

Biology 4120 – Comparative Physiology, Fall 2019

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, 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 standard English into account.

Instructor: Dr. Karen Myhr

Office: 2113 Biological Sciences Building

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/110330

Dr. Myhr's drop-in hours are from 1:30 am to 3:30 pm on Tuesdays in the STEM Commons. The STEM Commons is in the Kresge Library across Gullen Mall from the Student Center food court. Alternatively, **office hours** are by appointment in Room 2113 in the Biological Sciences Building.

I will have **drop-in hours in the STEM Commons** for two hours a week. This is 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 or quiz questions. We can also talk about careers, majors and opportunities to get involved on campus.

Sometimes students also need to talk to me individually for paperwork or private issues, and it has not been working to have one hour set aside per week with other appointments scheduled by email. Students tell me they want to be able to easily schedule short, individual appointments. This semester we will be trying a new system to make it easier for us to schedule this way.

I will offer short individual office hour appointments scheduled on request. You will request an appointment through a [link](#) in our Canvas site. You will tell me how long of an appointment you think you need (10, 15 or 20 minutes), and three times you could meet. I will be notified of your request; will pick a time; and will make a set of appointments in Canvas during that time. All of my students will be notified of the newly available appointments, unless they have changed their Canvas settings from the defaults. You or other students will be able to claim an appointment (or cancel an appointment) in the Canvas calendar. The idea is that if one student wants an appointment at a certain time, others may too. This will allow us to set up and have appointments efficiently with the most flexibility for students' busy schedules.

Lectures meet from 10:00 to 11:15 am on Tuesdays and Thursdays in Room 0106 Old Main.

Lab sections meet in 0309 Shapero Hall (and room 318 when announced):

12098	005 W	8:30AM - 11:20AM	Asia Hightower	ev4173@wayne.edu
12096	002 Th	11:30AM - 2:20PM	Ricci Tarockoff	ricci.tarockoff@wayne.edu
14638	003 Th	2:30PM - 5:20PM	Ricci Tarockoff	ricci.tarockoff@wayne.edu
12097	009 F	11:30AM - 02:20PM	Lisa Koshko	lmkoshko@wayne.edu

Required: Principles of Animal Physiology (Third Edition) by Christopher Moyes and Patricia Schulte ISBN: 0321838173

Required: An IClicker2

Recommended: Reading The Primary Literature: A Practical Guide to Evaluating Research Articles in Biology by Christopher M. Gillen ISBN: 0-8053-4599-X

- Homework:** You will have an assignment due in Canvas before each lecture, starting with the second lecture. The maximum number of homework points that will count towards your final grade is 75 points. There will be opportunities to earn at least 82 points, so if you miss one or two assignments for personal or technical reasons, you can still earn a perfect homework score. This system is **instead of** make-up opportunities for individual missed points.
- Participation:** There will be participation points available each lecture session. Most participation points will be earned by using your clickers or doing other work during class. The maximum number of participation points that will count towards your final grade is 75 points. There will be opportunities to earn at least 81 points, so if you miss a day or two of points for personal reasons or one-time clicker problems, you can still earn a perfect participation score. This system is **instead of** make-up opportunities for individual missed points. Let me know if you have a persistent clicker problem.
- Exams:** Three hourly exams will consist of multiple-choice, short answer and/or essay questions. In addition to material from the text book and on techniques we discuss in class, you will interpret data you have not seen before and design an experiment on each exam. Most class time will be practicing these skills, so active participation in class is the best way to do well on exams. **There are no make-up exams, or alternative days or times.** Because the exams ask you to demonstrate skills that you are still learning many students improve significantly from exam 1 to exam 2. After exam 1, students who rewrite their exam, have another student grade their exam and grade someone else's rewrite by the deadline will be earn an exam 1 bonus of half the difference between exam 1 and exam 2, if they score higher on exam 2.
- Term Paper:** 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, except completing the peer review, are due at the beginning of your lab session. The final draft is worth 70 points.
- Resumes:** You will write a resume and cover letter (or personal statement) and participate in mock interviews for 10 points.
- Lab reports:** You will write three lab reports, one for each unit, worth 30 points each for unit 1 and unit 2, 50 points for unit 3, and 3 points for a comparative brains activity. Unit 1 & 2 lab reports will help you draw comparisons across different organisms studied that unit. Unit 3 will describe your team-designed experiment. Lab reports are due at the beginning of your lab session as indicated in the schedule.

