) if you have questions or would like to set up a meeting outside of office hours. Office hours and appointments will be held in The Nucleus, ISC 232.

Course Objectives. In our course, we will:

- Explore the basic physiological principles common to animals, relating structure to function.
- Compare physiological systems across the animal kingdom, including through in-depth topic presentations.
- Integrate our understanding of physiology across levels, from molecular to organismal, and understand interactions between different physiological systems.
- Gain hands-on experience in animal physiology, hypothesis formation, experimentation, and data analysis through both established protocols and independent research projects in lab.
- Synthesize original data and evidence from the literature and communicate our findings in written, oral, and visual form, improving our science communication skills.

How this course fits into your biology education. This course serves 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: Mastery*.
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: Mastery*.
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*.

Integrative and Applied Learning in Animal Physiology. This course serves the following Integrative and Applied Learning objectives:

• Integrate multiple bodies of knowledge with their personal experience by asking meaningful questions about real-world problems.
• Apply skills, theories, and methods gained in academic study, professional experiences, and/or co-curricular experiences to new situations.
• Reflect upon changes in their learning and outlook over time and integrate into their future endeavors based on that self-reflection.

Course Expectations. Much of the value of this course will come from active engagement with our class activities and discussions. Therefore, active participation will be

part of your course grade. There are many ways to be an active participant in this course, including attending class, asking questions, contributing to class discussions on Brightspace, posting current research in Animal Physiology to our Brightspace page, participating in study groups, and coming to office hours. Full course expectations details are available on our Brightspace page and discussed in class. Plan on engaging regularly with Brightspace for announcements, discussions, and assignment submissions. See the schedule below.

Accessibility & Communication. You will be expected to check email and Brightspace during the work week on our usual class days (Monday, Wednesday–Friday). Email and Brightspace will be important means of communication as a class. I will be accessible via email and will strive for a <24-hour turn-around to questions during the work week. For emails sent after 5 pm or on weekends, please expect a response the next business day. If you find yourself struggling with accessibility, please reach out. I am here to work with you.

Incomplete grades. Geneseo's academic policies state that a temporary grade of "I" (incomplete) may be awarded when a student has been unable to complete a course due to circumstances beyond their control. Contact the instructor directly prior to the end of the semester for incomplete grade arrangements.

Course Materials. Our textbook is *Animal Physiology: From Genes to Organisms*. Sherwood, Klandorf, & Yancey. An e-book version can be purchased from the bookstore and there is a copy available on a one-day course reserve in Milne Library.

> *Making the most of the textbook:* Textbooks are a great resource, but highlighting every line and trying to memorize the book will only get us so far. Instead, try this approach: Before the lecture, spend 10–15 minutes skimming through that day's reading. Look for major themes, new vocabulary words, and important figures. Ask yourself what questions you have from looking briefly at this section. Jot down a few notes. Then, attend the lecture. After, write the major takeaways from that day down for yourself. What questions do you still have? Now, read the textbook. Your familiarity with the topics should make it easier to follow and remember the reading. Write down the important notes from this section. What questions do you still have? Post them in the discussions on Brightspace or bring them to class. To check your understanding and prepare for exams, try teaching the material to someone else. Vocabulary lists and learning objectives will set expectations on testable material, but you are encouraged to continue challenging yourself throughout the semester and to dive deeper into topics.

Scientific Papers. We will also explore current research in animal physiology. Four required readings from the primary literature are available on Brightspace. Article response worksheets will help you develop strategies for reading scientific papers and serve as notes for future reference. Please submit these article responses for three of the four readings. For one reading of your choosing, 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 Brightspace for those looking to dive deeper into these topics. We have discussion threads and pages for questions about the course, material, or research opportunities. If you see internship opportunities or neat physiology news, please share! We will also be learning and using some common tools for analyzing physiological data, including R. All software will be freely available to download, with links provided on Brightspace.

Assignments & Assessment.

Assessment in this course will be based on the following, out of a total of 500 points.

