Biology 4120 – Comparative Physiology, Fall 2020

The objectives of the course are to expand your knowledge of the principles of physiology to describe the unity and diversity of life. To meet this objective you will read the textbook, study articles from the primary literature and discuss them in class, design experiments, work through problem sets and other activities, discuss physiology, perform and write up labs and write an independent literature research project. Your success at meeting the objectives will be evaluated by exams, homework, in-class activities, assignments, asynchronous and synchronous discussions and lab work. The three topics of the semester will be neurophysiology (control systems), locomotion (metabolism, flow and transport of gasses and fluids, flight) and reproductive physiology.

Content Learning Objectives Students will be able to:

1. Describe how an organism's physiology contributes to its fitness in its environment and relates to its place on the **evolutionary** tree of life.
2. Describe how biological **structures affect function**, from the molecular to organ-system level.
3. Describe how physiological systems sense and process **information** for function and regulation.
4. Describe how physiological systems use **energy** and regulate energy use.
5. Describe how **complex systems** are essential for physiological function.

Skill Learning Objectives Students will be able to:

6. **Clearly describe principles of physiology** with examples from many types of organisms.
7. **Interpret data** from the primary physiology literature, including describing the hypothesis, approach, results and conclusions of a set of experiments.
8. **Evaluate physiology experiments** from the primary literature, including identifying control experiments, and whether the results support the authors' conclusions.
9. **Design physiological experiments,** and describe the hypothesis, approach to test the hypothesis and the results that would support or refute the hypothesis
10. **Contribute in a team**, and describe team experiences in a personal statement or interview.

Writing Intensive: This course meets the writing intensive requirement for biology majors. The writing component is an integral part of the course for all students. You cannot take this course without the writing intensive component. You must pass the writing intensive (lab) portion of the course in order to pass the class. **To use this course as your writing intensive you must earn a C or better (not C- or below).**

Prerequisites: Completing BIO 1500, 3070, and 3200 with grades of C-minus or above are prerequisites for this course. We will especially build upon the knowledge and skills in Bio 3200. In addition, because this is the advanced writing intensive for majors, it is strongly recommend that you successfully complete your elementary and intermediate writing requirements before taking this course, and think about how you can apply what you have learned in those classes to the work you do in this course. As described in the objectives, the writing intensive focuses on learning to read and synthesize the primary and review literature in physiology. This course does not focus on basic or intermediate writing skills, but these skills are required to successfully complete this course. If you have trouble with sentence and paragraph structure or other writing skills, contact the University writing center at (313) 577-2544 or go to **www.clas.wayne.edu/writing/.** As your TAs and I grade lab reports, term papers, exams and other assignments, we will take clear, correct writing in English into account.

Instructor: Dr. Karen Myhr
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E-mail: kmyhr@wayne.edu
Office Phone: 313-577-1504 (usually to voicemail in my email, so emailing is more efficient)
Course website: canvas.wayne.edu/courses/136299

My drop-in hours are in Canvas Zoom on class days when we do not have class sessions, or by appointment when necessary. This will usually be from 10 am to 11:15 am on Tuesdays. Drop-in hours are when I hang out and talk to any students who show up. You can come for part of all of the time, no appointment necessary. You can come alone or bring classmates. This time is great for reviewing for exams, going over any concept or skill for the course, or working through homework questions. We can also talk about careers, majors and opportunities to get involved on campus.

Lectures meet from 10:00-11:15 am on Tuesdays and Thursdays in Canvas Zoom. Usually class will be on Thursdays, and drop-in hours will be on Tuesdays. See Canvas for schedule updates.

