

COURSE NAME; NUMBER; SEMESTER; MEETING DAYS, TIMES, AND PLACE

Endocrinology

11:067:450

Fall 2024

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

Meeting days: Tuesdays, 2:00 PM – 3:20 PM Thursdays, 2:00 PM – 3:20 PM Fridays, 10:20 AM – 11:40 AM

Classroom: Bartlett Hall, 123.

CONTACT INFORMATION

Instructor: Igor Shmarakov, Ph.D., Sc.D.

Office Location: Foran Hall, 326A

Phone: 848-932-5617

Email: ishmarakov@sebs.rutgers.edu

Office Hours: by appointment

COURSE WEBSITE, RESOURCES AND MATERIALS

- Lecture slides 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 to 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. The 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.**

COURSE DESCRIPTION

Endocrinology is an upper-level science course focused on the endocrine system in animals and humans. Students will learn the biology behind the structure and function of endocrine and neuroendocrine glands as well as the biochemistry and physiology 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, the disruption of endocrine function by environmental exposure to endocrine-disrupting chemicals and their impact on individual and global health will be discussed.

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

1. Develop a thorough understanding of the mammalian endocrine system. (PLG 3)
Assessment: Four hourly exams and weekly quizzes and assignments.
2. Critically examine the role of hormones in the organism's physiology and maintaining 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: Four hourly exams and weekly quizzes. Periodic assignments will be given to review prior knowledge in biology, biochemistry, and physiology.

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

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

ASSIGNMENTS/RESPONSIBILITIES, GRADING & ASSESSMENT

Responsibilities (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.

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%

Assessments

Four in-class hourly exams (15% each) 60%

Ten 20-minute 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. Quizzes and exams will be in-person in Bartlett 123 on the dates indicated.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Please follow the procedures outlined at <https://ods.rutgers.edu/students/getting-registered>. Full policies and procedures are at <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 they 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 website at: <https://ods.rutgers.edu/students/registration-form>.

ABSENCE POLICY

Students are expected to attend all classes; if you expect to miss one or two classes, please use the University absence reporting website <https://sims.rutgers.edu/ssra/> to indicate the date and reason for your absence. An email is automatically sent to me.

There are typically no make-ups for quizzes and exams. The 20-minute quizzes and the 60-80 min exams will be open during class hours, on the scheduled dates. If there are requests for make-up dates, the 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 the instructor immediately, at the start of the semester.

COURSE SCHEDULE

See the last page.

FINAL EXAM/PAPER DATE AND TIME

Online Final exam Schedule: <http://finalexams.rutgers.edu/>

ACADEMIC INTEGRITY

The university's policy on Academic Integrity is available at

<https://academicintegrity.rutgers.edu/sites/default/files/pdfs/current.pdf>. 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.

Cheating on tests or plagiarizing materials in your papers deprives you of the educational benefits of preparing these materials appropriately. It is personally dishonest to cheat on a test or to hand in a paper based on unacknowledged words or ideas that someone else originated. It is also unfair, since it gives you an undeserved advantage over your fellow students who are graded on the basis of their own work. In this class, we will take cheating very seriously. All suspected cases of cheating and plagiarism will be automatically referred to the Office of Judicial Affairs, and we will recommend penalties appropriate to the gravity of the infraction. To help protect you, and future students, from plagiarism, we require all papers to be submitted through Turnitin.com.

SEBS DEI STATEMENT

It is our intention that students of all backgrounds will be well served by this course. We will work to create an environment of inclusion that respects and affirms the inherent dignity, value, and uniqueness of all individuals, communities, and perspectives. We are lucky to have a diverse university. Diverse voices and life experiences enhance the learning process and we welcome students to share their personal experiences. We will not tolerate disrespectful language or behavior against any individual or group. If you feel as though you have been disrespected or treated unfairly by the instructors or any other individual, please let us know. You may speak with the instructors in person, over email or report anonymously via the Office of Academic Programs. In addition, you may also report bias to the Rutgers Diversity and Inclusion initiative using this link: <http://inclusion.rutgers.edu/report-bias-incident/>.