Article Responses *10% of grade*

Four scientific journal articles will supplement the textbook reading and allow us to explore specific animal systems in detail. For three articles, write a short response on the worksheet provided (*10 points each*). Article responses must be written in your own words to receive credit. For one article, join the instructor in groups of three for a short (~25 min) journal club discussion on the reading *(20 points*). See schedule below for article due dates.

Comparative Physiology Talks *15% of grade*

We have the opportunity not only to explore physiological systems, but to compare the physiology of multiple animals to gain insight into adaptation and evolution. In a well-researched and well-synthesized talk, you will dive into a specific system and compare the physiology of ~three related species using the scientific literature. These 15-minute talks will take place throughout the semester, corresponding to our weekly content. At least two weeks prior to your talk, please submit a topic and formatted sources for review. The earlier you submit a topic, the earlier you will get feedback. You will be assigned two talks to peer review. Reviews should be submitted to Brightspace by the Monday after the talks. As audience members, you should ask at least one question every two weeks. You can ask questions either in person or on Brightspace. Thank you for keeping your comments supportive, respectful, and constructive. Speakers, please answer your questions on Brightspace by the Monday following your talk. Please note that you are responsible for keeping track of your talk and peer review deadlines.

Sign-Ups	By Feb. 7th	
Topic Submission	Two Weeks before Talk	*15 points*
Talks	Throughout Semester	*50 points*
Talk Reviews	Monday after Talks	*10 points*

Adaptation Display *10% of grade*

Create a beautiful and informative interpretive sign for a public audience that would appear at a national park, describing multiple physiological adaptations of a species of your choice.

Topic & Source Check	Feb 21st	*15 points*
Adaptation Displays	April 4th	*35 points*

Mid-Term Exam March 7th *10% of grade*

Oral exam covering the first half of our semester (Ch. 1–6). Sign up for a 20-minute online meeting for your exam at least two weeks before the test. Students requiring testing accommodations should consult with the instructor in the first two weeks of class.

Final Exam May 13th *15% of grade*

Open-book exam synthesizing the content we've learned throughout our semester (Ch. 1–16). Students requiring testing accommodations should consult with the instructor in the first two weeks of class. Exam instructions will be available on May 7th. Final exams should be submitted to Brightspace.

Lab Assignments *7% of grade*

To make the most of our lab time, please read the lab protocol thoroughly prior to our lab session. Each lab will have an accompanying worksheet (*5 pts each*) that should be submitted in person or to Brightspace before the beginning of lab the following week.

Lab Worksheets	Week Following Lab	*35 points total*

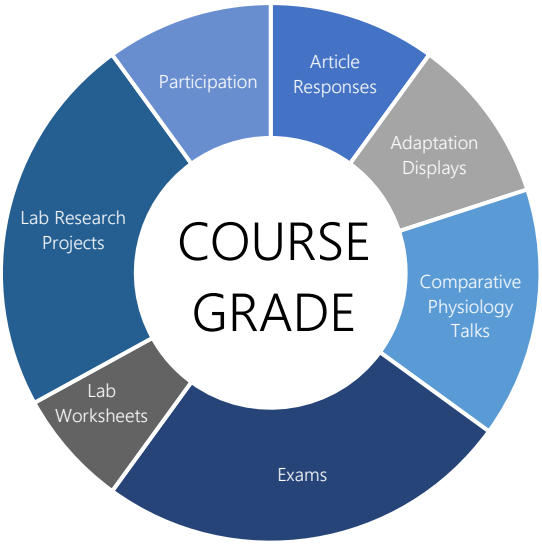
Lab Research Projects *23% of grade*

In our lab, we will conduct independent research projects in animal physiology. In small groups, you will develop hypotheses, devise, conduct an experiment, collect and analyze your data, and write up your findings in a scientific manuscript. We will break down these large projects into multiple assignments, giving you the chance to pace your work and get feedback prior to the final paper.