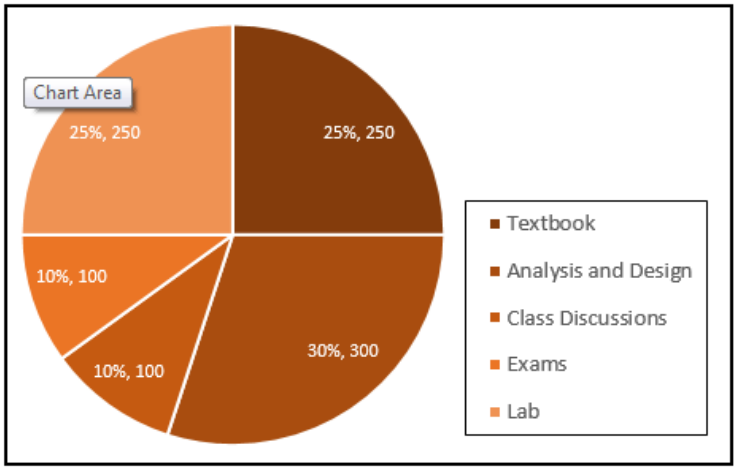
Lab sections meet virtually in Zoom and MS Teams. You need to be available to meet with your team and/or TA during this time, but may work asynchronously at a different time some weeks.

13257	003 Tu	11:30 am - 2:20 pm	Ricci Tarockoff	ricci.tarockoff@wayne.edu
11631	002 Th	11:30 am - 2:20 pm	Ricci Tarockoff	ricci.tarockoff@wayne.edu
11632	004 Fr	11:30 am - 2:20 pm	Tyler Ralph-Epps	gv2028@wayne.edu

Required: Principles of Animal Physiology (Third Edition) by Christopher Moyes and Patricia Schulte ISBN: 0321838173. Note the Third Edition is very different from the Second Edition.

Required: A computer (A phone will not support your work. A tablet may be enough. You will be reading and annotating articles together online and will need a browser and big enough screen to work with annotations and figures at the same time.) Access to a good internet connection and a browser that works well with Canvas. The free MS Teams app. (The browser version does not have all the features we will use.) The ability to connect to video conferences with audio, video and chat.

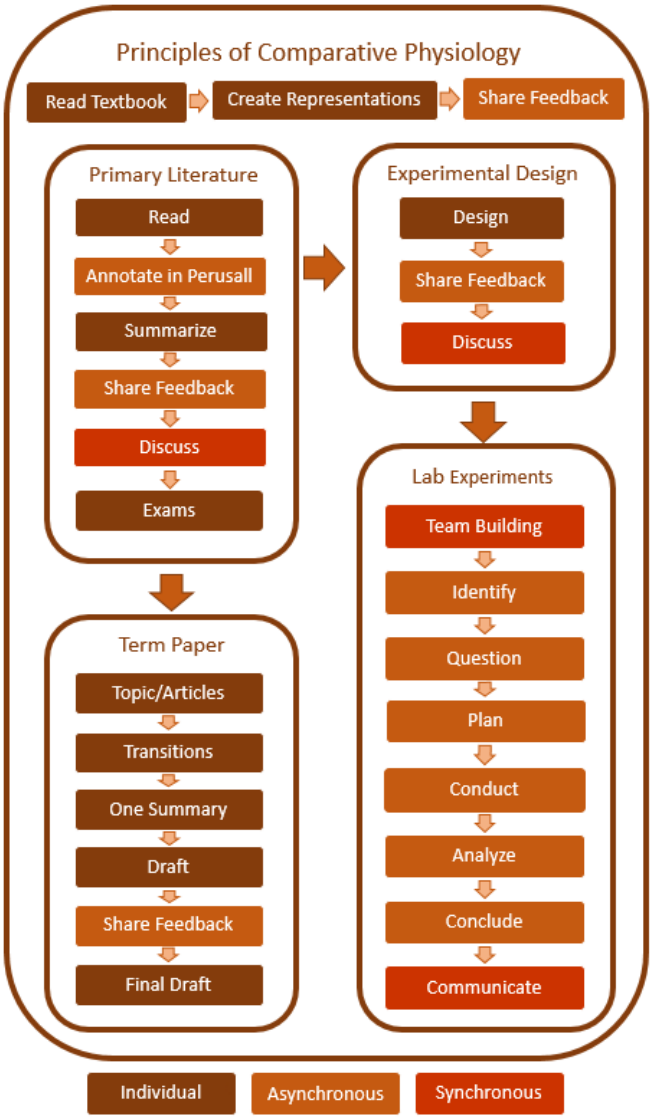
Grade Breakdown



Category	Points	%
Textbook	250	25%
Analysis and Design	300	30%
Class Discussions	100	10%
Exams	100	10%
Lab	250	25%
Total	1000	100%

