

Endocrinology (4 credits)

11:067:450

Fall 2022

In-Person Mode of Instruction and MASKS REQUIRED

Classroom: Bartlett 123

Mondays, 2:00 – 3:20 PM

Tuesdays 10:20 AM – 11:40 AM

Wednesdays, 2:00 – 3:20 PM

Contact Information

Instructor: Aparna Zama, Ph.D.

Office Location: Bartlett Hall, 209A

Phone: 848-932-8495

Email: zama@sebs.rutgers.edu

Office Hours: By appointment on aparnazama.youcanbook.me

Course Website, Resources and Materials

- All lectures and related resources will be added to canvas.rutgers.edu
 - It is the responsibility of the student to access their emails and the Canvas site regularly and keep up with the content and the assessments.
 - Attendance and participation are key for success in this course.

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 *some quizzes and* 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

- **Goodman's Basic Medical Endocrinology** by Elizabeth Holt, Beatrice Lupsa, Grace Lee, Hanan Bassyouni, Harry Peery, **5th Edition**
- **Academic Press/ Elsevier / eBook ISBN: 9780128158456**

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.
3. 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.
4. 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 in-class hourly exams (20% each)	60%
~Ten 15-min quizzes on Canvas (~4% each)	40%

All quizzes will be online on Canvas and online proctoring will be set-up. Therefore, webcams will need to be activated at the instructor's request. Exams will be in-person in Bartlett 123 on the dates indicated.

Absence Policy

There are typically no make-ups for quizzes and exams. The 15-min quizzes and the 60-80 min exams will be open in class hours, on the scheduled dates. If there are requests for make-up dates, instructor must 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 instructor 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%

CLASS SCHEDULE ON NEXT PAGE

Lecture Schedule (subject to change)

<u>Date</u>	<u>Class #</u>	<u>Lectures and Recitations</u>	<u>Lect#</u>	<u>Chapter#</u>
09/06		1) Introduction to the course	1	1
09/07		2) Introduction – overview of the endocrine system	1	1
09/12		3) Actions of liposoluble and water-soluble hormones	2	1
09/13		4) Hormone-receptor interactions and downstream signaling	2	1
09/14		5) Recitation 1, Lectures 1 – 2	2	1
09/19		6) Quiz 1 – Lectures 1 – 2 , Homeostasis and feedback loops		1
09/20		7) Historical perspectives and methodologies	3	1
09/21		8) Methods continued, Recitation 2, Lecture 3 ,		
09/26		9) Quiz 2 – Lecture 3 , Hypothalamus	4	2
09/27		10) Pituitary gland	5	2
09/28		11) Recitation 3, Lectures 4 – 5		
10/03		12) Quiz 3 - Lectures 4 – 5 , Thyroid gland	6	3
10/04		13) Calcium balance, parathyroid glands	7	3&10
10/05		14) Exam Review		
10/10		15) Exam 1, Lectures 1 – 7		
10/11		16) Adrenal glands	8	4
10/12		17) Adrenocortical hormones	8	4
10/17		18) Recitation 5, Lecture 8		
10/18		19) Quiz 4 – Lecture 8 , Adrenomedullary hormones	9	4
10/19		20) Mineralocorticoids	10	4&9
10/24		21) Regulation of BP, salt and water balance, Recitation 6, Lectures 9 – 11	11	4&9
10/25		22) Quiz 5 – Lectures 9 – 11 , GH and related growth factors	12	11
10/26		23) Control of growth	13	11
10/31		24) Recitation 7, Lectures 12 – 13 ,		
11/01		25) Quiz 6, Lectures 12-13 , GI system and hormone families	14	6
11/02		26) GI hormones continued	14	6
11/07		27) Hormonal integration, Recitation 8, Lectures 14 – 15	15	5
11/08		28) Pancreatic hormones, Islets of Langerhans	16	7&8
11/09		29) Exam Review		
11/14		30) EXAM 2, Lecture 8 – 15		
11/15, 16		31) Endocrinology of Fuel Metabolism	16	7&8
11/21		32) Hormonal control of sex development	17	12
11/23		33) Male reproductive physiology	18	12
11/28		34) Recitation 10, Lectures 17 – 18	17&18	12
11/29		35) Quiz 7, Lectures 15 – 16 , Female reproductive physiology	19	13
11/30		36) Female reproductive physiology and contraception	19	13
12/05		37) Recitation 11, Lecture 19	19	13
12/06		38) Quiz 8, Lecture 19 , Pregnancy and Placental hormones	20	14
12/07		39) Placental hormones continued	21	14
12/12		40) Parturition		
12/13		41) Quiz 9, Lecture 20 – 21 , Final Review		
TBD		EXAM 3, FINAL EXAM, Lectures 15 – 21		

Responsibilities of the student - a recipe for success!

1. Attendance is critical. Participate in class.
2. Come prepared for group activities.
3. Please pay attention to the dates noted in the syllabus and clear all personal conflicts for attendance.
4. Access/print all lecture materials (posted on Canvas) and take additional notes during the live or recorded lectures.
5. 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.
6. 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 / <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 me and discuss the accommodations as early in this course as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

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

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.

Basic Needs Resources

Any student who has difficulty affording groceries or accessing sufficient food, or who lacks a safe and stable place to live, is urged to contact the Rutgers Student Food Pantry and/or the Dean of Students (details below). Furthermore, please notify the professor, if you are comfortable doing so, as they may be able to provide additional support.

Rutgers Student Food Pantry 848-932-5500 / College Ave Student Center, Room 115 (126 College Ave)

<http://ruoffcampus.rutgers.edu/food/>

Check their website for hours and additional locations. The Rutgers Student Food Pantry is dedicated to helping all Rutgers students in need of food, no questions asked. Students will be provided with groceries that typically last about one week.

Dean of Students Office 848-932-2300 / 88 College Avenue, New Brunswick, NJ 08901, Mon-Fri, 8:30am-

5:00pm. <http://deanofstudents.rutgers.edu/>

Dean of Students Office at Rutgers University-New Brunswick provides solutions, services, and support to help students navigate Rutgers University. The Office serves as a student support network by providing advocacy, problem resolution, and critical incident intervention for those times when additional assistance is needed. Please call to schedule an appointment to meet with a representative from the Dean's office.