

To print: MAC users press "⌘" + "P". PC users press "CTRL" + "P".

BIO 360: Animal Physiology

Course Description:

Bio 360, Animal Physiology, is a fully online, three-credit course designed to teach you the fundamentals of how animals function in seven weeks. The focus is on humans and other mammals, but you will also learn about how physiological systems are similar and different across animals. **You should expect to spend about 18 hours per week to successfully complete this course [ASU Regents](#).**

Course Goals:

Our overall goal for this course is to teach you to “think like a scientist” about physiology. As such, the course will focus on core concepts in physiology. You will be exploring problems in physiology from an experimental perspective, including developing hypotheses, designing experiments, and analyzing data. We will also be emphasizing the connections between physiology and real-world applications. This approach to learning physiology can provide a powerful foundation for grad school, med school, various medical, veterinary and health professions, plus numerous research or technical positions.

This is an incredibly exciting time to study physiology. Fabulous advances in genome sequencing and technological innovation are changing our understanding of the very foundations of life, and how organisms survive in changing environments. The downside to this explosion of knowledge is that there is too much to learn, and no way to keep up with all the new facts. We recognize this reality and have tried to design BIO 360 accordingly by limiting the number of facts you have to memorize. This course will help you to understand and make use of this information you might look up on the web. We won't do a superficial survey of all the physiological systems in one semester, but will instead dig deeper into fundamental principles, processes and mechanisms in select systems. In other words, the goal isn't full “coverage,” but for you to learn fundamental concepts and a mechanistic approach that you can apply to novel physiological systems. We hope the course will foster an enduring wonder, appreciation and understanding of physiological (life) processes, and encourage you to sharpen quantitative, mechanistic and critical reasoning skills that you will use in a world of inevitable changes.

You will be challenged to integrate information across multiple levels of analysis (molecular, cellular, organ systems, organisms), culminating with complex, multi-dimensional physiological interactions. You may be asked to think like an evolutionary biologist, a neuroscientist, a vet, a clinician or field researcher. We have high expectations. You will need to memorize and

remember some facts, but we ask our students to advance towards analysis and application because you will need these skills in your future endeavors. Perhaps taking MCATs OR GREs, but also critically reading the newspaper. We will teach using active learning. What is active learning? It is a student-centered approach to teaching that shifts the responsibility for learning from the instructor to the student. Research in biology education overwhelmingly indicates that highly structured courses that focus on student learning, rather than lectures, have better long-term learning outcomes. Additionally, students are more likely to pass a course when it is taught in an active learning way.

Credits: 3

Prerequisites:

BIO 181 with C or better; BIO 182 with C or better OR BIO 281 with C or better; BIO 282 with C or better; CHM 116 or 118 with C or better

Instructor:

Karen Sweazea, Associate Professor, School of Life Sciences and College of Health Solutions, Arizona State University

- Email: Karen.Sweazea@asu.edu

Teaching Assistants:

TBD

Communicating With the Instructor

Announcements

Announcements are posted frequently. Please check for new announcements each time you enter Canvas.

Discussion Board-Yellowdig

If you have general questions about the course operations, please post them on Yellowdig. Prior to posting such a question, check the syllabus, announcements, and existing posts to ensure it's not redundant. You are encouraged to respond to the questions of your classmates.

Email questions of a personal nature, or comments or concerns about the course, to your instructor. You can expect a response within 72 hours.

Visit the instructor's virtual office hours

TBD

Email

ASU email is an [official means of communication](#) among students, faculty, and staff. Students are expected to read and act upon email in a timely fashion. Students bear the responsibility of missed messages and should check their ASU-assigned email regularly.

All instructor correspondence will be sent to your ASU email account.

Core Concepts of Animal Physiology

These core concepts will be themes in each module (modules roughly correspond to organ systems):

1. **Information flow:** Cellular structure and function is determined by proteins coded for by genes. Cells sense the environment and regulate their function by electrochemical signaling cascades that affect the activity and concentration of proteins.
2. **System interactions:** Organ systems interact, and control systems ensure coordination of physiological conditions and function.
3. **Structure: function:** The structure (shape, size) of proteins, cells, organs, systems and organisms determine their function.
4. **Evolution:** Physiological systems have evolved and different animals have different systems adapted for their environments.
5. **Energy and Matter Transformation:** Animals use energy obtained from the environment to do work, including anabolism, movement and active transport across membranes.

Additionally, the course will include considerable quantitative approaches, including equations, graphing and data analysis. Another theme will be understanding how science works, and how we know what we know (and don't know) in physiology. Finally, the basic physiology covered here will be related to health and disease to help you understand the practical applications of physiology.

Course Access

Your ASU courses can be accessed by both my.asu.edu and asu.instructure.com; bookmark both in the event that one site is down.

Computer Requirements

This is a fully online course; therefore, it requires a computer with internet access and the following technologies:

- Web browsers ([Chrome](#), [Mozilla Firefox](#), or [Safari](#))
- [Adobe Acrobat Reader](#) (free)
- Webcam, microphone, headset/earbuds, and speaker
- Microsoft Office ([Microsoft 365 is free](#) for all currently-enrolled ASU students)
- Reliable broadband internet connection (DSL or cable) to stream videos.

Note: A smartphone, iPad, Chromebook, etc. will not be sufficient for completing your work in ASU Online courses. While you will be able to access course content with mobile devices, you must use a computer for all assignments, quizzes, and virtual labs.

Help

For technical support, use the Help icon in the black global navigation menu in your Canvas course or call the ASU Help Desk at 1+(855) 278-5080. Representatives are available to assist you 24 hours a day, 7 days a week.

Disability Resources

Students who feel they will need disability accommodations in this class but have not registered with the Disability Resource Center (DRC) should contact DRC immediately. The DRC Tempe office is located on the first floor of the Matthews Center Building. DRC staff can also be reached at: (480) 965-1234 (V) or (480) 965-9000 (TTY). For additional information, visit: www.asu.edu/studentaffairs/ed/drc.

Student Success

To be successful:

- read announcements
- complete all assignments on time.
- recognize that the Cogbooks reading material is extensive, you are assigned about 3/4 of a college textbook for this class. **However, do not attempt to memorize everything in the reading.** We want you to be able to understand the logical connections; read for understanding, not memorization. Use the lecture videos to help you understand the general concepts and what to focus on. The exam study guide covers all of the material that will be addressed by quiz questions. Download it, and enter your answers as you read through Cogbooks.
- take the Cogbooks quizzes seriously; they are very similar to exam multiple choice questions.
- use the pre-exam quizzes to help you figure out if you have successfully learned the material. You can take these three times; your highest score will count. The questions will likely differ each time, but are drawn from the same pool of questions that will be on the exam. While you will have access to the internet and notes while taking these practice

quizzes, I encourage you to attempt them without aids, as this will provide you with the best feedback on whether you are ready for the exam.

- the physiological reasoning assignments are designed to help you understand concepts in physiology by asking you to analyze data or solve a problem. The essay questions on the exams will cover the same concepts as in these activities.
- choose an outreach project that you find exciting and that will hopefully be useful to the community.
- use the Yellowdig discussion boards and emails to the instructors to resolve confusions about the material.
- read and respond to course email messages as needed
- communicate regularly with your instructor and peers
- create a study and/or assignment schedule to stay on track
- access [ASU Online Student Resources](#)

Grading

Your grade will be determined based on the following grading schema:

Grade	Percentage	Points Range
A+	100% - 97%	582 - 600
A	<97-93%	558 - 581
A-	<93-90%	540 - 557
B+	<90-87%	522 - 539
B	<87-83%	498 - 538
B-	<83-80%	480 - 497
C+	<80-77%	462 - 479
C	<77-70%	420 - 461
D	<70-60%	360 - 419
E	<60%	<359

Assignments & Points

Evaluation component	Points
Complete all objectives in Cogbooks	50
Quizzes in Cogbooks	50
Participation in discussion boards (Yellowdig)	50
Physiological reasoning activities	70
Physiology outreach activity	100 (proposal-10, draft-20, final product-70)
Three pre-exam quizzes (3 x 20)	60
<u>Exams (3 x 70)</u>	<u>210</u>
Total Points	590

Course Components

Click on these links for full information

[Cogbooks](#)

[Physiological Reasoning Activities](#)

[Physiology Outreach Activity](#)

[Exams](#)

[Discussion Boards-Yellowdig](#)

Submitting Assignments

All assignments, unless otherwise announced, MUST be submitted to the designated area of Canvas. Do not submit an assignment via email.

Assignment due dates follow Arizona Standard time. Click the following link to access the [Time Converter](#) to ensure you account for the difference in Time Zones. Note: Arizona does not observe daylight savings time.

Grading Procedure

Grades reflect your performance on assignments and adherence to deadlines. Grades on assignments will be usually be available within 72 hours of the due date, but always within one week in the Gradebook.

Late or Missed Assignments including Exams

We understand that especially during pandemic times, emergencies arise that are more important than course deadlines, and we will be flexible to support student success facing critical issues. Please contact the instructor if emergencies occur, and, in general, we will allow extensions for documented emergencies. If possible, notify the instructor before an assignment is due if an urgent situation arises and you are unable to submit the assignment on time. Unexcused missed assignments including exams will be graded as a zero.

Follow the appropriate University policies to request an [accommodation for religious practices](#) or to accommodate a missed assignment [due to University-sanctioned activities](#).

Assignments/Schedule

Module 1 (assignments due by 11:59 PM Friday, May 21)

- Submit group organization assignment
- Submit proposal idea for outreach project

Module 2 (assignments due by 11:59 PM Friday, May 28)

- Complete Cogbooks modules 1 and 2
- Submit physiological reasoning assignment 1
- Complete pre-exam 1 quiz
- Take Exam 1

Module 3 (assignments due by 11:59 PM Friday, June 4)

- Submit physiological reasoning assignment 2
- Submit draft outline for outreach project

Module 4 (assignments due by 11:59 PM Friday, June 11)

- Complete Cogbooks modules 3 & 4
- Submit physiological reasoning assignment 3
- Take pre-exam 2 quiz
- Take Exam 2

Module 5 (assignments due by 11:59 PM Friday, June 18)

- Submit physiological reasoning assignment 4

Modules 6 & 7 (assignments due by 11:59 PM Friday, June 25)

- Submit physiological reasoning assignment 5
- Submit final outreach project
- Complete Cogbooks modules 5, 6 & 7
- Take pre-exam 3 quiz
- Take Exam 3

ASU Online Course Policies

View the [ASU Online Course Policies](#)

Accessibility Statements

View the [Accessibility section](#) to review accessibility statements for common tools and resources used in ASU Online courses.

If any other tools are used in this course, links to the accessibility statements will be listed below this sentence.

Academic Integrity

Academic honesty is expected of all students in all examinations, papers, and laboratory work, academic transactions and records. The possible sanctions include, but are not limited to, appropriate grade penalties, course failure (indicated on the transcript as a grade of E), course failure due to academic dishonesty (indicated on the transcript as a grade of XE), loss of registration privileges, disqualification and dismissal. For more information, see <http://provost.asu.edu/academicintegrity>

[Plagiarism](#) is strictly prohibited. Students must refrain from uploading or submitting material that is not the student's original work to any website, course shell, or discussion used in this course or any other course unless the students first comply with all applicable copyright laws; faculty members reserve the right to delete materials on the grounds of suspected copyright infringement and impose sanctions as listed below.

Academic dishonesty includes any act of academic deceit, including but not limited to possessing, reviewing, buying, selling, obtaining, posting on a site accessible to others, reviewing materials from a site accessible to others, or using, without appropriate authorization, any materials intended to be used for an Academic Evaluation.

Prohibition of Selling Class Notes

Students may not share outside the class, upload, sell, or distribute course content including exams or notes taken during the conduct of the course. In accordance with [ACD 304-06 Commercial Note Taking Services](#), written permission must be secured from the official instructor of the class in order to sell the instructor's oral communication in the form of notes. Notes must have the notetaker's name as well as the instructor's name, the course number, and the date.

Sanctions for Academic Integrity Violations

Possible sanctions include, but are not limited to, appropriate grade penalties, course failure (indicated on the transcript as a grade of E), course failure due to academic dishonesty (indicated on the transcript as a grade of XE), loss of registration privileges, disqualification and dismissal from ASU. For more information, see <http://provost.asu.edu/academicintegrity>.

Expected Student Behavior

Required behavior standards are listed in the [Student Code of Conduct and Student Disciplinary Procedures](#), [Computer, Internet, and Electronic Communications policy](#), [SSM 104–02](#) policy against threatening behavior, per the *Student Services Manual*, “Handling Disruptive, Threatening, or Violent Individuals on Campus”, and outlined by the [Office of Student Rights & Responsibilities](#). Anyone in violation of these policies is subject to sanctions.

[Students are entitled to receive instruction free from interference](#) by other members of the class. An instructor may withdraw a student from the course when the student's behavior disrupts the educational process per [Instructor Withdrawal of a Student for Disruptive Classroom Behavior](#).

All incidents and allegations of violent or threatening conduct by an ASU student (whether on-or off campus) must be reported to the ASU Police Department (ASU PD) and the Office of the Dean of Students. If either office determines that the behavior poses or has posed a serious threat to personal safety or to the welfare of the campus, the student will not be permitted to return to campus or reside in any ASU residence hall until an appropriate threat assessment has been completed and, if necessary, conditions for return are imposed. ASU PD, the Office of the Dean of Students, and other appropriate offices will coordinate the assessment in light of the relevant circumstances. For more information please visit <https://eoss.asu.edu/dos/srr/PoliciesAndProcedures> and <https://eoss.asu.edu/dos/safety/ThreateningBehavior>.

Canvas Personal Pronouns and Preferred Names

As an instructor I encourage you to share your personal pronouns in Canvas, and your preferred name if it is different from the ASU roster.

Students can adjust their pronouns with [instructions found here](#).

Students can apply for a Preferred Name Change in some ASU Systems and/or submit a request for a Legal name change with [information found here](#).

Please visit the [Provost website for information regarding COVID-19](#) resources and FAQ for students.

SARS-CoV-2

Even though this is an online course, you are likely dealing with pandemic issues. If you live in the Phoenix area, you can take advantage of the fact that ASU is offering the saliva test to detect infection with SARS-CoV-2 (COVID-19) through the [Biodesign Institute](#) at no cost for students.

Any student living in university housing will be required to be tested — and cleared — for COVID-19 with a PCR test before moving into their campus housing.

If you are a student returning to campus but not living in university housing, we strongly recommend that you get tested prior to your arrival on campus. Results are usually available within 24-48 hours. Please visit this webpage for more information: <https://live-aboutasu.ws.asu.edu/about/fall-2020/COVID-testing>

Students can schedule a test through the [ASU Health Services Patient Portal](#). You will need to use your Student Health Services account to [REGISTER](#) and find a location to provide your sample. You can find information about the test at the [ASU Biodesign Clinical Testing Laboratory \(ABCTL\)](#) website.

Students that choose to share a positive COVID-19 status with their instructor will be placed in contact with the Dean of Students so that appropriate support and care can be provided. Student health information is protected under FERPA. The instructor will not share COVID-19 diagnosis information with other students in the class, even if the student chooses to do so on their own accord.

ASU Medical professionals will contact those in close proximity to the person who tested positive and may ask those individuals to quarantine for 14 days as a precaution. Analysis of close contacts is done by ASU medical professionals, only. At this time we are defining close contacts as less than 6 feet away for greater than 10 minutes.

Medical Withdrawals

ASU Medical Withdrawal Policies:

- Medical withdrawals are available when the student's own serious illness or injury prevents them from continuing their classes. Both physical and mental health difficulties are covered.
- Compassionate withdrawals are available when other personal reasons (such as care of a seriously ill child or spouse or a death in the immediate family) prevent the student from continuing in classes.
- Students who do not meet the standards for medical or compassionate withdrawals may still be eligible for an academic record change to change their grade to a W in one or more classes. The effective date on an academic record change should reflect the last date of active participation in the class.

- Medical/Compassionate Withdrawal process is overseen by The College and the link to begin submitting a request along with required documentation is on [this website](#).

Reporting Title IX Violations

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <https://sexualviolenceprevention.asu.edu/faqs>.

Policy on Sexual Discrimination

Arizona State University is committed to providing an environment free of discrimination, harassment, or retaliation for the entire university community, including all students, faculty members, staff employees, and guests. ASU expressly prohibits [discrimination](#), [harassment](#), and [retaliation](#) by employees, students, contractors, or agents of the university based on any protected status: race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, and genetic information.

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, <https://eoss.asu.edu/counseling>, is available if you wish to discuss any concerns confidentially and privately.

Copyrighted Materials

Students must refrain from uploading to any course shell, discussion board, or website used by the course instructor or other course forum, material that is not the student's original work, unless the students first comply with all applicable copyright laws; faculty members reserve the right to delete materials on the grounds of suspected copyright infringement.

Offensive or Discriminatory Content Reporting

If you deem content shared by an instructor or student offensive, bring it to the attention of the instructor or, alternatively, to the unit chair or director. Certainly, if you find any material

presented in the course material (in Cogbooks, lectures, etc.) offensive or discriminatory, the instructor would very much appreciate learning about your concerns, as this is not intentional.

Indigenous Land Acknowledgement

Arizona State University and the School of Life Sciences acknowledges the twenty-two Native Nations that have inhabited this land for centuries. Arizona State University's four campuses are located in the Salt River Valley on ancestral territories of Indigenous peoples, including the Akimel O'odham (Pima) and Pee Posh (Maricopa) Indian Communities, whose care and keeping of these lands allows us to be here today. ASU acknowledges the sovereignty of these nations and seeks to foster an environment of success and possibility for Native American students and patrons. We are advocates for the incorporation of Indigenous knowledge systems and research methodologies within contemporary library practice. ASU Library welcomes members of the Akimel O'odham and Pee Posh, and all Native nations to the Library.

Syllabus Disclaimer

The syllabus is a statement of intent and serves as an implicit agreement between the instructor and the student. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. Remember to check your ASU email and the course site often.