Research Proposal & Collaboration Plan	March 27th	*15 points*
Research Update & Intro	April 10th	*10 points*
Research Paper Draft	April 24th	*35 points*
Research Paper	May 1st	*50 points*

Participation	Every Class	*10% of grade*

Earn full credit for participation (*50 pts*) by attending class when safe to do so, actively engaging in discussions and activities, and contributing to discussions on Brightspace. You will not be evaluated on whether your insights are "right" or "wrong" during discussions or check-ins, think critically and be actively involved. All submitted work and discussion responses should be written in your own words to receive credit. If you need to miss a synchronous class session due to illness, please complete the module and corresponding quiz for that day's subject by the deadline of the next check-in assignment on Brightspace. To help you actively engage, to identify study and participation strategies that work well for you, and to make participation assessment transparent, you will submit a weekly check-in on Brightspace, due Sundays by 11:59 pm. Check-ins will be a place to keep track of attendance or asynchronous make-ups, readings, discussion, and in-class engagement, and will serve as another forum for content or course expectations questions.



Grade Breakdown. Letter grades are displayed in Brightspace throughout the semester to help you track progress toward your goals. Grades in the course are set as follows, without rounding. A 100–94%; A- <94–90%; B+ <90–87%; B <87–84%; B- <84–80%; C+ <80–77%; C <77–74%; C- <74–70%; D <70–60%; E <60%.

Resources & Policies.

Lab Policies. Safety is our first priority. Close-toed shoes and long pants/skirt are required for participation in lab. Please be mindful of your own safety and the safety of your peers. Detailed lab policies will be discussed in class and available on Brightspace and in the lab worksheets. To prepare for a safe and productive session, read the lab worksheet carefully prior to coming to lab.

Some lab activities involve measuring aspects of our own physiology, such as heart rate. These self-subject experiments can be valuable learning opportunities but are entirely voluntary. Students will

not be penalized for electing to not participate as a subject. Please see the instructor for alternative activities the week before the lab. Note that all experiments are for educational, rather than medical, purposes. Consult your primary care physician for health recommendations.

Late Work Policy. Late work will only be accepted with extenuating circumstances. Opportunities for submitting late work are limited throughout the semester. All late work accommodations need to be discussed in advance of the due date. Please note that talk and article response deadlines will vary depending on which subject you sign up for. It is your responsibility to keep track of all deadlines. If you have questions, please don't hesitate to ask. Because the speaker will not get the benefit of your feedback if the reviewer is absent, no make-ups are available for talk peer reviews. During our lab research projects, your group will be relying on each team member to complete the work together. Communication, attendance, and engagement are critical for your and your group's experience in lab. Out of fairness to your research partners, if you miss more than five hours of lab time during the research portion of the course and do not promptly make up your research contributions with clear communication with your group, you may be asked to complete an alternative assignment for partial credit. Any questions on assignment grades need to be submitted within one week of receiving feedback for grade revisions to be considered.

Land Acknowledgement. We'd like to begin our course with a land acknowledgment to protect and honor the history and people of the land on which we live. We believe that connecting to indigenous knowledge and practices increases our understanding of the natural world and thus acknowledging the original stewards of this land is an important part of biology education. Geneseo resides on the homeland of the Seneca Nation of Indians and Tonawanda Seneca Nation. We encourage you to learn more about these original occupants and those indigenous to other places you have lived using resources like the Native Land app and websites such as sni.org to learn more about the community of more than 7,000 enrolled Indigenous Peoples, who continue to contribute to the region and beyond.

SUNY Geneseo's Commitments, 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
- Community Commitment to Diversity, Equity, and Inclusion
- Geneseo Learning Outcomes for Baccalaureate Education

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
- Supplemental Instruction, in which trained student assistants review lecture material from specific classes

Information on times and locations is available through the Campus Learning Centers website.

The Navigate Student App is the student-facing platform that offers a wide range of resources including study buddies, to do's & events, and more. You can download the Navigate Student App at the Apple or Google Play app store. You can also find the Navigate Student content on your computer: geneseo.navigate.eab.com.