Details of homework, participation, term paper and other lab assignments will be announced or distributed in class or lab, or posted to Canvas. The beginning of the lab session is defined as the time that your lab session is scheduled to start. **Assignments turned in after the beginning of your**

lab session (even one minute), but within 24 hours of the time it was due, will be downgraded 10% of the possible points. Assignments not turned in during lab must be taken to the Biology office. Ask the front desk personnel to time stamp your assignment and put it in your TA's mailbox. You will need to know your TA's name. You are responsible for assignments turned in to the office. If they lose your assignment, we will assume you did not turn it in. **You may not turn in or earn credit for a lab report section for a lab you did not attend and fully participate in, but there will be some make-up opportunities provided as described in the lab report assignments.**

Exam Schedule (All in Room 0106 Old Main)

Exam 1, Neurophysiology **10/3/19** during lecture
 Exam 2, Locomotion **11/5/19** during lecture
 Exam 3, Reproduction **12/17/19** during Finals Week from 8 to 10 am

Grades:	Unit Exams (200 points each)	600 points
	Homework	75
	Participation	75
	Lab reports	113
	Resume and Interviews	10
	Term paper assignments	57
	<u>Final Term Paper</u>	<u>70</u>
	Total	1000 points

Grading Policy: Grades will be calculated on the following scale:

	A 92.5-100%	A- 90.0-92.4%	
B+ 87.5-89.9%	B 82.5-87.4%	B- 80.0-82.4%	
C+ 77.5-79.9%	C 72.5-77.9%	C- 70.0-72.4%	
D+ 67.5-69.9%	D 62.5-67.4%	D- 60.0-62.4%	F 0-59.9%

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

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 from Professor Myhr 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 dosowayne.edu/conduct.

You may only use your own clicker in class. Do not risk getting caught with a clicker that does not belong to you, or having your clicker caught with someone else. Many of the clicker questions will earn credit for any answer. For some you will be asked to work on your own and not share answers. It is cheating to share information on these individual questions. **If you are caught with someone else’s clicker in class, someone else has your clicker in class or you cheat on questions that are supposed to be done on your own, you will both earn a zero for ALL of the clicker participation points for that unit, or the whole course. Penalties may apply even if the second clicker is not used.**

2) **Email guidelines:** For privacy 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.

I do not answer questions by email if they require a discussion. This includes questions on content and study or writing strategies. Please come talk to me during office hours to discuss these issues. This may require planning ahead so that you can get your answers before assignment deadlines or exams. I will not reply to emails when the answer can be found in the syllabus or on Canvas.

3) If you cannot come to office hours because you have conflicts with classes, or want to meet with your teaching assistant outside of lab, you need to set up an appointment by email. Use the [appointment link](#) in our Canvas site

4) Any special considerations (disabilities, religious holiday conflicts, etc.) must be brought to the attention of the instructor by September 13, 2019 or as soon as possible as the situation arises. If you have a documented disability that requires accommodations, you will need to 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 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. I will regrade exams from my scanned copy of the graded exam. **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) No assignment may be turned in to your teaching assistant by email or FAX. If you do not turn an assignment in during lab, then you may turn it in to your teaching assistant's mailbox in the Biology main office when it is open. You are responsible for requesting that the office staff time stamps your work. Know your teaching assistant's first and last name for correct delivery. The office staff does not know the teaching assignments of the graduate students. You will lose 10% of the possible points for each day an assignment is late, even if you have a valid excuse. An assignment is not considered turned in until both the digital and hard copies are submitted. A day late is from one minute after the assignment is due to 24 hours late. You will lose another 10% of the possible points for each subsequent day an assignment is late. A day is a business day on which the University is open (including days during spring break). You may turn in assignments to your teaching assistant's mailbox early without penalty, but we anticipate that this will not happen often because we expect 100% attendance in lab (and lecture). (Lecture homework assignments are separate and no credit is given after the deadline.)

7) **Professional behavior** is expected in lecture & lab, which includes respecting your classmates by

- arriving prepared and on time
- actively contributing to your group or the whole class
- not interrupting or talking when others are talking to the group
- turning all electronics off or to airplane mode except as necessary for class work

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. No unregistered students may attend lab or lecture, especially children.

8) **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 exams, homework, quizzes and class participation; or a WF if you have less than 60% of the points possible at the time of your request. No exams or other grades are dropped in this calculation. Lab grades are not included in this calculation. In Academics: 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 Dr. Myhr to assign a grade. This can take up to five business days. For the academic and registration calendar, see wayne.edu/registrar/registration/calendar19-20

9) 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

10) University closures 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 an hourly exam is scheduled on a day when the University or lecture room is officially closed during class, the exam will be held during the next scheduled meeting of lecture that occurs when the University and room are open, or as indicated on the class Canvas site.

If the University or lab room is officially closed during your lab, any assignment that was due that day is then due at the next scheduled meeting of **lecture or your lab** that occurs when the University or lab are open, whichever comes first, or as indicated on your lab Canvas site.

11) Updates and corrections to this syllabus will be described in class and/or posted on the course Canvas 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. Labs will begin on September 4, 2019.