



BIOL42A – Human Physiology

Contact Details

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Meeting Times

Lectures

All lectures will be prerecorded and made available, week-by-week, for students to view at times that are convenient for them.

Sections

Students will be divided into small learning groups based on their schedules. Organizing these groups based on schedules is meant to facilitate group zoom meetings for studying and learning together.

Office Hours

Students who wish to meet with Prof. Miara privately should schedule a zoom meeting at mutually convenient time using her online scheduler: miara.youcanbook.me

Course Description

Physiology, according to the American Physiological Society, is the study of life, and how genes, cells, tissues, and organisms function. The investigation of living systems at many levels includes molecular processes, cell function, and behavior of isolated tissues, organ systems and the whole organism. This course is designed to provide students with an understanding of the function and regulation of organ systems and integration of all systems in the human body. In addition, the importance of mechanisms of communication and control/ regulation to integrate all organ systems to maintain the homeostasis will be emphasized. Course content will include principles of homeostasis, neural & hormonal control mechanisms, sensory systems, muscle physiology, bone physiology, cardiovascular, respiratory, digestive and metabolism, renal, endocrine and reproductive systems.

Learning Goals:

1. Demonstrate an understanding of the basic facts of human physiology
2. Apply the basic facts of human physiology to interpret unfamiliar physiological situations
3. Connect different body systems to better understand human physiology
4. Formulate good questions in response to unfamiliar physiological situations



Course Requirements and Policies

Prerequisite:

BIOL15B Cells and Organisms, or equivalent.

Credit Hours:

Success in this four-credit course is based on the expectation that students will contribute at least 12 hours of study time per week in preparation for class. This includes watching lecture videos, completing readings, studying independently or with other students, and working on assignments.

Academic Honesty:

You are expected to be familiar with, and to follow, the University's policies on academic integrity. You are expected to be honest in all of your academic work. Please consult [Brandeis University Rights and Responsibilities](#) for all policies and procedures related to academic integrity. Allegations of alleged academic dishonesty will be forwarded to Student Rights and Community Standards. Sanctions for academic dishonesty can include failing grades and/or suspension from the university. [Citation and research assistance](#) can be found on the [university library website](#).

Late Work Policy:

Success in this course will require completing the course work each week and not falling behind. Dr. Miara understands that things come up and sometimes students need an extra day to complete work. For that reason, all students can automatically have a 24-hour extension whether they have an extension accommodation or not. You do not need to email Dr. Miara to request this extension. This is true for all assignments except two: the first draft of the final project and the peer review of the final project. These two assignments will not be accepted late. If you need an extension longer than 24 hours, such as for a serious medical or family emergency, please email Dr. Miara.

Evaluation

Assignments (96 points)

Learning Goals 2, 3, 4

- I. Weekly Responses (24 points) – Each week students will reflect on which concepts were most challenging for them to understand and will work to build connections between what they are learning and their lives outside of class. These will be submitted via google form no later than 11:59pm EST each Sunday.
- II. Perusall Readings (24 points) – Each week students will read assigned chapter(s) of the book "The Story of the Human Body: Evolution, Health, and Disease" by Daniel Lieberman. These readings will be posted online using the Perusall software. Students will be expected to post comments, questions and respond to their classmates comments and questions.



- III. Discussion Boards (48 points) – Each week students will write one exam-type short answer question that assesses understanding of the body system(s) studied that week. Additionally, each week students will answer two of their classmates' questions. The following week students will be required to grade the answers provided by their classmates. Students must complete all three tasks - post one question, answer two questions, grade answers - in order to receive credit.

Interactive Oral Assessments (80 points)

Learning Goals 1, 2, 3

You will be tested on your understanding of course content through interactive oral assessments (IOA). These are recorded conversations over zoom that are designed to evaluate student understanding and application of knowledge in a real-world context, rather than a traditional question-and-answer exam. You will schedule a time with Dr. Miara or the TA who will use prompts to guide the discussion, encouraging you to demonstrate their skills and explain your thinking. IOAs aim to simulate authentic workplace scenarios and assess higher-order thinking skills. These will occur twice: once at mid-term and once at the end of the session. You will be given case-studies of individuals with undiagnosed pathophysiologies including test results and a list of symptoms. As you interpret testing and make sense of these symptoms, you will be asked to consider how the body systems function typically and how disruption to those systems would result in the symptoms observed.

- I. Interactive Oral Assessment I (40 points)
Topics: Introduction, Homeostasis & Feedback, Nervous and Sensory Systems, Muscle and Motor Control, Bone, Endocrine
Week of June 30
- II. Interactive Oral Assessment II (40 points)
Topics: Digestion and Energy Balance, Cardiovascular, Pulmonary, Reproductive, Renal, Immune Systems
Week of August 4

Final Project (74 points)

Learning Goals 1, 2, 3, 4

Each student will write a thorough review of a disease or syndrome of their choice. The review will consider the biological origin of the disease or syndrome, the effects and symptoms, path to diagnosis, common complications and treatments, and prognosis. Students will be expected to conduct research using reputable online sources as well as primary scientific literature. Students will be placed in groups to provide each other with feedback on early drafts. See the final project documents on Moodle for more information and examples.