We have leveraged SUNY Transformation funds to license CircleIn, a tool to facilitate peer learning. CircleIn utilizes gamification to incentivize students to better study habits. The development of the CircleIn platform

was supported by NSF funding, and research evidence suggests that CircleIn is an effective tool for making academic success more attainable, common, and inclusive. The tool is free for all of our students, and CircleIn provides any tech support needed. You can download the CircleIn App at the Apple or Google Play app store. You can also find CircleIn in your Brightspace page.

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

- Academic Peer Mentors in the Office of Advising provide students with promising study strategies and can host on-going appointments with students seeking an "accountability buddy".
- The Leadership in 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 online.

Accessibility. SUNY Geneseo is dedicated to providing an equitable and inclusive educational experience for all students. The Office of Accessibility (OAS) will coordinate reasonable accommodations for persons with disabilities to ensure equal access to academic programs, activities, and services at Geneseo.

Students with approved accommodations may submit a semester request to renew their academic accommodations. More information on the process for requesting academic accommodations is on the OAS website. Questions? Contact the OAS by email, phone, or in-person: Office of Accessibility Services, Erwin Hall 22, 585-245-5112, access@geneseo.edu.

Roles & Responsibilities.

Student: inform the instructor no later than the first week of the semester of any accommodation(s) you will or may potentially require.

Instructor: maintain strict confidentiality of any student's disability and accommodations; support all students to meet the learning objectives of this course.

All course materials are available on Brightspace 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.

Library Research Help. SUNY Geneseo's 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. Students can book a research help meeting during the librarians' office hours or email their questions. Learn more at the Library's 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 Proposal submission, you'll be asked to complete the Avoiding Plagiarism Tutorial on Brightspace to help clarify expectations. This online course is 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.

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.

I take plagiarism and other forms of academic dishonesty seriously. At its most basic, that means you are responsible for doing your own work. You may not reuse work from other classes, use the work of another person, plagiarize, or use artificial intelligence to help with or generate assignments. I enforce Geneseo's plagiarism policy. You can find more information about the policy here: Geneseo's Academic Dishonesty Policy.

Unintentional plagiarism. While the first thing most people think of when they hear the word plagiarism is cheating, you can plagiarize without intending to. Some students plagiarize because they have trouble with paraphrasing or fail to give credit to their sources of information, especially when they search online instead of utilizing assigned material. I believe this class will help you develop and/or strengthen the skills you need to avoid unintentional plagiarism. I am happy to help you if you have questions or are struggling with this. Come talk to me during office hours or by appointment if you have questions or want help. *Ultimately, you are responsible for avoiding plagiarism, but there are many resources and ways to get help.*

AI, like Chat-GPT. Because writing is one of the most important tools that we have for actively *thinking* in science, the use of AI tools to produce writing for this course is prohibited and assignments with AI-generated text will not receive credit. You must do your own work, which means that you should not utilize tools like Chat-GPT for any aspect of our course work. Such use is a form of academic dishonesty. Use of such tools is not only cheating, it will also cheat you of the opportunity to learn and develop your own skills. While AI will undoubtedly play important roles in our future society, you will be better able to utilize AI if you have developed your own critical thinking, writing, and analytical skills by doing your own work. If you have any questions about this, please ask.

Show your work. Upon request, I expect you to be able to show your work or process for completing assignments. This means, you should keep notes, brainstorming sheets, drafts, outlines, and any other work that you created in the process of writing a paper or completing an assignment.

Student Course Experience (SCE) Survey. During the last two weeks of the semester, students are invited and encouraged to complete a four-item course experience survey through KnightWeb. Responses are completely anonymous at all times, and the results are only shared with instructors after final grades have been submitted. Instructors use the feedback to improve their courses in the future, and results from the SCE surveys are included in faculty portfolios used in renewal, tenure and promotion decisions. To participate: In a web browser, visit MyGeneseo. Select KnightWeb, Surveys, then SCE (formerly SOFI) Surveys. You are welcome to submit responses for each course listed.

