

SYSTEMS PHYSIOLOGY (01:146:356 Section 01)

Fall 2021 COURSE SYLLABUS

3 credits

Instructor

Cassie Nelson, Ph.D.

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Synchronous Course Meeting Times: Mondays and Thursdays 11:00AM-12:00PM on Zoom via Canvas

Office Hours: Tuesday and Fridays 11:00AM-12:00 PM on Zoom via Canvas

Individual appointments: See schedule & book on Canvas

Course Meeting Times

The course is offered with both synchronous and asynchronous instruction and runs from Thursday September 2nd through Thursday December 23rd.

There are four required, *synchronous* exam days/times and they are as follows:

Exam 1 – Monday September 27th, 11:00AM-12:00PM

Exam 2 – Monday October 25th, 11:00AM-12:00PM

Exam 3 – Thursday December 2nd, 11:00AM-12:00PM

Cumulative Final Exam – Day/Time TBA

Learning Assistants

Weekly LA study sessions will be available. More information available on Canvas.

Course Materials

Textbook- **Vander's Human Physiology, 15th ed.**

By Eric Widmaier, Hershel Raff, Kevin Strang

Publisher: McGraw Hill

McGraw-Hill Connect Access is **NOT REQUIRED**. However, for additional practice and studying, Connect has some excellent resources.

Purchase options: McGraw Hill E-Book, Textbook Rental, Loose-leaf purchase

ISBN-13: 9781259903885

Learning Goals

By ***actively participating in and interacting with*** this course i.e keeping up with scheduled assignments, undertaking the recommended reading, using additional resources when required such as the learning assistant-organized reviews, my office hours, supplementary study videos and more, you will:

1. Master factual and conceptual knowledge in Systems Physiology that will provide a solid foundation for success in advanced training and professional careers.
2. Develop an ability to summarize, integrate and organize information.
3. Develop your ability to use scientific reasoning to evaluate the potential for current research and new discoveries to improve our understanding of Systems Physiology and its relevance to human health and to our society

Course Description

This course is an upper-level course and assumes a basic level of familiarity with several key physiological systems. The focus of this course will be to develop the depth of your understanding of key aspects of the following physiological systems: nervous, endocrine, muscular, cardiovascular, respiratory, renal, digestive and reproductive, with a special emphasis on cardiovascular and renal physiology.

Current Academic Integrity Policy

Please use this link to check your understanding of Rutgers University's academic integrity policy: <http://academicintegrity.rutgers.edu/>

Violations of this policy include but are not necessarily limited to cheating, fabrication, plagiarism, denying others access to information or material, and facilitating violations of academic integrity. At the start of each exam, you will be asked to sign the Honor Pledge: *"On my honor, I pledge that I have neither given nor received any unauthorized aid on this exam."*

Learning Support

Rutgers University provides various resources to help you be successful in your studies. These include Rutgers RIOT, Searchpath, RefWorks (<http://www.libraries.rutgers.edu/tutorials>), Academic Support Programs: <http://newbrunswick.rutgers.edu/academics/academic-support>

Exam absences

For unforeseen absences such as the sudden onset of a significant illness on the morning of an exam, you must:

- a) Contact me directly (by my email) within 24 hours after the missed examination
- b) Provide me official documentation to support the reason for your absence
- c) Do a make-up exam (usually administered in an oral format) on the designated make-up day

If you know you will not be able to attend any of the examinations in this course due to religious holidays, significant family events, etc, you must let me know AS SOON AS POSSIBLE so an appropriate makeup can be scheduled. If you do not follow the above procedure, the instructor reserves the right to assign your grade for that exam as a zero.

Assessments/Grading

Your grade in this class will be based off the following assessments. Each is explained in further detail below.

Exams (3):	45% (15% each)
Cumulative Final Exam (1):	20%
Weekly Quizzes (10):	10%
Concept Checks (22):	10%
Interview Essays (2):	10%
Attendance:	5%

Exams: There will be three, 40 question, 60 min exams. Exam questions are mostly multiple choice and are administered through Canvas. Grades are posted to Canvas once the scores are received. A cumulative final exam will be administered on the University-assigned final examination day and time and will be 80 multiple-choice questions in a 2-hour time period.