Due June 15, 11:59pm EST: Topic and sources (5 points)
Due June 29, 11:59pm EST: Outline (15 points)
Due July 27, 11:59pm EST: First Draft (15 points)
Due August 3, 11:59pm EST: Peer Review (15 points)
Due August 10, 11:5pm EST: Final Draft (24 points)



Letter Grades

Numerical grades will be converted to letter grades as follows:

Points	Letter Grade
232-250	A
225-231	A-
217-224	B+
207-216	B
200-206	B-
192-199	C+
182-191	C
175-181	C-
167-174	D+
157-166	D
150-156	D-
0-149	E



Summary of Course Assessments

Class Element	Grade Points	Learning Goals	Due date
Assignments	96 points	1, 2, 3, 4	
Weekly Responses	24 points	1, 3, 4	Weekly
Perusall Readings	24 points	1, 2, 3	Weekly
Discussion Board	48 points	1, 2, 3, 4	Weekly
Tests	80 points	1, 2, 3	
Interactive Oral Assessment I	40 points	1, 2, 3	Week of June 30
Interactive Oral Assessment II	40 points	1, 2, 3	Week of August 4
Final Project	74 points	1, 2, 3, 4	
Topic Choice and List of Sources	5 points	1, 2, 4	June 15
Outline	15 points	1, 2, 4	June 29
Rough Draft	15 points	1, 2, 3, 4	July 27
Peer Feedback	15 points	1, 2, 3, 4	August 3
Final Draft	24 points	1, 2, 3, 4	August 10

Essential Resources

Accommodations

Brandeis seeks to create a learning environment that is welcoming and inclusive of all students, and I want to support you in your learning. If you think you may require disability accommodations, you will need to work with Student Accessibility Support (SAS). You can contact them at 781-736-3470, email them at [Student Accessibility Support](#), or visit the [Student Accessibility Support home page](#). You can find helpful student FAQs and other resources on the SAS website, including guidance on how to know whether you might be eligible for support from SAS.

If you already have an accommodation letter from SAS, please provide me with a copy as soon as you can so that I can ensure effective implementation of accommodations for this class. In order to coordinate exam accommodations, ideally you should provide the accommodation letter at least 48 hours before an exam.



Course Materials

Textbook: Vander's Human Physiology, 16th Edition, E.P. Widmaeir, H. Raff, KT Strong. 2022. McGraw-Hill. You are welcome to use older editions although readings listed below may be slightly different.

If you are having difficulty purchasing course materials, please make an appointment with your Student Financial Services or Academic Services advisor to discuss possible funding options and/or textbook alternatives.

Moodle

Moodle is the Brandeis learning management system: <https://moodle.brandeis.edu>. Login using your UNET ID and password. Course lectures, assignments, links to section, announcements, tests and final project information will all be posted on the Moodle page for this course. Please visit this page regularly.

Perusall

We will be using Perusall to share and discuss primary scientific literature each week. This is free software although you will need to purchase access to the book we will be reading together. Please create a Perusall account using your Brandeis email address.

Library

The Brandeis Library collections and staff offer resources and services to support Brandeis students, faculty and staff. These include workshops, consultations, collaboration, materials and instruction on emerging trends in technologies such as machine learning, emerging trends in research such as data visualization, and emerging trends in scholarship such as open access. Librarians at the Circulation Desk, Research Help Desk, Archives & Special Collections, Sound & Image Media Studios, MakerLab, AutomationLab, and Digital Scholarship Lab are available to help you.
<https://www.brandeis.edu/library/about/index.html>

Student Support

Brandeis University is committed to supporting all our students so they can thrive. The following resources are available to help with the many academic and non-academic factors that contribute to student success (finances, health, food supply, housing, mental health counseling, academic advising, physical and social activities, etc.). Please explore the many links on this Support at Brandeis page (<https://www.brandeis.edu/support/undergraduate-students/browse.html>) to find out more about the resources that Brandeis provides to help you and your classmates to achieve success.



Course Schedule

Dates	Lecture Topics	Due 11:59pm EST Sunday
Before June 4	none	Read Syllabus Introduce yourself on google slides Complete Availability Survey
June 4 – June 8	Introduction Homeostasis and Feedback Nervous System I	Weekly Response 1 Perusall Reading 1 Discussion Board 1
June 9 – June 15	Nervous System II Sensory Systems	Weekly Response 2 Perusall Reading 2 Discussion Board 1 & 2 Project Topic and Sources
June 16 – June 22	Muscle and Motor Control	Weekly Response 3 Perusall Reading 3 Discussion Board 2 & 3
June 23 – June 29	Skeletal System Endocrine System	Weekly Response 4 Perusall Reading 4 Discussion Board 3 & 4 Project Outline
June 30 – July 6	Interactive Oral Assessments 1	None
July 7 – July 13	Digestive System Energy Balance	Weekly Response 5 Perusall Reading 5 Discussion Board 4 & 5
July 14 – July 20	Cardiovascular System Pulmonary System	Weekly Response 6 Perusall Reading 6 Discussion Board 5 & 6
July 21 – July 27	Reproductive System Renal	Weekly Response 7 Perusall Reading 7 Discussion Board 6 & 7 Project First Draft
July 23 – August 3	Immune System	Weekly Response 8 Perusall Reading 8 Discussion Board 7 & 8 Project Peer Feedback
August 4 – August 10	Interactive Oral Assessments 2	Discussion Board 8 Project Final Draft