

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

In Vivo Lab Animal Techniques (3 credits)

11:067:416, Spring 2024

Tuesdays, 12:10-1:30pm, Thursdays 12:10-2:40pm

Research Tower (RT) Animal Facility

CONTACT INFORMATION:

Instructors:

Dr. Lauren Bright, DVM, Ph.D., DACLAM

Associate Director, Rutgers Animal Care-CMR

Office Location: Research Tower, RB01 675 Hoes Lane West Piscataway, NJ 08854

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Ms. Mariel Nigro, Ed.M., LVT, RLATG

Senior Training Coordinator, Rutgers Animal Care-CMR

Office Location: Research Tower, RB01 675 Hoes Lane West Piscataway, NJ 08854

Email: mariel.nigro@rutgers.edu

Office Hours: By arrangement

COURSE WEBSITE, RESOURCES AND MATERIALS:

- All lectures and related resources will be available on Canvas at canvas.rutgers.edu
 - Lecture recordings may be available on Media Gallery or Modules
 - **Practical component will not be available as a recording and must be done in-person**
 - It is the responsibility of the student to access 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

- Access to a computer with internet and a speaker is required.

Website Access

AALAS learning library is to be accessed via [ejacuc website](#). Click on “Online Training Modules” on the left side of screen. Office for Research Course Registration System [website](#) - selected content will be assigned from this site.

Prerequisites

Lab Animal Science Management and Techniques (11:067:275)

Obtain medical clearance to work with animals – see the following [link](#)

COURSE DESCRIPTION:

The *in vivo* lab animal techniques (IVT) is an **intensive EBE** training course for students to gain proficiency in lab animal rodent concepts and techniques used in research labs. Students will develop hands-on expertise in rodent handling, dosing, blood collection, anesthesia, analgesia, use of surgical equipment, survival surgery techniques, and necropsy. Students will gain knowledge in laboratory animal diseases, health surveillance, transgenic animals, and other pertinent topics in laboratory animal medicine.

COURSE LEARNING GOALS:

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

PLG 4: Acquire skills for handling and caring for laboratory animals and livestock species.

PLG 7: Develop an understanding of the principles of animal welfare and ethical treatment of animals.

The students will

1. Develop an understanding of principles of working with laboratory rodents, including laboratory rodent diseases, colony management/breeding, euthanasia, surgical principles, and other lecture topics as defined in the syllabus. Fulfills PLGs 4 and 7.
Assessments: Quizzes and assignments.
2. Utilize lab animal science concepts to perform basic and advanced hands-on techniques commonly used while working with rodents including handling, dosing, anesthesia, blood collection, and surgical techniques. Fulfills PLGs 4 and 7.
Assessment: Competency evaluations (CE), assignments and practical exams.
3. Demonstrate their skills pre-surgical preparation, anesthetic depth, surgical technique and post-operative recovery and monitoring, rodent ovariectomies and subcutaneous implant surgeries. Fulfills PLGs 4 and 7.
Assessments: CEs and practical exams.

COURSE SCHEDULE (dates subject to change):

Week	Date	Topic	Exercise/lecture	Quiz/Assignment/ Exam	DUE
1	Jan 16 - Lecture Jan 18 – Lab	Introduction to the course, compassion fatigue. Animal handling techniques, animal behavior	Course syllabus, lecture.	CE-1, Quiz 1	CE-1 in class Jan 18, Quiz-1 due on Feb 1
2	Jan 23 – Lecture Jan 25 – Lab	Introduction to animal health, Identification of signs of disease/distress, common animal health concerns-clinical signs. Animal Handling Techniques	Exercise	CE-2, Quiz 1, and Assignment-1	CE-2 in class on Jan 25, Quiz-1 due on Feb 1, Assignment-1 due Feb 1
3	Jan 30 – Lecture Feb 1 - Lab	Transgenic animals, breeding colony management, genotyping methods, identification.	Lecture, Demo/Exercise	CE-3 and Quiz-2	CE-3 in class on Feb 1 Quiz-2 due Feb 8
4	Feb 6 - Lecture	Dosing techniques, dosing calculations, syringe handling.	Demo & Exercise	CE-4 and Assignment-2	CE-4 in class on Feb 8, Assignment-2 due Feb 15