Technology Support. CIT provides a range of technology support resources. 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.

Getting Help with Navigating Brightspace. CIT has developed a number of resources that can help you learn how to use our new learning management system, Brightspace. All students are automatically enrolled in "Geneseo's Introduction to Brightspace for Students" course, a course intended to introduce learners to Brightspace and review its basic functionality. Following successful completion of this course, learners will receive a digital certificate of completion that can be provided to faculty members, upon request. There is also the Student Guide for Brightspace at Geneseo self-help article, which includes links to video tutorials for

common tasks. For *technical assistance* with Brightspace, please email the Brightspace Support Team. For questions about a course and its content, please contact the instructor directly.

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 General Classroom Policies for more information). 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.

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. If in the unfortunate instance you experience an incident of bias, we encourage you to reach out to the Chief Diversity Officer or the Director of Multicultural Affairs. 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 ignored in our class.

Guidelines for Attendance and Public Health. As we continue to deal with variants of the COVID-19 virus and other contagious respiratory illnesses, I share these expectations for classroom attendance and protecting public health. SUNY Geneseo is a residential liberal arts college where we all learn together in a shared space. This classroom community is vital for engaging in discussions, solving problems, and answering questions together. Learning is an active process, and it requires engagement - on my part and yours. I promise to create an interactive and collaborative classroom space, and in return I expect you to attend and engage in the activities when safe for you to do so. To protect one another, if you are sick, please do not come to class. If your symptoms do not allow you to attend class, stay home (except to go to the health center), rest, and take care of yourself. You can find more guidelines from the Center for Disease Control for precautions when sick which cover flu, COVID and other illnesses.

I expect you to communicate with me directly about your absences. I can support you to keep up with class if you are out for an illness, but I need you to take responsibility for being transparent and clear in letting me know when you are out and why. Although I can work with you on keeping up, you may miss some course content and extended absences may impact your ability to realize your full potential in this class. For extended absences (more than a couple of days of classes), you should contact the Dean of Students who can assist with reaching out to your faculty.

Student Well-Being is a priority in this class, to support the achievement of academic goals and alleviate stress. Prioritizing well-being can 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. 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. In a similar way, I will occasionally ask for some patience and flexibility on your part.

To foster a sense of belonging and connection, a state of financial, mental, emotional and physical stability must be achieved. If you are facing food insecurity, displacement, an emergency, crisis, or health-related or medical expense, you are not alone. 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. The Dean of Students (585-245-5706) can assist and provide direction to appropriate campus resources. For more information, visit the Dean of Students Office website.

Mental Health Resources. We experience a range of challenges that can impact mental health and thus impact 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. If you or a friend are feeling suicidal, are in mental health crisis, or need someone to talk to, call or text 988. This lifeline provides 24/7, confidential support to people in mental-health related distress.

SUNY Geneseo offers free, confidential counseling for students through 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 on campus online. To request a counseling appointment, please complete the online form.

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

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 lecture to cover gaps in childcare is perfectly acceptable. Children should not be brought to lab for safety reasons. 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 on Feeding America's website: Understanding Food Insecurity. The Pantry at Geneseo, our on-campus food pantry, works in partnership with the Geneseo-Groveland Emergency Food Pantry (GGEFP) and is facilitated by interns and volunteers working out of the Office of Student Volunteerism and Community Engagement as well as the

School of Business, and the GOLD Leadership and Student Athlete Mentors programs. Any student who is food insecure can submit a request here, to receive a bag of food that will provide them with items that will last a few days, including nonperishables and when available fresh fruits, vegetables, meat, and dairy. Once submitted, interns will connect directly with the student to communicate next steps and the time of your pick up. Pickups will take place in the MacVittie College Union, Room 114 - the GOLD Leadership Center. This program will provide individuals with a bag of food up to once 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. It is located at 31 Center St. and is open Tuesdays and Thursdays 10 AM - 2 PM and Wednesdays 4 - 6:30 PM. If you have any questions about this process or anything relating to food insecurity, or have a need beyond what is outlined above, please refer to our website or contact us directly by email or phone at 585-245-5893 or the Dean of Students at 585-245-5706.