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 professionals 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/>

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DoSomething button through the Rutgers Dean of Students office:

<http://health.rutgers.edu/do-something-to-help/>

Wellness Coaching through Rutgers HOPE:

<http://health.rutgers.edu/education/hope/wellness-coaching/>

Self-Help Apps found on the Rutgers Student Health website:

<http://health.rutgers.edu/education/self-help/self-help-apps/>

NJ Hopeline - (1-855-654-6735) | **National Suicide Hotline** - (1-800-273-8255)

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 848-93

2-5500 / 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 / <https://deanofstudents.rutgers.edu/>

Mon-Fri, 8:30am-5:00pm

The 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.

Course Schedule (subject to change)

Date	Class #	Lectures and Recitations	Lecture #	Chapter #
09/03		Introduction to Endocrinology	1	1
09/05		The classification of hormones	2	1
09/06		Recitation 1 (Lectures 1-2)	1-2	1
09/10		Hormone-receptor interactions and hormonal signaling	3	1
09/12		Homeostatic control and feedback loops	4	1
09/13		Recitation 2 (Lectures 3-4)	3-4	1
09/17		Quiz 1 (Lectures 1-4), Methods in Endocrinology	5	1
09/19		Methods in Endocrinology (continued)	6	1
09/20		Recitation 3 (Lecture 5-6)	5-6	1
09/24		Quiz 2 (Lectures 5-6), Hypothalamus	7	2
09/26		Pituitary gland	8	2
09/27		Recitation 4 (Lectures 7-8), Exam Review, Quiz 3 (Lectures 7-8)	7-8	1, 2
10/01		EXAM 1 (Lectures 1-8)	1-8	1, 2
10/03		Thyroid gland	9	3
10/04		Recitation 5 (Lecture 9), Exam Review	9	3
10/08		Parathyroid glands, calcium balance	10	10
10/10		Hormonal control of growth	11	11
10/11		Recitation 6 (Lectures 10-11)	10-11	10, 11
10/15		Quiz 4 (Lectures 10-11), Adrenal glands, adrenocortical hormones	12	4
10/17		Adrenomedullary hormones	13	4
10/18		Recitation 5 (Lectures 12-13)	11	
10/22		Quiz 5 (Lectures 12-13), Mineralocorticoids, regulation of blood pressure	14	4
10/24		Salt and water balance	15	9
10/25		Recitation 6 (Lectures 12-13)	14-15	4, 9
10/29		Quiz 6 (Lectures 14-15), Hormones of the gastrointestinal (GI) tract	16	6
10/31		Pancreatic hormones	17	7
11/1		Recitation 7 (Lectures 16-17)	16-17	6, 7
11/05		Quiz 7 (Lectures 16-17), Endocrinology of fuel metabolism	18	8
11/07		Hormonal integration	19	5
11/08		Recitation 8 (Lectures 18-19), Exam Review, Quiz 8 (Lectures 18-19)	18-19	5, 8
11/12		EXAM 2 (Lectures 9-19)	9-19	3-11
11/14		Hormonal control of reproduction in the male	20	12
11/15		Recitation 9 (Lecture 20)	20	12
11/19		Hormonal control of reproduction in the female	21	13
11/21		Female reproductive endocrinology and contraception	22	13
11/22		Recitation 10 (Lectures 21-22)	21-22	12, 13
11/26		Quiz 9 (Lectures 20-22), Pregnancy and placental hormones	23	14
11/27		Recitation 11 (Lecture 23)	23	14
12/03		Parturition and lactation	24	14
12/05		Recitation 12 (Lecture 24), Exam Review, Quiz 10 (Lectures 23-24)	23-24	14
12/06		EXAM 3 (Lectures 20-24)	20-24	12-14
12/10		Final Review	1-24	1-14
12/17		FINAL EXAM	1-24	1-14