Grades: A 92.5-100% A- 90.0-92.5%
B+ 87.5-89.9% B 82.5-87.5% B- 80.0-82.5%
C+ 77.5-79.9% C 72.5-77.5% C- 70.0-72.5%
D+ 67.5-69.9% D 62.5-67.5% D- 60.0-62.5%
F is below 60.0%

I do not curve the grades. There is no extra credit. Everyone can earn an A, if they perform well.



Textbook: Readings for each unit will be posted in Canvas. You will demonstrate your mastery of the content through homework in Canvas and creative representations of the content. Guidelines for creative representations will be on Canvas. You will have a total of 250 points for work from the textbook.

Analysis and Design: You will read and analyze the primary literature, and design experiments. This will include work like reviewing, doing homework on, and learning techniques; annotating and discussing articles in the free website, Perusall; writing summaries and experiments; and peer review. You will have about 22 point opportunities each of 14 weeks for 300 points total.

Class Discussions: To share what we learn about the data analysis and experimental design asynchronously through individual reading and group annotation in Perusall, we will also meet about once per week during class time, usually on Thursdays. You will have 14 opportunities for 8 points for a maximum of 100 points. There are more opportunities for points than the maximum to accommodate students who need to miss a class.

Exams: Two hourly exams will consist mostly of essay questions on data analysis. You will interpret data that you have not seen before, but is similar to how we have analyzed data together for class. There may be other short answer questions on techniques and/or the main principles of the course. This is about skills and the big picture. I am not going to ask you picky questions about figures you have seen, or details of the articles. It will be open book, but on your own. Most class time will be practicing these skills, so active participation in class is the best way to do well on exams.

Lab: You will complete one literature research paper. Small assignments that will build to the final term paper include the selection of a topic and articles, the transitions between the articles, the summary of one of your selected articles, a rough draft, and a peer review session. These assignments will help you make continuous progress through the semester. They are worth 7 to 10 points each and lab assignments will be due at 11:59 pm on Mondays. The final draft is 70 points.

Lab Projects: You will complete one lab project on a team of three to four students. Small assignments will guide you through team building, picking a question, making a plan, gathering, summarizing and analyzing your data, making your conclusions and communicating your work. See the lab project planning document in MS Teams for details.

Exam Schedule (in Canvas)
Exam 1 **10/27/20** during lecture
Exam 2 **12/22/20** during Finals Week from 8 to 10 am

General Policies:
1) Anyone caught cheating or plagiarizing will automatically receive a failing grade for the exam, assignment or class, and may be expelled from the University.
Your written work will be submitted to plagiarism software in Canvas for an evaluation of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in the restricted access database of the plagiarism software in Canvas, for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all.

Because our goal is to help you learn how to not plagiarize, information on how to avoid plagiarism will be provided in class, on Canvas, and by your TAs. If you do not understand how to avoid plagiarism, please ask for help from your TA or me in drop-in or office hours. **For discussions of cheating and plagiarism see the class Canvas site, and the "Student Code of Conduct," which is available at doso.wayne.edu/conduct.**

2) **Email guidelines:** For privacy, legal reasons, professionalism, and to avoid having your email filtered to spam, **you must email me from your WSU account**. I will respond to most emails within two business days. After two business days, you may email me again. I expect emails to be in a professional style, with your course number and information about what the issue is in the subject. Please include which section you are in, e.g. "**BIO 4120, Section 002: Question on Kidney Lecture"**, a proper greeting, e.g. "Dear Professor Myhr," a proper salutation, e.g. "Sincerely, Chris Smith," correct punctuation including capitalization and no texting abbreviations. Emails that do not follow these rules may take longer get a reply, may be returned for correction, or ignored. If I cannot figure out what you want, I cannot help you. Following these guidelines will improve your success at WSU and beyond.