***** Anyone involved in activities before or during an exam that suggest to the Professor that you are using unfair practices and/or outside information to increase your exam grade will be reported to the Office of Academic Integrity. The instructor reserves the right to assign a student a ZERO if they are caught engaging in unfair practices during exams. Online exams are open book and open note but should be your work and your work only. Proctoring software is not required for exams.***

Exams will be held during the regular class period (2:00-3:00PM) on the following days: September 27, October 25, and December 2. The cumulative final day and time will be announced when it becomes available.

Weekly Quizzes: Most Sunday nights at 11:59pm, a weekly Canvas quiz is due. These will cover lecture material from the four lectures from that week. They will consist of 10 multiple choice questions designed by the professor and will look more like exam questions (more difficult than concept checks). Students will have 15 minutes to answer

the questions and 1 attempt per quiz. The questions are shuffled from a pool of 15 or more questions. The lowest quiz grade will be dropped when calculating the final grade.

Concept Checks: Following each set of two mini-lectures and discussion section, students will need to complete a short, multiple-choice 10 question “concept check,” administered through Canvas quizzes. These are due on Mondays and Thursdays at 11:59pm each week of the course, unless otherwise indicated. There is a 30 min time limit and students may take these up to 3 times. I will take the highest score for each quiz. When calculating the final grade, the lowest two concept check quiz scores will be dropped.

Interview Essays: Posted to Canvas are several interviews that Dr. Nelson has done with professionals in the field of physiology and healthcare. It is highly recommended that students listen to all these interviews to hear the different paths that individuals have taken to a fulfilling career. Two essays will be due throughout the semester with deadlines of October 7th and November 4th at 11:59pm. In each essay, students should discuss why one interview was impactful to them. In the second essay, students will add a paragraph to reflect where they are in terms of their school/career plans. A more detailed prompt and rubric are available on Canvas.

Attendance: Attendance will be taken during required synchronous sessions. All students are required to come to class discussions on Monday and Thursday as we will be actively working with the material from the lectures covered on the concept check due that evening. Because life, technology, and zoom issues come up, students who have attended 80% of the Mon/Th discussions will receive full credit for attendance (100%). Students who attend fewer than 80% of the meetings will receive that percentage for the attendance grade.

Tentative Grading Scale

This is a TENTATIVE grading scale and the instructor reserves the right to make adjustments to this scale.

A	90.00-100%
B+	85.00-89.99%
B	80.00-84.99%
C+	75.00-79.99%
C	67.00-74.99%
D	60.00-66.99%
F	<60.00%

Student-Wellness Services & Scarlet Listeners

Just In Case Web App: <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

(732) 247-5555 / <http://www.scarletlisteners.com/>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901

www.rhscaps.rutgers.edu/

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901

www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. ***Please share this letter with your instructor and discuss the***

accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Recommended Weekly Schedule

Monday	Tuesday	Wednesday	Thursday	Friday	Sat	Sunday
<p>Listen to 2 mini lectures before class</p> <p>Attend class discussion at 11am</p>	<p>Attend office hours at 11am (optional)</p>	<p>Listen to 2 mini lectures for Thursday</p>	<p>Attend class discussion at 11am</p>	<p>Review material from the week</p> <p>Attend office hours at 11am (optional)</p> <p>Take weekly quiz that's due on Sunday</p>	<p>Off Day</p>	<p>Read assigned readings, print out PPTs for next week, start listening to lectures</p>
<p>Concept Check Due</p> <p>Attendance required from 11am-12pm</p>			<p>Concept Check Due</p> <p>Attendance required from 11am-12pm</p>			<p>Weekly Quiz Due</p>

Tentative Topical & Assignment Course Schedule

The next two pages highlight topics covered in each class period, required readings, and assignments due. Except for exams, all assignments are due at 11:59pm on the day indicated.

