

BIO303 PHYSIOLOGY
SPRING 2021 SYLLABUS
REMOTE - ASYNCHRONOUS

INSTRUCTOR: Dr. Meredith Ezak

- Virtual office hours via Zoom - information posted on UBLearns
- E-mail: mjs32@buffalo.edu

Teaching Assistant (TA): Kelly Nealon

- Virtual office hours via Zoom - information posted on UBLearns
- Email: kellynea@buffalo.edu

REMOTE LEARNING: The University has scheduled this course as an on-line, asynchronous remote offering in Spring 2021 semester. Lectures will be recorded twice per week, resembling the pacing and course delivery in a standard academic year, and delivered asynchronously. Students may view recorded lectures according to their individual day/time preferences, but quizzes and exams will be given on specific scheduled days and specified time-of-day windows during the semester. Students should be mindful of the scheduled dates for quizzes and exams so as not to fall behind in their studies.

COURSE DESCRIPTION AND OBJECTIVES: BIO 303 Physiology is a 3-credit hour course designed to follow the first-year major curriculum in Biological Sciences (BIO 200 Evolutionary Biology, and BIO 201 Cell Biology). The course presents basic principles of physiology, with in-class examples and assignments building upon foundational knowledge of the diversity of life and its evolutionary history, including the challenges of life in changing and extreme habitats, and upon solid understanding of cell structure and function, including energetics. An integrative and systems approach will be utilized, with the units of focus being the tissue and organism. The major systems topics for study will include (but not necessarily be completely defined by): barrier membranes, excitable tissues (nervous and sensory systems, and muscle), mechanics and locomotion, energetics and digestion, circulation and respiration, homeostasis (water, salt and nitrogen balance, and thermoregulation), chemical integration (endocrine and immune systems), reproduction, and environmental and conservation physiology. This course also has a substantial quantitative physico-chemical slant to it that reflects the field of physiology. Your background coursework in algebra and calculus will be more than sufficient to arm you with the necessary quantitative analytical skills needed in this course.

PREREQUISITES: Students should have sophomore-level or higher academic class status, have successfully completed the first-year introductory course sequence for majors (BIO 200 Evolutionary Biology and BIO 201 Cell Biology) or equivalent coursework, and be in good academic standing.

COURSE MATERIALS:

- **Sadava et al., *Life: The Science of Biology*, 11th edition OR 12th edition.** This single required textbook is the same text that was used in BIO 200 and BIO 201. If you already own the book, that's great, use it again in this Spring 2021 Semester. If you do not own the book, it is available new or used for your purchase at the University Bookstore on the North Campus, and from on-line booksellers.
- Occasional supplemental readings or worksheet materials will be announced during lectures and made available through UBlerns.

PROGRAM LEARNING OBJECTIVES: In the context of departmental program learning objectives, this course will, for the student:

- provide a breadth of knowledge of basic principles and concepts;
- provide depth within specialized areas;
- develop approaches for integration of information;
- encourage critical thinking and hypothesis building;
- provide skills in scientific communication;
- provide contemporary information; and
- encourage an appreciation of scientific values.

COURSE LEARNING OBJECTIVES: In the specific context of course learning objectives, students successfully completing this course will:

- ¹appreciate the functional organization of complex metazoans and the importance of specialized tissues and physiological systems in large organisms;
- ²understand the principles of organismal homeostasis and acclimation, and regulation by feedback loops and other mechanisms;
- ³recognize the importance of cellular processes underlying physiological acclimation, and of evolutionary adaptation to environment;
- ⁴master basic quantitative skills that are important for analyzing, understanding and presenting physiological data; and
- ⁵be prepared academically for upper-division elective coursework in neurobiology, endocrinology, immunology, and other fields.

ASSESSMENT: Student achievement of course learning objectives will be assessed formally by:

- four quizzes of multiple-choice questions, for testing knowledge acquisition (course learning objectives 1-3)
- three exams of combined multiple-choice and short-answer/calculation questions, for testing knowledge acquisition (course learning objectives 1-3) and quantitative skills mastery (course learning objective 4);
- a comprehensive final exam of combined multiple-choice and free-response questions, for measuring knowledge acquisition (course learning objectives 1-3), quantitative skills mastery (course learning objective 4), and preparation for advanced-level coursework (course learning objective 5).

PARTICIPATION: Course lectures will be recorded in Panopto and organized into weekly folders in UBLearns for asynchronous viewing. There will typically be two lectures posted per week that you are expected to complete. Lectures will be interspersed with “polls,” multiple-choice conceptual questions that provide an opportunity for you to assess your own understanding of material being presented during lecture. While these questions are not graded, your participation and completion of these questions will promote deeper comprehension and learning. At the conclusion of each topic, skill-building worksheets will also be available for download at UBLearns. These no-credit exercises should be completed to further assess your understanding of course material and your preparation for quizzes and exams. You should plan to come during office hours to review these exercises if you have difficulty answering them. Quiz and exam questions are based on information from lectures and assigned worksheets. You are responsible for all material presented during the lectures.

COURSE REQUIREMENTS AND

GRADING: This course is organized into four sections, with a quiz halfway through each section, and an exam at the conclusion of each section. **All quizzes and exams will be administered via UBLearns and MUST be completed on assigned days (as outlined in the following**

ASSESSMENTS AND GRADING		
Section 1	Quiz 1	10 points
	Exam 1	90 points
Section 2	Quiz 2	10 points
	Exam 2	90 points
Section 3	Quiz 3	10 points
	Exam 3	90 points
Section 4	Quiz 4	10 points
	Final Exam	90 points
Total points:		400 points

Course Schedule) between 8am-8pm, Eastern time. Overall scores for quizzes and exams, along with all questions and answers, will be made available to students three days after they are completed. Course grades will be determined by the following scheme:

- **Quizzes 1-4** will be given around the midpoint of each section. They will consist of multiple-choice questions. They are not cumulative in nature. These quizzes are intended to ensure students are keeping up with the material in each section, and not waiting until just prior to an exam to review notes and assess their understanding of the content. Once you begin a quiz you will have 20 minutes to complete it and must be done by 8pm (Eastern time).
- **Exams 1, 2 and 3** will focus on materials from defined sections of lectures. The **Final Exam** will emphasize material from the final section of lectures but will additionally and necessarily include questions and components of questions that are comprehensive, cumulative, and/or review in nature. Once you begin an exam (1-3) you will have 90 minutes to complete it and must be done by 8pm (Eastern time). The final exam will be given during final’s week during an assigned day (to be determined). It will be available during that assigned day between 8am-8pm and you will have 120 minutes to complete it.