

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

Reproductive and Developmental Toxicology

16:340:591:01 (4 cr); Fall 2019

Tu/Th 3:55-5:15 pm, Foran BT 123

Recitation: Th 5:35-6:55 pm

CONTACT INFORMATION:

Instructor(s): course coordinator: Troy A. Roepke,

Lecturers: Drs. Aparna Zama, Lauren Aleksunes, Mehmet Uzumcu, Emily Barrett, Phoebe Stapleton, Kary Thompson, Jason Magby

Office Location: TAR: Bartlett 305B

Phone: 848-932-9454 Email: ta.roepke@rutgers.edu

Office Hours: by appointment

COURSE WEBSITE, RESOURCES AND MATERIALS:

- **REQUIRED TEXT:** *Essential Reproduction* (Sixth Edition) Martin H. Johnson* (ISBN: 1444335758) and *Ecological Developmental Biology: The Environmental Regulation of Development, Health, and Evolution*, Scott F. Gilbert & David Epel (ISBN:1605453442). Other selected reading from various texts will be provided via online course website. *not necessary if you have *Pathways to Pregnancy & Parturition* (Animal Reproduction Textbook).
- **Sakai COURSE WEBSITE:** To access go to URL: sakai.rutgers.edu. Enter your NET ID and password. After you have logged in, select Reproductive & Developmental Toxicology (11:067:491). If you cannot access the Sakai website, email sakai@rutgers.edu or call 848-445-8721 for help. Powerpoint of lectures will be available the day before the lecture.

COURSE DESCRIPTION:

Application of toxicological principles in reproductive studies and instruction on the effects of toxicants on male and female reproduction, and on the developing embryo/fetus. Critical evaluation of reproductive toxicity studies and development of mechanistic approaches to understanding how chemical exposure can adversely affect reproduction.

COURSE LEARNING GOALS:

The students will

- 1) Acquire basic knowledge of reproductive and developmental actions of toxicants.
 - Assessment: Three exams will cover the basics of reproduction, development, and the influence of a range of toxicants on these two intertwining processes.
- 2) Apply standard exposure models and risk assessment to assess the effects of a toxicant.
 - Assessment: Exams will consist of questions that will involve specific examples of a reproductive toxicant and the impacts these compounds have on development and reproductive capacity.
- 3) Engage critical thinking skills to evaluate the literature and generate a review and/or an experimental hypothesis for oral presentation.
 - Assessment: each student will present a 20-min presentation on a subject of their choice. Evaluation will be by the course coordinator and fellow students.
- 4) Writing a research proposal in the area of Reproductive and Developmental Toxicology using grant writing guidelines of the National Institutes of Health.
 - Assessment: each student will write one 7-page grant application.

ASSIGNMENTS & ASSESSMENT:

EXAMS:

Three 80-min mid-term exams: 20% each x 3 = 60%.

Written assignment: 20%

Oral presentation: 10%

Class participation and attendance: 10%

If you have a legitimate excuse for missing an exam, Dr. Roepke must be notified at least 24 h prior to the exam. *All claims will be sent to the Dean of Students, Dean Michelle Jefferson, for verification.*

ABSENCE POLICY:

Students are expected to attend all classes. Attendance will be taken by the course coordinator. Attendance is part of your final grade. No makeup exam without documentation. If you expect to miss a class, please use the Rutgers University absence reporting website: sims.rutgers.edu/ssra/ and input the date and reason for your absence. An email will automatically be sent to me.

GRADING

Grades will be calculated as follows: A = 90% or above, B⁺ = 86% - 89%, B = 80% - 85%, C⁺ = 76% - 79%, C = 70% - 76%, D = 60% - 69%, F = less than 60%

RESPONSIBILITIES OF THE STUDENT

1. 100% attendance is critical. Please pay attention to the dates noted in the syllabus and clear all personal conflicts for attendance.
2. Print all lecture materials (posted on Sakai) and bring with you to class to take additional notes.
3. If something 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.
- 4. You are responsible for all the information on this syllabus.**

COURSE SCHEDULE:

<u>Lecture</u>	<u>DATE</u>	<u>TOPIC</u>	<u>Instructor</u>
1	Sept 3 Tu	Intro & Principles of Toxicology	Roepke
2	5 Th	Hormones & Receptors	Roepke
3	10 Tu*	Neuroendocrinology of Reproduction	Roepke
4	12 Th	Male Reproduction	Roepke
5	17 Tu	Female Reproduction	Zama
6	19 Th	Fertilization to Lactation	Roepke
7	24 Tu*	Puberty and Sex Behavior	Roepke
	26 Th	EXAM 1: Lectures 1 through 7	
8	Oct 1 Tu*	Endocrine Disruptors	Roepke
9	3 Th	Male Reproductive Toxicology	Roepke
10	8 Tu*	Female Reproductive Toxicology	Uzumcu
11	10 Th	Embryonic Defenses	Roepke
12	15 Tu*	Developmental Toxicology - Teratology	Roepke
13	17 Th	Maternal-Fetal Transfer	Aleksunes
14	22 Tu*	Developmental Neurotoxicology	Magby
	24 Th	EXAM 2: Lectures 8 through 14	

15	29 Tu*	Pharmaceutical Reproductive Toxicology Testing	Thompson
16	31 Th	Analysis of Toxicity Testing	Thompson
17	Nov 5 Tu*	Developmental Cardiotoxicology	Stapleton
18	7 Th	Repro & Dev. Tox in Non-Mammalian Models	Roepke
19	12 Tu*	Dev. Programming and Epigenetics	Zama
20	14 Th	Impacts on Wildlife	Roepke
21	19 Tu*	Impacts on Humans	Barrett
	21 Th	EXAM 3: Lectures 15 through 21	
22	26 Tu	Oral presentations	Roepke
23	Dec 3 Tu	Oral presentations	Roepke
24	5 Th	Oral presentations	Roepke
25	10 Tu	Oral presentations	Roepke

*Recitation period 5:35-6:55 in Foran BT 123

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.

ACCOMODATIONS FOR STUDENTS WITH DISABILITIES:

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

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.

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/registration-form>.

Scarlet Listeners

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

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