

Endocrinology (4 credits)

11:067:450, Fall 2020

Live Meetings via Canvas Conferences (US Eastern Standard Time)

Mondays and Wednesdays, 2:15 PM – 3:35 PM and

Tuesdays, 12:50 PM – 1:45 PM

Synchronous Remote Mode of Instruction

Instructor: Aparna M Zama, Ph.D

Office Location: Bartlett Hall, 209A

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Office Hours: By appointment, email or use aparnazama.youcanbook.me

Course Website, Resources and Materials

- All lectures and related resources will be added to canvas.rutgers.edu
 - Lecture recordings will be available on **Canvas Conferences** and **Modules**
 - It is the responsibility of the student to access the Canvas site regularly and keep up with the content and the assessments.

Technology requirements

- Computer (Macintosh – OS X or newer, or PC – Windows 8 or newer) with high-speed internet connection
- Speakers, built-in or external, webcam, and microphone
- More information on <https://coronavirus.rutgers.edu/technology-resources-for-students/>
- Online proctoring will be utilized during exams. Therefore, by signing up for this course, students are giving consent to being recorded for authentication. Privacy should be maintained during the exams.

Required Textbook

- Basic Medical Endocrinology by H. Maurice Goodman, 4th Edition
- Academic Press/ Elsevier / ISBN 978-0-12-373975-9

Prerequisites

General Biology 01:119:115-116. Juniors and Seniors only. Highly recommend completion of Integrative Physiology (11:067:300) or Systems Physiology (01:119:356) prior to taking this course.

Course Description

Endocrinology is an upper-level science course focused on the endocrine system in domestic animals and humans. Students will learn the biology behind the structure and function of endocrine and neuroendocrine glands as well as the biosynthesis and chemistry of various hormones. In addition, this course will integrate basic and clinical aspects of endocrinology, and students will learn about endocrine pathologies and how they affect mammalian physiology. In addition, disruption of endocrine function by environmental exposure to endocrine-disrupting chemicals and their impact on individual and global health will be discussed.

Course Learning Goals (see <https://animalsciences.rutgers.edu/undergraduate/mission.htm> for the list of **Animal Science program learning goals (PLGs)**)

The students will

1. Develop a thorough understanding of the mammalian endocrine system. (PLG 3)
Assessment: Three hourly exams and weekly quizzes and assignments.
2. Critically examine the role of hormones in the physiology of the organism and the maintenance of

homeostasis. (PLG 3)

Assessment: Exams will consist of questions that involve critical thinking and analysis.

- Utilize basic biological concepts to examine endocrine pathologies resulting from aberrant hormone signaling. (PLGs 2&3)

Assessment: Three hourly exams and weekly quizzes. Periodic assignments will be given to review prior knowledge in biology, chemistry, and physiology.

- Communicate their understanding of the mechanisms of hormone action and endocrine pathologies. (PLG 6)

Assessment: Essays will be assessed for content as well as clarity of expression and analysis of case studies.

Assessments

Three one-hour exams (20% each) 60%

Ten 15-min quizzes (~4% each) 40%

All assessments will be online and online proctoring will be set-up. Therefore, webcams will need to be activated at the instructor's request.

Absence Policy

There are no make-ups for quizzes and exams. The 15-min quizzes and the 60-min exams will be open in class hours, on the scheduled dates. If there are requests for make-up dates, instructor has to be informed 24 hours BEFORE the scheduled exam. No excuses will be accepted after the quiz/exam dates have passed. If you have standing religious observations/holidays, please contact me immediately at the start of the semester.