Unit	Date	Topic	Readings	Lecture	Assessments
M O D U L E O N E	Thu Sept 2	Homeostasis	1.3-1.5	1.1	Concept Check 1.1
		Local & Action Potentials	6.6, 6.7	1.2	
	Wed Sept 8	Chemical Synapses	6.8-6.13	1.3	Concept Check 1.2
		General Senses & Vision	7.1, 7.6	1.4	
	Thu Sept 9	Other Sensory Systems	7.7-7.9	1.5	Concept Check 1.3
		Neuromuscular Junction	9.1	1.6	
	Sun Sept 12				Quiz 1
	Mon Sep 13	Muscle Contraction	9.2 9.3-9.4	1.7 1.8	Concept Check 1.4
		Muscle Mechanics			
	Thu Sep 16	Fatigue & Fiber Types	9.5-9.6	1.9	Concept Check 1.5
		Smooth & Cardiac Muscle	9.8-9.10	1.10	
	Sun Sept 19				Quiz 2
	Mon Sep 20	Intro to Endocrine	11.1-11.7	1.11	Concept Check 1.6
Pituitary, Thyroid Hormones		11.8-11.12	1.12		
Thu Sept 23	Adrenal Hormones	11.13-11.15	1.13	Concept Check 1.7	
	Other Hormones	11.16-11.22	1.14		
Sun Sep 26				Quiz 3	
Mon Sep 27		EXAM 1 @ 11:00AM	Ch 1,6,7,9, 11	Exam 1	
M O D U L E T W O	Thu Sep 30	Blood & Blood Flow	12.1	2.1	Concept Check 2.1
		Hemodynamics	12.2-12.3	2.2	
	Mon Oct 4	Cardiac Electrophysiology	12.4	2.3	Concept Check 2.2
		The EKG	12.4	2.4	
	Thu Oct 7	The Cardiac Cycle	12.5	2.5	Concept Check 2.3
		Cardiac Output	12.6	2.6	Interview Essay #2 Due
	Sun Oct 10				Quiz 4
	Mon Oct 11	Vessels, Blood Pressure	12.8-12.12	2.7	Concept Check 2.4
		Exercise Effects on Heart	12.13,12.18	2.8	
	Thu Oct 14	Cardiac Pathologies	12.20-12.22	2.9	Concept Check 2.5
		The Breath Cycle	13.1-13.2	2.10	

	Sun Oct 17				Quiz 5
	Mon Oct 18	Lung Compliance & Volumes	13.3, 13.4	2.11	Concept Check 2.6
		Exchange of O ₂ and CO ₂	13.5-13.8	2.12	
	Thu Oct 21	Control of Respiration	13.9	2.13	Concept Check 2.7
		Exercise & Respiration	13.9, 13.10	2.14	
	Sun Oct 24				Quiz 6
	Mon Oct 25	Exam 2 @ 11:00AM	Ch 12, 13		Exam 2
M O D U L E T H R E E	Thu Oct 28	Intro to Renal System	14.1-14.2	3.1	Concept Check 3.1
		Glomerular Filtration	14.3	3.2	
	Mon Nov 1	Na and Water Balance	14.6-14.7	3.3	Concept Check 3.2
		Concentrating Urine	14.7	3.4	
	Thu Nov 4	Renin Angiotensin System	14.8	3.5	Concept Check 3.3
		Renal Control of Other Ions	14.9-14.20	3.6	Interview Essay #2 Due
		Sun Nov 7			Quiz 7
	Mon Nov 8	Digestive Overview	15.1-15.4	3.7	Concept Check 3.4
		Stomach	15.5	3.8	
	Thu Nov 11	Small Intestine Physiology	15.6	3.9	Concept Check 3.5
		Other Organs/ Pathologies	15.7-15.8	3.10	
		Sun Nov 14			Quiz 8
Mon Nov 15	Reproductive Principles	17.1-17.4	3.11	Concept Check 3.6	
	Male Reproduction	17.5-17.8	3.12		
Thu Nov 18	Female Reproduction	17.12-17.15	3.13	Concept Check 3.7	
	Pregnancy/Development	17.20-17.23	3.14		
	Sun Nov 21			Quiz 9	
F I N A L P R E P	Mon Nov 22	Special Topics in Physiology: Diabetes	16.2, 16.5	3.15	Concept Check 3.8
	<i>Wednesday 11/24-Sunday 11/28 – Thanksgiving Break</i>				
	Mon Nov 29	No Classes, Wednesday Schedule			
	Thu Dec 2	Exam 3 @ 11:00AM	Ch 14,15,16		Exam 3
	Mon Dec 6	Special Topics in Physiology: The Liver	Selections	4.1	Concept Check 4.1
	Thu Dec 9	Special Topics in Physiology: Gut Biome	Selections	4.2	Concept Check 4.2
	Sun Dec 12				Quiz 10
	Mon Dec 13	Review Session			
	Final Exam – TBA (Cumulative)				