Emergency Funding. The college has three 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. For those students expecting a refund from financial aid, a Temple Hill loan of up to $500 can be offered prior to the approved loan dispersal. 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.

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 strive to present materials and activities that are respectful of gender identity, sexuality, disability, age, socioeconomic status, ethnicity, race, nationality, religion, and culture. Your suggestions are encouraged to improve the course's effectiveness 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.

Resources for Physiology & Biomedical Sciences Grad Program. Let's talk jobs in office hours!

> https://www.physiology.org/career/teaching-learning-resources/graduate-physiology-biomedical-science-catalog?SSO=Y

Information Regarding the Use of Animals for Teaching Purposes.

The course introduces students to the discipline of physiology by examining physiological organ-systems, as well as the molecular principles that underlie higher level integrative bodily functions. The laboratory component of the course serves to emphasize and reinforce the topics discussed in lecture. Many of the laboratory exercises in this class use models, computer simulations, and/or use student subjects for non-invasive measurements of physiological parameters. In some cases, however, it is not possible to effectively teach physiological principles by these methods. Therefore, a few laboratory exercises use animal subjects to demonstrate the importance of the physiological

principles being discussed. Every effort is made to ensure humane treatment of these animals. Disrespectful treatment of lab subjects is unacceptable and will not be tolerated.

Some students find it difficult to take part in the experiments in which animals are used. These students should meet with the instructor as soon as possible. In cases where the student does not wish to participate in these experiments, alternative exercises are available. If you think that you may have difficulties with the animal experiments, please talk to me as soon as you can.

For information regarding responsible use of animals in teaching and biomedical research, please visit the web sites of the following societies/organizations:

- American Physiological Society (www.the-aps.org)
- Federation of American Societies for Experimental Biology (www.faseb.org)
- American Association for Laboratory Animal Science (www.aalas.org)
- Office of Laboratory Animal Welfare (OLAW). Office of Extramural Research, National Institutes of Health, U.S. Department of Health, and Human Services (www.grants.nih.gov/grants/olaw/)
- Institutional Animal Care and Use Committee (www.iacuc.org)

BIOL 364: ANIMAL PHYSIOLOGY 2025

SCHEDULE

Week 1: Foundations of Physiology

Jan. 22	Welcome to Animal Physiology	*1.1*
Jan. 23	Lab 1: Lab Orientation, Animal Diversity	
Jan. 24	Foundations of Physiology	*1.2–1.4*

Week 2: Homeostasis, Feedback, & Animals

Jan. 27	Homeostasis & Feedback	*1.5–1.7*
	Comparative Physiology Talks: Expectations & Resources	
Jan. 29	The Animal Kingdom	
Jan. 30	Lab 2: Countercurrent Exchange Lab	
Jan. 31	Cellular & Molecular Physiology	*2.1–2.6*

Week 3: Cells & Molecules

Feb. 3	Cellular & Molecular Physiology	*2.7–2.13*
Feb. 5	Membrane Physiology	*3.1–3.3*
Feb. 6	Lab 3: Metabolism Lab	
Feb. 7	Membrane Physiology	*3.4–3.5*
	Due: Sign up for a Comparative Physiology Talk	
	Complete *Avoiding Plagiarism Tutorial* on Brightspace	

Week 4: Neuronal Physiology

Feb. 10	Neuronal Physiology	*4.1–4.4*
	Adaptation Displays: Expectations & Resources	
Feb. 12	Neuronal Physiology	
	Due: Sign up for your Journal Club Time Slot	
Feb. 13	Lab 4: Physiological Genomics Lab	
Feb. 14	Nervous Systems	*4.5–4.8, Chung et al., 2021*
	Due: Article Response: Chung et al., 2021, Octopus brains	

