

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

Neuroendocrinology (3 cr)

11:067:410, Fall 2024

T56, Tuesday @ 3:50–7:00 PM

Online

Zoom meeting (link information will be emailed to the registered students)

CONTACT INFORMATION:

Instructor: Dipak K. Sarkar

Phone: 609-651-1023

Email: dipak.sarkar@rutgers.edu

COURSE WEBSITE, RESOURCES AND MATERIALS:

- The course materials (Neuroendocrinology text by D.K. Sarkar; Case Studies and Hot Topics) will be emailed to the registered students.
- For additional reading material, it is recommended to use: *An Introduction to Neuroendocrinology* (2nd edition) by Michael Wilkinson and Richard E. Brown.

COURSE DESCRIPTION:

The course provides a comprehensive and up-to-date coverage of the interrelationships between the central nervous system and the endocrine system in the mammal. **Note:** This course is cross-listed with *Neuroendocrinology* 16:340:510.

Prerequisite and other registration restrictions: 11:067:300 or 01:146:356; open to juniors and seniors.

LEARNING GOALS:

Program Learning Goals - See <https://animalsciences.rutgers.edu/undergraduate/mission.html> for the program learning goals (PLGs)

Students will:

1. Learn basic concepts and experimental approaches in mammalian neuroendocrinology, including cellular and molecular actions of hypothalamic and pituitary hormones and the role of these hormones in controlling reproductive functions, body metabolism (e.g., obesity and diabetes), stress, growth, biological rhythms, drug addiction, and immunity. (PLGs 1, 2 & 3)
Assessment: Exams (2)
2. Learn how to critically interpret and present information from the neuroendocrinology literature. (PLGs 3 & 5)
Assessment: Case-study presentations (1)

ASSIGNMENTS/RESPONSIBILITIES, GRADING & ASSESSMENT:

- Each student will prepare and present one case study consisting of 40 points. Case presentation will be a 20-30-min seminar describing the case and then analyzing the problem.
- Two take-home examinations (a midterm and a final) consisting of 30 points each. Each exam will be given on the topics discussed in the lectures. These exams will be formatted as short-essay and problem-solving questions.



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/>

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.

COURSE SCHEDULE (Subject to change):

September 3	Class objectives; Lecture #1: Principles of cellular neuroendocrinology (didactic lecture)
September 10	Lecture #2: Hypothalamus (didactic lecture) Model case study presentation (case 1) Model research presentation
September 17	Lecture #3: Pituitary gland (didactic lecture) Case study presentations (cases 2 & 3) Hot topic presentation (topic 1) Research presentation 1 (<i>J Neurosci</i> 2001, 21:2546)
September 24	Lecture #4: Sexual differentiation of the neuroendocrine brain (didactic lecture) Case study presentations (cases 4 & 6) Hot topic presentation (topic 2) Research presentation 2 (<i>Endocrinology</i> 2012, 153:1936)
October 1	Lecture #5: Neuroendocrine control of gonadotropin release (didactic lecture) Case study presentation (cases 7 & 9) Hot topic presentation (topic 3) Research presentation 3 (<i>PNAS</i> 2014, 111:10335)
October 8	Lecture #6: Neuroendocrine control of prolactin release (didactic lecture) Case study presentation (cases 10 & 11) Hot topic presentation 4 (topic 4) Research presentation 4 (<i>Stem Cells Dev</i> 2012, 21:3245)
October 15	Lecture #7: Neuroendocrine control of thyroid hormone release (didactic lecture) Case study presentation (cases 13 & 14) Hot topic presentation (topic 5) Research presentation 5 (<i>Nature</i> 2012, 491:66-71) Midterm exam
October 22	Lecture #8: Neuroendocrine control of growth hormone release (didactic lecture) Case study presentation (cases 15 & 16) Hot topic presentation (topic 6) Research presentation 6 (<i>PNAS</i> 2006, 103:6031)
October 29	Lecture #9: Hypothalamic control of food intake (didactic lecture) Case study presentation (cases 17 & 18) Hot topic presentation (topic 7) Research presentation 7 (<i>PNAS</i> 2005, 102:14865) + 8 (<i>Neuroendo</i> 2012, 95:332)
November 5	Lecture #10: Neuroendocrine control of stress axis function (didactic lecture) Case study presentation (cases 20 & 21) Hot topic presentation (topic 8) Research presentation 9 (<i>Neuropsychopharmacology</i> 2000, 22:219)



November 12	Lecture #11: Neuroendocrine-immune interaction (didactic lecture) Case study presentation (cases 22 & 24) Hot topic presentation (topics 9 & 14) Research presentation 10 (<i>J Gene Med</i> 2012, 14:44)
November 19	Lecture #12: Neuroendocrine control of biological rhythms (didactic lecture) Hot topic presentation (topics 10 & 11) Research presentation 11 (<i>J Immunol</i> 2012, 188:2583)
December 3	Lecture #13: Obesity, hypothalamus, and bone (didactic lecture) Hot topic presentation (topics 12 & 13) Research presentation 12 (<i>Mol Cell Biol</i> 2004, 24:258-69) Research presentation 13 (<i>Clin Interv Aging</i> 2013, 811-818)
December 10	Course review/ Take-home final exam given out; due on December 17
December 17	Take-home final exam complete

FINAL EXAM DATE AND TIME

Take-home final exam given out on December 10, 2024; due on December 17, 2024

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 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/>

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 instructors 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/getting-registered>.