	Feb 8 - Lab				
5	Feb 13 - Lecture Feb 15 - Lab	Lab animal diseases, health surveillance Blood collection techniques	Demo & Exercise	CE-5, Quiz-3	CE-5 in class on Feb 15, Quiz-3 due on Feb 22
6	Feb 20– Lecture Feb 22 - Lab	Colony rooms, husbandry requirements and discussion of biosecurity levels (BSL3 practices), gnotobiotics, GLP, IACUC. Tour of facility	Lecture and walk- through.	Quiz-4	Quiz-4 due on Feb 29
7	Feb 27 - Lecture Feb 29 - Lab	Euthanasia and necropsy	Demo & Exercise	CE-6 and Assignment-3	CE-6 in class on Feb 29, Assignment-3 due Mar 19
8	Mar 5/7	Mid-course competency test	Exercise, Competency	Formal Practical Exam-1	Exam-1 in class on Mar 5 and Mar 7
9	Mar 9-17	SPRING BREAK	SPRING BREAK	SPRING BREAK	SPRING BREAK
10	Mar 19- Lecture Mar 21- Lab	Analgesia and Anesthesia. Controlled substances. Inhalation anesthesia/recovery.	In-class lecture and demo of equipment	CE-7 and Assignment-4	CE-7 in class on Mar 21, Assignment-4 due Mar 28
11	Mar 26- Lecture Mar 28- Lab	Common principles of surgery, surgical/aseptic prep, suturing.	Lecture and demo	Quiz-5	Quiz-5 due Apr 9
12	Apr 2– Lecture Apr 4 - Lab	Peri-operative monitoring and recovery and post- operative care, record keeping.	Demo and exercise	CE-8 and Quiz-5	CE-8 in class on Apr 4, Quiz-5 due Apr 9
13	Apr 9 – Lecture Apr 11- Lab	Aseptic surgical techniques-1	Demo & Exercise	CE-9 and Assignment 5	CE-9 in class on Apr 11, Assignment 5 due Apr 18

14	Apr 16- Lecture Apr 18- Lab	Aseptic surgical techniques-2 and review	Demo & Exercise	CE-10	CE-10 in class on Apr 18
15	Apr 23/25	Final Competency Assessment	Competency Evaluation	Formal Practical Exam-2	Exam in class Apr 23 and 25

RESPONSIBILITIES OF THE STUDENT

1. 100% attendance is critical for success. Please pay attention to the dates noted in the syllabus and clear all personal conflicts for attendance.
2. Print all lecture materials (posted on Canvas) and take additional notes.
3. If something is unclear in class, ask questions immediately. DO NOT WAIT. Due to the pace of the exercises, key concepts that are missed early on will impact later learning.
4. Participation is a key component of this class. Competency assessments will be conducted during class and will require animal handling.

ABSENCE POLICY

Missed classes: If a student misses a class, they must contact the instructor to find out how to make-up the missed work. It may not be possible to make-up in some cases.

Tardiness is unacceptable and may result in loss of skill development.

GRADING SCHEME

A = 90% or above, B+= 85% - 89%, B = 80% - 84%, C+= 75% - 79%, C = 70% - 74%, D = 60% - 69%, F = less than 60%

The following *formative* and *summative* assessments will be utilized to determine the final grade

Formative Assessments

Quizzes will be given at the beginning of class as noted on the Schedule. The relevant materials will be available prior to class time. Competency checks are given in class after students have had time to practice and learn the techniques. See the Schedule on previous page for the exact timing of each evaluation, quiz, or assignment. See the Rubric on the next page for assessment criteria and grading.

