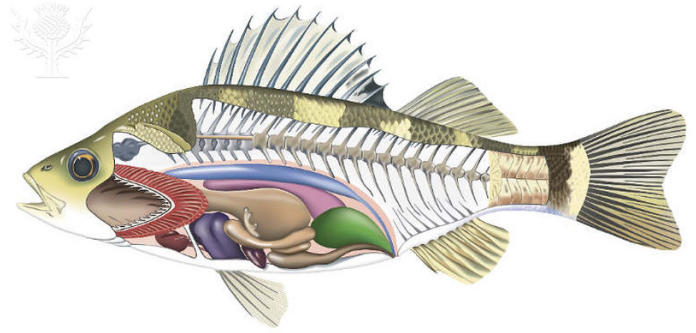


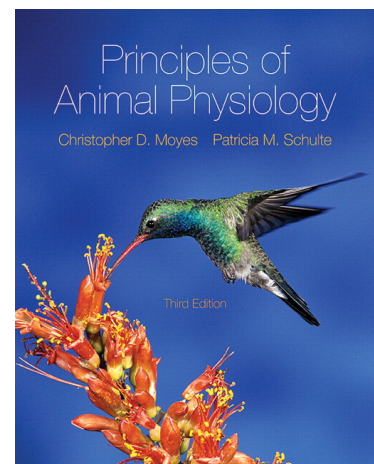
## Animal Physiology Fall 2020



**Course Topic:** This course will examine animal physiology across different levels of biological organization, from molecules to cells to whole organisms, and will highlight the diversity of physiological mechanisms across different groups of animals. Emphasis will be placed on how ecology and evolution shape the physiology of organisms as well as how physiology forms the basis for how animals interact with their environment. This course will cover all the major physiological systems in animals (e.g., circulatory system) as well as how these systems are integrated to perform ecological functions (e.g., flight). Finally, emphasis will be placed on the effects of environmental change on animal function, and how animals may respond physiologically to such changes.

<b>Course Number</b>	EVPP326/BIOL326
<b>Instructor</b>	Dr. Scott Glaberman
<b>Office</b>	DKH 3224
<b>Office Hours</b>	TBD
<b>Email</b>	sglaberm@gmu.edu
<b>Lecture Time</b>	3:00-4:15 pm
<b>Lecture Location</b>	Enterprise 275

**Textbook (Required):**  
Principles of Animal Physiology (3rd Edition)  
C. Moyes and P.M. Schulte



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## Course Learning Objectives:

- Students will gain a strong foundation in animal physiology through a combination of lectures, textbooks readings, and journal articles that cover all the major animal physiological systems. By the end of the course, students will be able to identify the basic physical structures of each system and describe how these structures differ among groups of animals.
- Students will improve their integrative understand of biology, as both journal articles and lecture material will emphasize how multiple systems work in combination to perform complex functions (e.g., flight). Examples of these complex integrated functions will be used at the beginning of each lecture to capture student attention and get them thinking about how each physiological system cannot work on its own.
- Students will be able to make connections about how the ecology and evolution of animals is intimately connected to their physiological makeup and function. Several journal articles will focus on the animal evolutionary tree and how historical environmental factors have driven physiological evolution. Other articles will focus on how ongoing and future environmental changes may disrupt animal function and survival.
- Students will learn how to dissect and discuss scientific journal articles through bimonthly readings. Articles are chosen with open questions so that students can propose new directions in animal physiology research as part of regular class discussion.

**Course Policies:** It is critical to keep up with weekly requirements and to complete all work on schedule, but if there are extenuating circumstances — such as sickness, family issues, or religious observances that conflict with our schedule — please let me know as soon as possible. Note that a doctor's note for illness or service leaflet for a death in the family is required for missed activities.

Missed work will not be accepted late. No extensions will be made on assignments, and late work will not be accepted for a grade. All work must be submitted or receive a zero grade.

**Instructor-Student Communication:** I will respond to your emails within 48 hours (*Monday through Friday*). If I am away from email for more than three days, I will send an announcement to the class. Before sending an email, please check the syllabus.

Mason requires that Mason email be used for all courses. I will be sending messages to your Mason email, and you are responsible for making sure you have access to these messages.

## Student Responsibilities

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*MasonLive/Email:* Students are responsible for the content of university communications sent to their George Mason University email account and are required to activate their account and check it regularly. For accessibility and privacy, the university, school, and program will send communications to students solely through their Mason email account—students should respond accordingly.

*Students with Disabilities:* Students with disabilities who seek accommodations in a course must be registered with the George Mason University Office of Disability Services (ODS) and inform their instructor, in writing, at the beginning of the semester [See [Office of Disability Services](#)].

