

BIOL2117 Spring 2022 Syllabus

"Human Physiology"

Course Homepage:

The BIOL2117 Canvas homepage will contain all of the information found on this handout plus a whole lot more. Please refer to the course homepage for the most up-to-date information including office hours, problem sets/keys, and exam results.

Class: Mondays from 3 to 6: Start: 1/31/22

Personnel:

Course Director: Dr. John Stein (John_Stein@brown.edu)

Course Instructor: Andrea Sobieraj (Andrea_Jeanne_Sobieraj@brown.edu)

Textbook: Vander's Human Physiology 13th, 14th or 15th edition - McGraw-Hill

The Vander text is required for the course and any of the above editions are fine. Two other useful texts from which data and figures will be used for class presentation and discussion are Guyton & Hall, Human Physiology and Mechanisms of Disease, 6th edition and Boron and Boulpaep, Medical Physiology, 2nd edition. There will be no required reading from these texts.

Additional Reading Material and Software: On occasion, supplemental reading material and activities will be posted on the Canvas website. These additional assignments will include supplemental notes from the instructor, primary literature or review articles and access to educational software.

Course Information

BIOL2117 provides an advanced introduction to many physiological systems. After a quick review of fundamental concepts in diffusion, cell physiology, membrane potential and cell signaling, we will cover the endocrine, nervous, musculoskeletal, cardiovascular, respiratory, renal and gastrointestinal systems. We will focus on normal human physiology and often times incorporate discussions of the pathophysiology of certain diseases. Toward the end of the course we will cover the integrative topics of sports physiology, acid/base balance, diabetes and a set of clinical cases that require application of physiology knowledge accumulated throughout the semester.

We strive to create a positive and welcoming environment to all, where feedback is valued and social learning environments are not stagnant. Students present with differences in prior knowledge sets, perspectives on information, and various approaches to articulating facts and opinions. The diversity that you represent is viewed as an intrinsic resource, strength and benefit. We are committed to present course materials and discussions that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

I. Lectures

Lectures will start promptly at 3pm and finish at 6pm with two breaks of 5 – 10 minutes. Students are encouraged to ask questions during lecture, during the break, and after lecture.

II. Grades

Final grades are determined by performance on weekly quizzes, 3 exams and a final writing assignment. The relative weighting of these three factors is as follows:

Weekly Quizzes (best 9 of 10)	40%
Exam 1	20%
Exam 2	20%
Exam 3	20%

III. Weekly Quizzes and Exams and Optional Extra Credit Writing Assignment

Each week there is an open book quiz on content covered in class. After class on Monday, you can review the material and take the online quiz whenever you are ready, but before the start of class the following Monday. The format of these quizzes is multiple choice and short answer questions and they are open book and open notes assessments. Once you start, you will have a limited but generous time window within which to complete the quiz. We do not give a quiz on Mondays where exams 1 and 2 are given and we drop the lowest quiz grade.

The three exams are taken during class time and will be closed book/closed notes assessments. These exams will cover the content of several weeks and the format will be similar to the quizzes, just more points and closed book. If you have been keeping up with the material each week and reviewing quiz questions and answers you will be well prepared for these exams.

While the quizzes and exams are non-cumulative per say, retention of knowledge is essential for success on subsequent parts of the course. The website has many examples of quiz and exam questions to allow you practice before taking the weekly quizzes and three exams.

Requests for quiz or exam re-grades are handled by appointment only. You must set up an appointment with me or Andrea Sobieraj within one week of the day your score is released. We can meet after class or during office hours to discuss questions.

An optional extra credit writing assignment is available to students who wish to improve their standing in the class. We will provide the class with regular feedback on how you are doing as the semester progresses. If you wish to improve your score, you can discuss using this optional writing assignment by making an appointment with me. The goal will be to identify a research article that overlaps course content and write a review using prompts and a grading rubric.

IV. Online Office Hours

Weekly *online* office hours will be held on a day and at a time that suits your schedules. (We will discuss this at our first meeting.) These office hours will be via WebEx or Zoom.

Vander 13th, 14th and 15th ed

Week	Lectures Topics	Readings	Assignments
1 (1/31)	Introduction Homeostasis Cell biology	46-57) ; Ch3 Section C (68-72; (45-56; Ch3 Section C 66-71; (15th; Ch3 Section C 66-71)	Quiz 1 (Week 1 content) (Due by 2/7)
2 (2/7)	Diffusion Transport Osmosis	Ch4 (97-101); Protein (34-39); (101-114) (96-101, 34-38); (101-113) (15th: 34-38, Ch4 95 -112)	Quiz 2 (Week 2 content) Due by 2/14)
3 (2/14)	Cell Signaling Endocrine system	Ch5 (120-135) (118-131) Ch6 Section A (139-144) (137-142) (333-346...details on ACTH & TSH only!) (331-341) (15th; 118-131 137-142, 333-347)	Quiz 3 (Due 2/21)
4 (2/21)	Resting & Active Membrane Potentials	Nervous System Supplement Ch6 Section B&C (145-172) (143-170) (144-170)	Quiz 4 (Due 2/28)
5 (2/28)	Visceral & Somatic Motor system & Skeletal Muscle	(179-184; 257-269; 272-274; 281-284) (177-182; 256-268; 271-272; 279-282) (176-182, 257-282)	No Quiz due to Exam 1
6 (3/7)	Exam 1 (in class) (Weeks 1-5 content) Cardiovascular: Heart	(363-385); (361-387) (363-389)	Quiz 5 (Due 3/14)
7 (3/14)	Cardiovascular: Blood Flow	(387-422); (388-424) (390-426)	Quiz 6 (Due 3/21)
8 (3/21)	Respiratory I.	(447-468); (452-470) (446-471)	Quiz 7 (Due 3/28)
9 (3/28)	Respiratory II.	(468-472); (471-476) (471-477)	No Quiz due to Exam 2
10 (4/4)	Exam 2 (in class) (Weeks 6-9 content) Renal 1&2	(491-522); (485-514) (488-518)	Quiz 8 (Due 4/11)
11 (4/11)	Renal (finish) Acid/Base Sports Physiology	(524-528); (516-520) (274-280; 418-421; 478-479; 584-585) (272-278; 418-421; 473-474; 576-577) (275-279, 419-425, 584-588,)	Quiz 9 (Due 4/18)
12 (4/18)	Gastrointestinal, Feeding/Metabolism	(534-565); (573-585; 598-600) (527-557) (565-577; 590-592) (531-562; 572-585, 589-592))	Quiz 10 (Due 4/25)
13 (4/25)	Clinical cases	(Selected Clinical Cases, TBD)	No Quiz due to Exam 3
14			Exam 3 (in class) (Weeks 10-13 content)