Week 5: Nervous Systems

Feb. 17	Nervous Systems	*5.1–5.3*
Feb. 19	Nervous Systems	*5.4–5.7*

Feb. 20	Lab 5: Earthworm Action Potential Lab	
Feb. 21	Sensory Physiology & Neuro Talks	*5.8–5.9*
	Due: Adaptation Display Topic & Source Check	

Week 6: Sensory Physiology

Feb. 24	Sensory Physiology	6.1–6.5
Feb. 25	*Diversity Summit*	
Feb. 26	Sensory Physiology	*6.6–6.9*
Feb. 27	Lab 6: Sensory Physiology Lab	
Feb. 28	Sensory Physiology & Talks	*Schmitz & Bleckmann, 1998*

Due: Article Response: Schmitz & Bleckmann 1998, Infrared Forest Fire Detection by Beetles

Week 7: Mid-Semester Check-In

Mar. 3	Sensory Physiology	
Mar. 5	Mid-Term Review	*Ch 1–6 Summaries*
Mar. 6	Lab 7: Thermoregulation Lab	
Mar. 7	Mid-Term Exam, 20 min meetings	

Week 8: Endocrine Systems

Mar. 10	Endocrine Systems	*7.1–7.4*
Mar. 12	Endocrine Systems	*7.5–7.8*
Mar. 13	Lab 8: Introduction to our Research Projects	
Mar. 14	Endocrine Systems & Talks	*8.3–8.4, Frøbert et al., 2023*

Due: Article Response: Frøbert et al., 2023, Hypothyroidism in hibernating brown bears

Mar. 17–21: Spring Break

Week 9: Muscle Systems

Mar. 24	Muscle Physiology	*8.5–8.6*
Mar. 26	Muscle Physiology	*8.7–8.8*
Mar. 27	Lab 9: Research Projects	
	Due: Research Proposal & Collaboration Plan	
Mar. 28	Skeletal Systems & Talks	

Week 10: Circulation

Mar. 31	Circulatory Systems	*9.1–9.5*
Apr. 2	Circulatory Systems	*9.6–9.10*
Apr. 3	Lab 10: Research Projects	

Apr. 4	Circulatory Systems & Talks	*9.11–9.16*
	Due: Adaptation Displays	

Week 11: Defense & Respiration

Apr. 7	Defense Systems	*10.1–10.4*
Apr. 9	Defense Systems	*10.5–10.8*
Apr. 10	Lab 11: Research Projects	
	Due: Research Update & Introduction	
Apr. 11	Respiratory Systems & Talks	11.1-11.5

Week 12: Respiration & Excretion

Apr. 14	Respiratory Systems	*11.6–11.10*
Apr. 16	Excretory Systems	
Apr. 17	Lab 12: Research Projects	
Apr. 18	Excretory Systems & Talks	*12.1–12.10, Reilly et al., 2015*
	Due: Article Response: Reilly et al., 2015, Toad hopping kinematics	

Week 13: Fluid & Acid-Base Balance

Apr. 21	Fluid Balance	*13.1–13.4*
Apr. 23	*GREAT Day*	
Apr. 24	Lab 13: Research Projects	
	Due: Research Paper Drafts	
Apr. 25	Acid-Base Balance & Talks	*13.5–13.8*

Week 14: Digestion & Thermoregulation

Apr. 28	Digestive Systems	*14.1–14.5*
Apr. 30	Digestive Systems	*14.6–14.10*
May 1	Lab 14: Research Symposium	
	Due: Final Research Papers	
May 2	Thermal Physiology & Talks	*15.1–15.8*

Week 15: Putting it Together

May 5	Reproductive Physiology	*16.1–16.7*
May 7	Putting it Together: Final Review	*Ch 1–16 Summaries*
	Final Exam Available from 11:00 am	

Week 16: Final Exam

May 13	Final Exam Due by 5 pm	