*Academic Integrity:* Students must be responsible for their work, and students and faculty must take on the responsibility of dealing explicitly with violations. The tenet must be a foundation of our university culture. [See [Office of Academic Integrity](#)].

*Honor Code and Virtual Classroom Conduct:* Students must adhere to the guidelines of the George Mason University Honor Code [[See Honor Code](#)]. We value critical thinking and; therefore, it is imperative that students read the assigned books and articles before the class with a critical eye. Active thought, quality of inputs, and a conflict resolution attitude should be your guiding principles. The principle of academic integrity is taken very seriously, and violations are treated gravely. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. When you rely on someone else's work in an aspect of the performance of that task, you will give full credit in the proper, accepted form. Plagiarism is the equivalent of intellectual robbery and cannot be tolerated in the academic setting. If you have any doubts about what constitutes plagiarism, please see me.

Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt (of any kind) please ask for guidance and clarification.

*University Policies:* Students must follow the university policies. [See [University Policies](#)].

*Responsible Use of Computing:* Students must follow the university policy for Responsible Use of Computing. [See [Responsible User of Computing](#)].

## **Assessment:**

- **Exams (400 points):** There are five exams – four midterms and one cumulative final. Although the midterms are not explicitly cumulative, all exams may draw on knowledge from previous lectures. Questions will come from lecture material and assigned journal articles. The exam format may include short and long written answers, as well as fill-in the blank, matching, and multiple-choice questions. The final examination will cover both new material and comprehensive material. Exam

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dates are indicated in the class schedule. Exam dates are subject to change based on lecture progress, but will never be moved ahead of the scheduled time. In order to handle situations in which exams are missed, the lowest midterm exam grade will be automatically dropped. There are no make-up exams for missed in-semester exams.

- **Paper Discussions (25 points; 5 points each):** There will be approximately 5 journal article discussions in class that relate lectures to cutting-edge questions and methods in physiology. All students are required to make a list of at least 5 comments and questions related to each paper and participate in the discussion. Students must ask/make at least one question/comment during each discussion to receive credit. Students who complete the list of questions/comments but do not attend class will not receive credit for this assignment. Exam questions will be taken from the discussion topics.
- **5-minute Presentations (25 points):** During the semester, each student will deliver a concise 5-minute presentation of a given physiology topic. The instructor will provide a possible list of topics at the beginning of the semester, but students are also able to choose their own topic with permission from the instructor. During each presentation, the student will address what the topic is about, including a clear statement of *what* the topic is about, *which* aspects of physiology and the environment are involved, *which* species the topic pertains to, *how* scientists study this topic (e.g., methods, approaches), *which* results have come from these experiments, and *what* the implications of this research is for our future understanding of physiology. Presentations will be delivered orally with or without the use of prepared slides. The instructor will provide a full rubric at the beginning of the assignment.

## Course Grading:

Four lecture exams*	+100 points each
Cumulative final	+100 points
Presentations	+25 points
Journal Articles	+25 points
<b>Course total</b>	<b>450 points</b>

\*Lowest score dropped

Number Grade	Letter Grade
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
70-76	C
60-70	D
<60	F
A CURVE WILL NOT BE APPLIED	

Date	Lecture Topic
8/23	Course Introduction
8/28	Introduction to Physiology

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8/30	Animal Evolution
9/4	Neuron Structure & Function
9/6	Animal Nervous System
9/11	Nervous System Function
9/13	Science of Addiction
9/18	Paper Discussion 1: Origins of the Nervous System
9/20	<b>Exam 1</b>
9/25	Chemoreception & Mechanoreception
9/27	Equilibrium & Hearing
10/2	Visual Systems
10/4	Paper Discussion 2: Are Humans Good Smellers?
10/9	<b>Exam 2</b>
10/11	<b>Fall Break</b>
10/16	Circulatory Principles
10/23	Circulatory System at Work
10/25	Paper Discussion 3: Dinosaur Blood Pressure
10/30	Respiratory Principles
11/1	Respiratory Diversity
11/6	Paper Discussion 4: High Flying Birds
11/8	<b>Exam 3</b>
11/13	Muscle Structure & Function
11/15	Muscle Function & Types
11/20	Water and Salt Physiology
11/22	<b>Thanksgiving Break</b>
11/27	Kidneys and Excretion
11/29	Paper Discussion 5: TBD
12/4	Digestion and Metabolism
12/6	Thermal Physiology
12/11	<b>Final Exam 4 (10:30-12:30)</b>

**Tentative  
Lecture  
and Lab  
Schedule  
(subject  
to  
change)**