

SYSTEMS PHYSIOLOGY (01:146:356)

Spring 2024 COURSE SYLLABUS

3 credits

Instructor

Cassie Nelson, Ph.D.

Email: cassandra.nelson@rutgers.edu

Course Meeting Times & Location: Mondays & Thursdays 8:30-9:50am

ARC 103

Office Hours: In Person Office Hours

Mondays 10:00-11:00am, SERC 206

Thursdays 10:00-11:00am, SERC 208

Zoom Office Hours

Tuesdays 2:00-3:00pm

Fridays 2:00-3:00pm

Zoom link available on Canvas

Individual appointments: Available as requested on Wednesdays and Thursdays, email to inquire.

Course Meeting Times

The course is IN-PERSON, with synchronous instruction and runs from Tuesday January 16th through Wednesday May 8th.

There are three exams that will be administered during class time and a cumulative final on the university-assigned day.

Exam 1 – Thursday February 15thExam 2 – Monday March 25thExam 3 – Thursday April 25th

Cumulative Final Exam – Thursday May 2nd, 9:00-11:00am

Learning Assistants

Weekly LA study sessions will be available. See Canvas for more information.

Course Materials

Textbook- **Vander's Human Physiology, 16th ed.**

By Eric Widmaier, Hershel Raff, Kevin Strang

Publisher: McGraw Hill

Our course is enrolled in McGraw Hill's FIRST DAY program, which means that you have access to the textbook and Connect within Canvas as you click on a Connect assignment. The \$82.43 discounted price is charged to your student fee account. Since Connect assignments are part of the course, the textbook + Connect access is required. If you would like an optional looseleaf copy of the textbook, a discounted price is available through Connect.

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 email) BEFORE, but no later than 24 hours after the missed examination.
- b) Provide me official documentation to support the reason for your absence
- c) Do a make-up exam on the designated make-up day (usually in oral format)

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.

Exam days are not optional. They are important days in the course that need to be prioritized above work schedules. Make-up exams will only be given to students who provide a documented, legitimate reason for not being at the regularly scheduled exam.

Assessments/Grading

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

Exams (3):	51% (17% each)
Cumulative Final Exam (1):	20%
Weekly Quizzes (10):	8%
Concept Checks (21):	6%
Connect Pre-Lecture Assignments (21):	5%
Interview Essays (2):	5%
Attendance (~12):	5%

Exams: There will be three, 40 question, 80-minute exams. Exam questions are multiple choice. 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.

Exams will be held during our regular class period on the following days: February 15th, March 25th, and April 25th.

The cumulative final is on Thursday May 2nd from 9-11am.

Weekly Quizzes: Most Sunday nights at 11:59pm, a weekly Canvas quiz is due. These will cover lecture material from the previous 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.

Pre-Lecture Connect Assignments (PL): Prior to each lecture, a short, active reading assignment administered in McGraw Hill Connect is due by 8:30AM on Mondays and Thursdays. The purpose of these assignments is to familiarize students with the vocabulary and content that will be discussed that day. The assignments are intended to help students purposefully read the textbook. Assignments are graded on completion, not accuracy, and the lowest two will be dropped when calculating the final grade.

Concept Checks: Following each class period, 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 grade 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 February 4th and March 3rd. 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** at random, in approximately 12-14 class sessions. Periodically, questions that will be on the exams will be shown during class and only the students present in class will have access to these questions. Lecture recordings will not be available.

Late Work

All assignments are available to you well ahead of time; therefore, late work is not accepted. Be proactive and do assignments early.

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
Lecture 8:30-9:50am In person office hours 10-11am	Zoom office hours 2-3pm		Lecture 8:30-9:50am In person office hours 12-1pm	Zoom office hours 2-3pm		Print out PPTs & check out assigned readings for next week
Attendance required from 8:30- 9:50am Pre-lecture reading due at 8:30am Concept Check Due at 11:59pm			Attendance required from 8:30- 9:50am Pre-lecture reading due at 8:30am Concept Check Due at 11:59pm			Weekly Quiz Due