Please post questions that require a discussion to the Discussions boards in Canvas or talk to me during drop-in to discuss these issues. I do not answer this type of question by email, because email is not conducive to discussion. This includes questions on content and study or writing strategies. This may require planning ahead so that you can get your answers before assignment deadlines or exams.

3) Because I converted much of your work to asynchronous work, I expect you to be able to get the help you need from your TAs during scheduled lab time, or with me during drop-in hours on Tuesdays. Note that even though we will often work together with many people in drop-in hours on common challenges, I am happy to set up a private breakout to talk one-on-one. You need to let me know you want to do this as early in the session as possible so we have time to talk. If you cannot come to drop-in hours, or need to meet with your teaching assistant outside of lab, you need to set up an appointment by email.

4) Any special considerations (disabilities, religious holiday conflicts, etc.) must be brought to the attention of the instructor by September 18, 2020 or as soon as possible as the situation arises. If you have a documented disability that requires accommodations, you should register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TTY: telecommunication device for the deaf; phone for hearing impaired students only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Please let me know of all disabilities that I can help you with as soon as possible. I cannot always accommodate on short notice, and I cannot accommodate issues I do not know about. Please refer to the SDS website for further information about students with disabilities and the services we provide for faculty and students: studentdisability.wayne.edu/

5) Problems and challenges regarding the grading of any assignment must be brought to the relevant teaching assistant's attention in a concise and coherent email within one week of the date the assignment is returned to the lab section. Once you talk to the TA about the work you are no longer eligible for a regrade.

Challenges to exam questions or homework assignments should be emailed to Professor Myhr explaining the issue. For challenges to multiple-choice questions, you need to convince me that your answer was the best answer, given reasonable assumptions that you explain. For short answers, you need to convince me there was an error in the grading, not simply that you want more points. **Once you talk to me about the work, you are no longer eligible for a regrade. When I regrade any work I may regrade the whole assignment in addition to the section you are protesting, and your grade may drop.**

6) **Withdrawals:** If you withdraw you will receive a WN on your transcript if you never completed any assignment; a WP if you have greater than 60% of the points possible at the time of your request on textbook work, analysis and design work, class discussions, exams and lab; or a WF if you have less than 60% of the points possible at the time of your request.

In Academica: select "Course Withdrawal" from the Registration Menu under Student Resources. A ***SMART Check*** is required. After the registrar processes your request they send it to your instructor to assign a grade. This can take up to five business days. See deadlines in the academic and registration calendar.

7) University closures and pandemic policies will be publicized through:

- the university emergency broadcast system (broadcast.wayne.edu),
- WSU Homepage (www.wayne.edu),
- the University Newsline (313) 577-5345,
- WDET-FM (Public Radio 101.9)

If the University is officially closed, there is a university outage of critical services, or there is a broad emergency I will reschedule deadlines and announce them through our Canvas course site. We are in a pandemic, please contact me if you need help. The university has many resources and I can help you get what you need.

8) **Professional behavior** is expected in lecture & lab. All students must show respect in language and attitude towards the instructor and their fellow students. Disrespectful students will be asked to leave the lecture or lab, and will lose their opportunity to turn in any missed assignments.

9) Updates and corrections to this syllabus will be posted on the course Canvas site or in our MS Teams course site. You are responsible for checking Canvas announcements and your University email account. I recommend checking at least once each business day.

I will post a detailed schedule, reading and learning objectives for each unit on Canvas.

10) For any and all issues not covered in this syllabus, refer to the "Student Code of Conduct", which can be found at doso.wayne.edu/assets/codeofconduct.pdf