Grading

Grades will be calculated as follows:

A = 88% or above, B+= 84% - 87%, B = 78% - 83%, C+= 73% - 77%, C = 66% - 72%, D = 56% - 65%, F = less than 55%

Lecture Schedule (subject to change)

<u>Date</u>	<u>Class #</u>	<u>Lectures and Recitations</u>	<u>Lect#</u>	<u>Chap#</u>
09/01	1)	Introduction to the course	1	1
09/02	2)	Introduction – overview of the endocrine system	1	1
09/08	3)	Actions of liposoluble and watersoluble hormones	2	1
09/09	4)	Hormone-receptor interactions and downstream signaling	2	1
09/14	5)	Recitation 1, Lectures 1 – 2	2	1
09/15	6)	Quiz 1 – Lectures 1 – 2 Homeostasis and feedback loops	3	1
09/16	7)	Historical perspectives and methodologies	3	
09/21	8)	Recitation 2, Lecture 3		
09/22	9)	Quiz 2 – Lecture 3, Hypothalamus	4	2
09/23	10)	Hypothalamus contd., Pituitary gland	5	2
09/28	11)	Recitation 3, Lectures 4 –5		
09/29	12)	Quiz 3 – Lectures 4 – 5, Thyroid gland	6	3
09/30	13)	Calcium balance, parathyroid glands	7	3&10
10/05	14)	Recitation 4, Lectures 6 – 7 and Exam Review		
10/06	15)	Exam 1, Lectures 1 – 7		
10/07	16)	Adrenal glands	8	4
10/12	17)	Adrenocortical hormones	8	4

10/13	18) Adrenal medullary hormones (catecholamines)	9	4
10/14	19) Recitation 5, Lectures 8 – 9		
10/19	20) Quiz 4 – Lectures 8 – 9, Mineralocorticoids	10	4&9
10/20	21) Regulation of blood pressure, salt and water balance	11	4&9
10/21	22) Recitation 6, Lectures 10 – 11		
10/26	23) Quiz 5 – Lectures 10 – 11, GH and related growth factors	12	11
10/27	24) Control of growth	13	11
10/28	25) Recitation 7, Lectures 12 – 13		
11/02	26) Quiz 6 – Lectures 12 – 13, GI system and hormone families	14	6
11/03	27) GI hormones and Hormonal integration	14&15	5&6
11/04	28) Recitation 8, Lectures 14 – 15 and Exam Review		
11/09	29) EXAM 2, Lecture 8 – 15		
11/10	30) Pancreatic hormones, Islets of Langerhans	16	7&8
11/11	31) Recitation 9, Lecture 16 and Regulation of fuel metabolism	16	7&8
11/16	32) Quiz 7 – Lecture 16, Hormonal control of sex development	17	12
11/17	33) Male reproductive physiology	18	12
11/18	34) Recitation 10, Lectures 17 – 18		
11/23	35) Quiz 8 – Lectures 17 – 18, Female reproductive physiology	19	13
11/24	36) Female reproductive physiology and contraception	19	13
11/30	37) Recitation 11, Lecture 19		
12/01	38) Quiz 9 – Lecture 19, Pregnancy and placental hormones	20	14
12/02	39) Parturition	21	14
12/07	40) Recitation 12, Lectures 20 – 21		
12/08	41) Quiz 10 – Lectures 20 – 21 Pineal gland, circadian rhythms, aging 22		
12/09	42) Final Review		
12/18	FINAL EXAM, Lectures 16 – 22, one hour between 8 AM – 11:00 AM (tentative)		

Responsibilities of the student during remote instruction- a recipe for success!

1. Attendance is critical. Unmute yourself and participate. Make sure that you are webcam ready!
2. Please pay attention to the dates noted in the syllabus and clear all personal conflicts for attendance.
3. Access/print all lecture materials (posted on Canvas) and take additional notes during the live or recorded lectures.
4. If a concept is unclear in class, ask questions immediately. DO NOT WAIT. Due to the pace of the lectures, key concepts that are missed early on will impact later learning.
5. Prepare for quizzes and exams by reviewing materials *continuously*. Cramming before exams will not work for this course.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854. Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

Academic Integrity

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy>. The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of others.
- properly acknowledge all contributors to a given piece of work.
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.

- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- all student work is fairly evaluated and no student has an inappropriate advantage over others.
- the academic and ethical development of all students is fostered.
- the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

Student Wellness Services

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.

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.

Scarlet Listeners

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

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