Competency evaluations	(10; 3.5% each)	35%
Quizzes	(5; 3% each)	15%
Assignments	(5; 4% each)	20%

Summative Assessments

Timing of the Formal Practical Evaluations are listed in the Schedule on the previous pages. The Rubric for assessment and grading is below:

Two Formal Practical Evaluations (2; 15% each)	30%
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Rubric for assessments

Criteria	Does not meet standards	Meets standards	Exceeds standards	Total
<u>SUMMATIVE</u> Practical exams (Summarizes ALL techniques)	< 18 % 1. Student does not participate in all the activities for the exam. 2. Student cannot handle animal appropriately. 3. Student cannot perform at least half of expected tasks, such as giving injections, identifying animals, maintaining anesthesia, blood collection, surgical procedures, euthanasia, or other tasks taught during the course.	~19-27 % 1. Student participates in all the activities for the exam. 2. Student handles animals appropriately. 3. Student can perform more than half of expected exam tasks.	>27 % 1. Student participates in all the activities for the exam. 2. Student handles animals with a variety of techniques, including fear free practices. 3. Student can perform 90% of expected exam tasks.	30%
<u>FORMATIVE</u> Quizzes OR Assignments	<21 % 1. Student does not complete assignments on time. 2. Student's response does not fulfill the requested task. 3. For graded assignments, student answers more than half incorrectly.	~ 22-30 % 1. Student does complete assignments on time. 2. Student's response does fulfill the requested task. 3. For graded assignments, student answers more than half correctly.	>31 % 1. Student's response meets and exceeds the requested task. 2. Demonstrates extensive understanding of the topic. 3. For graded assignments, student answers 90-100% correctly.	35%
<u>FORMATIVE</u> Competency evaluations (CE)	<21 % 1. Student does not demonstrate basic knowledge of techniques or class topics. 2. Student does not participate in competency evaluation(s).	~22-30 % 1. Student does demonstrate basic knowledge of techniques or class topics. 2. Student does participate in competency evaluation(s).	>31 % 1. Student demonstrates extensive knowledge of techniques or class topics. 2. Student actively participates in competency evaluation(s), and may be observed helping other students learn tasks.	35%
			TOTAL POINTS (sum of 3 Criteria)	100%

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.

Please note that any use of Artificial Intelligence (AI) or ChatGPT is considered a violation of the Academic Integrity Policy.

DIVERSITY 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 which 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 acknowledge that some of the topics covered in this course may be emotionally difficult at times. We ask that you engage in discussion with care and empathy for the other members in the classroom. 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/>.

We are still in the process of learning about diverse perspectives and identities and always welcome discussion or anonymous feedback on how we can continue to improve. If you have a name and/or set of pronouns that differ from those that appear in your official Rutgers records, we would like to know so we can respect them.

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.

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://webapps.rutgers.edu/student-ods/forms/registration>.

DoSomething button through 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)

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.

Scarlet Listeners

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

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

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 / <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.

Assessment Plan for 11:067:416, *In Vivo* Lab Animal Techniques, 3 credits

1. Goals

This course will fulfill the following Animal Science program learning goals (PLGs). See this link for the full description: [Animal Science PLGs](#)

PLG 4: Acquire skills for handling and caring for laboratory animals and livestock species.

PLG 7: Develop an understanding of the principles of animal welfare and ethical treatment of animals.

2. Assignments Used to Assess Student Achievement

Both formative and summative assessments will be utilized to assess student achievement.

Formative Assessments

Quizzes, written assignments, and competency evaluation (CEs) will be given. Quizzes will be at the beginning of class as noted on the schedule of the class. The relevant content will be available on Canvas prior to class time. Assignments will be topical essays relevant to the technical exercises. CEs are given in class after students have had time to practice and learn the techniques.

Competency evaluations (CEs) (10; 3.5% each)	35%
Quizzes (5; 3% each)	15%

Assignments	(5; 4% each)	20%
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Summative Assessments

The formal practical evaluations will be summative of all the CEs, quizzes and written assignments.

Two Formal Practical Evaluations (2; 15% each)	30%
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The instructors that teach the techniques will evaluate the students' work. Two independent instructors will rotate through each of the techniques.

In the initial offerings, ALL the students will be assessed for accomplishment of the course learning goals and the PLGs. We expect to enroll 12-15 students in the initial offerings.

3. