

BIO 101 Biological Foundations

Jeffrey A. Walker

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Professor Information

I'm a Professor of Biology. My Ph.D. is in Anatomy and my previous research was in biomechanics, evolutionary morphology, and exercise physiology of swimming and flying, mostly fish. My current research is metascience (the science of science) of statistical practice in experimental bench biology (the kinds of experiments that discover the information in human physiology textbooks)

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Course Information

Room Payson Smith 41

Class meetings are Mondays and Wednesdays, 3:30PM–4:45PM

Credit Hours: 3

Course Description

This course is an introduction to the foundations of biology from the perspective of the biology of human health, performance and disease.

Course Details

Textbook

There is no required textbook. Two recommended online textbooks of Human Anatomy and Physiology are Anatomy & Physiology (openstax) is a very complete textook that is a viable alternative to a traditional textbook. Each chapter has links to videos.

Human Physiology (wikibooks) is a spare, wikipedia like textbook.

Readings and Watchings

The principle source of information outside of lecture will be from Readings and Videos that are posted to the BIO 101 Readings and Watchings page.

Work	Percent
Better Know	50%
Doodles	50%

A note on Wikipedia. Wikipedia is an amazing resource for learning. It is very reliable, despite a few mistakes (probably from students entering information as parts of poorly edited projects). But textbooks also contain mistakes. Professionals in many fields use Wikipedia to rapidly find reliable information. While Wikipedia is an excellent supplementary resource, I would not recommend it as your sole resource. There is too much detail. It takes skill to scan through wikipedia and focus on the relevant material and to not click your way down a path of irrelevancies. But I highly *highly* recommend using Wikipedia as a supplementary study source.

Work Involved

Better Know

There will be four “Better Know” projects, one for each unit (Cystic Fibrosis & Genetics, Diabetes & Metabolism, Muscle/bone & performance, SarsCov2 & immune system) that will involve creating a poster or slide presentation. More detail of each project will follow.

Doodles

A doodle is a sketch or simple drawing. Fill your sketch pad/drawing notebook with doodles to help you learn the material in the lectures, in the readings, and in the watchings. You should have doodles from each. **Label the source** (which lecture, which reading, which watching). Doodles can be idealized sketches of anatomy or a mechanism, a series of steps in a process, a concept map, a graph, or other relevant kinds of visual image for communication.

At the end of each unit, you will turn in your drawing notebook. This will be returned the next class, so you can continue your doodles.

University Policies and Resources

ACADEMIC INTEGRITY / PLAGIARISM

Everyone associated with the University of Southern Maine is expected to adhere to the principles of academic integrity central to the academic function of the University. Any breach of academic integrity represents a serious offense. Each student has a responsibility to know the standards of conduct and expectations of academic integrity that apply to academic tasks. Violations of academic integrity include any actions that attempt to promote or enhance the academic standing of any student by dishonest means. Cheating on an examination, stealing the words or ideas of another (i.e., plagiarism), making statements known to be false or misleading, falsifying the results of one’s research, improperly using library materials or computer files, or altering or forging academic records are examples of violations of this policy which are contrary to the academic purposes for which the University exists. Acts that violate academic integrity disrupt the educational process and are not acceptable.

Evidence of a violation of the academic integrity policy will normally result in disciplinary action. A copy of the complete policy may be obtained from the office of Community Standards and Mediation, online at <https://usm.maine.edu/community-standards-mediation/academic-integrity> or by calling and requesting a copy at (207) 780-5242.

FINAL EXAMINATIONS/FINAL PROJECT It is a USM academic policy that no tests or exams may be scheduled during the last week of classes.

DISABILITY ACCOMMODATIONS

The university is committed to providing students with documented disabilities equal access to all university programs and services. If you think you have a disability and would like to request accommodations, you must register with the Disability Services Center. Timely notification is essential. The Disability Services Center can be reached by calling 207-780-4706 or by email dscusm@maine.edu. If you have already received a faculty accommodation letter from the Disability Services Center, please provide me with that information as soon as possible. Please make a private appointment so that we can review your accommodations.

TUTORING AND WRITING ASSISTANCE

Tutoring at USM is for all students, not just those who are struggling. Tutoring provides active feedback and practice, and is available for writing, math, and many more subjects.

Walk-in tutoring is available at the Glickman Library in Portland, the Gorham Library, and the LAC Writing Center. For best service, we recommend making an appointment at <https://usm.maine.edu/learningcommons/schedule-tutoring-appointment>. Questions about tutoring should be directed to Naamah Jarnot at 207-780-4554. Interested in becoming a more effective, efficient learner? Check out <https://usm.maine.edu/agile!>

COUNSELING

Counseling is available at USM. The best way to schedule an appointment is to email usm.health@maine.edu. More information is available at <https://usm.maine.edu/uhrs>.

NONDISCRIMINATION POLICY

The University of Southern Maine is an EEO/AA employer, and does not discriminate on the grounds of race, color, religion, sex, sexual orientation, transgender status, gender expression, national origin, citizenship status, age, disability, genetic information or veteran's status in employment, education, and all other programs and activities. The following person has been designated to handle inquiries regarding non-discrimination policies: Sarah E. Harebo, Director of Equal Opportunity, 101 North Stevens Hall, University of Maine, Orono, ME 04469-5754, 207.581.1226, TTY 711 (Maine Relay System).

STATEMENT ON RELIGIOUS OBSERVANCE FOR USM STUDENTS

Absence for Religious Holy Days: The University of Southern Maine respects the religious beliefs of all members of the community, affirms their rights to observe significant religious holy days, and will make reasonable accommodations, upon request, for such observances. If a student's religious observance is in conflict with the academic experience, they should inform their instructor(s) of the class or other school functions that will be affected. It is the student's responsibility to make the necessary arrangements mutually agreed upon with the instructor(s).

TITLE IX STATEMENT

The University of Southern Maine is committed to making our campuses safer places for students. **Because of this commitment, and our federal obligations, faculty and other employees are considered**

mandated reporters when it comes to experiences of interpersonal violence (sexual assault, sexual harassment, dating or domestic violence, and stalking). Disclosures of interpersonal violence must be passed along to the University's Deputy Title IX Coordinator who can help provide support and academic remedies for students who have been impacted. More information can be found online at <https://usm.maine.edu/campus-safety-project> or by contacting Sarah E. Holmes at sarah.e.holmes1@maine.edu or 207-780-5767.

If students want to speak with someone confidentially, the following resources are available on and off campus: University Counseling Services (207-780-4050); 24 Hour Sexual Assault Hotline (1-800-871-7741); 24 Hour Domestic Violence Hotline (1-866-834-4357).

Date	Content	Assignment
Mon Jan 17	No class (MLK holiday)	
Wed Jan 19	What cystic fibrosis is	
Mon Jan 24	What the body is	
Wed Jan 26	What our cells are	
Mon Jan 31	What proteins are	
Wed Feb 2	How genes work	
Mon Feb 7	genotype-phenotype mapping	Turn in drawing notebook
Wed Feb 9	What diabetes is	Get back drawing notebook
Mon Feb 14	What the digestive and metabolic systems are	
Wed Feb 16	How proteins work - binding specificity	
Mon Feb 21	No class (presidents day)	Better Know CFTR treatment Po
Wed Feb 23	nutrients	
Mon Feb 28	What metabolism is – ATP synthesis	
Wed Mar 2	What metabolism is – anabolism and catabolism	
Mon Mar 7	hormones - signaling and diabetes	Turn in drawing notebook
Wed Mar 9	autonomic - energy regulation	Get back drawing notebook
Mon Mar 14	No class (spring break)	
Wed Mar 16	No class (spring break)	
Mon Mar 21	What about performance? A tour of skeletal muscle and O2 transport	Better Know T2D Slide Presentat
Wed Mar 23	What muscle contraction is	
Mon Mar 28	What muscle fiber types are	
Wed Mar 30	What the cardiac cycle is	
Mon Apr 4	Dalton & Henry	
Wed Apr 6	How most O2 transported is transported	
Mon Apr 11	What the skeleton is	Better Know Muscle Fiber Type S
Wed Apr 13	How the skeleton is regulated	Turn in drawing notebook
Mon Apr 18	What SarsCoV2 is	Get back drawing notebook
Wed Apr 20	How proteins work : innate immunity	
Mon Apr 25	How proteins work: adaptive immunity	
Wed Apr 27	What a vaccine is	Turn in drawing notebook
Fri May 6	Finals Week	Better Know SarsCoV2 Poster
		Get back drawing notebook from

Schedule