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 Jan 18	Homeostasis Local/Action Potentials	1.3-1.5 6.6, 6.7	1	PL 1.1 CC 1.1
	Mon Jan 22	Chemical Synapses Drugs & Synapses	6.8-6.13	2	PL 1.2 CC 1.2
	Thu Jan 25	Phototransduction Neuromuscular Junction	7.6 9.1	3	PL 1.3 CC1.3
	Sun Jan 28				Quiz 1 - Neuro
	Mon Jan 29	Muscle Contraction Muscle Mechanics	9.2 9.3-9.4	4	PL 1.4 CC 1.4
	Thu Feb 1	Fatigue & Fiber Types Smooth & Cardiac Muscle	9.5-9.6 9.8-9.10	5	PL 1.5 CC 1.5
	Sun Feb 4				Quiz 2 -Muscle Interview Essay #1 Due
	Mon Feb 5	Intro to Endocrine Pituitary, Thyroid Hormones	11.1-11.7 11.8-11.12	6	PL 1.6 CC 1.6
	Thu Feb 8	Adrenal Hormones Pancreatic Hormones	11.13-11.15 16.2	7	PL 1.7 CC 1.7
	Sun Feb 11				Quiz 3 - Endocrine
	Mon Feb 12	Calcium Homeostasis Exam 1 Review	11.16-11.22	8	
	Thu Feb 15	EXAM 1 Covering Ch 1,6,7,9,11,16			Exam 1
M O D U L E T W O	Mon Feb 19	Blood & Blood Flow Hemodynamics	12.1 12.2-12.3	9	PL 2.1 CC 2.1
	Thu Feb 22	Cardiac Electrophysiology The EKG	12.4 12.4	10	PL 2.2 CC 2.2
	Sun Feb 25				Quiz 4 – Cardio I
	Mon Feb 26	The Cardiac Cycle Cardiac Output	12.5 12.6	11	PL 2.3 CC 2.3
	Thu Feb 29	Vessels, Blood Pressure Exercise & Heart	12.8-12.12 12.13,12.18	12	PL 2.4 CC 2.4
	Sun March 3				Quiz 5 – Cardio II Interview Essay #2 Due
	Mon March 4	Cardiac Pathologies The Breath Cycle	12.20-12.22 13.1-13.2	13	PL 2.5 CC 2.5
	Thu March 7	Lung Compliance & Volumes Exchange of O ₂ and CO ₂	13.3, 13.4 13.5-13.8	14	PL 2.6 CC 2.6
	Sun Mar 17				Quiz 6 - Respiratory
	<i>Saturday March 9-Sunday March 17 – Spring Break</i>				
	Mon March 18	Control of Respiration Exercise & Respiration	13.9 13.9, 13.10	15	PL 2.7 CC 2.7
	Thu March 21	Clinical Respiration Exam 2 Review		16	
	Mon Mar 25	Exam 2 Covering Ch 12 and 13			Exam 2

M O D U L E T H R E E	Thu Mar 28	Intro to Renal System Glomerular Filtration	14.1-14.2 14.3	17	PL 3.1 CC 3.1
	Mon April 1	Na and Water Balance Concentrating Urine	14.6-14.7 14.7	18	PL 3.2 CC 3.2
	Thu April 4	Renin Angiotensin System Renal Control of K ⁺ , H ⁺	14.8 14.9-14.20	19	PL 3.3 CC 3.3
	Sun April 7				Quiz 7 - Renal
	Mon April 8	Digestive Overview Stomach & Accessory Organs	15.1-15.4 15.5	20	PL 3.4 CC 3.4
	Thu April 11	Small Intestine Physiology Other Organs/ Pathologies	15.6 15.7-15.8	21	PL 3.5 CC 3.5
	Sun April 14				Quiz 8 - Digest
	Mon April 15	Reproductive Principles Male Reproduction	17.1-17.4 17.5-17.8	22	PL 3.6 CC 3.6
	Thu April 18	Female Reproduction Pregnancy/Development	17.12-17.15 17.20-17.23	23	PL 3.7 CC 3.7
	Sun April 21				Quiz 9 - Repro
	Mon April 22	Misc Topics Reproduction Exam 3 Review		24	
	Thu Apr 25	Exam 3 Covering Ch 14,15,17			Exam 3
F I N A L	Mon Apr 29	Final Exam Review Day		25	
	Thur May 2	FINAL EXAM			
	<p><i>Final Exams begin on Thursday May 2nd</i> <i>Ours is scheduled for 5/2 from 9-11am.</i></p>				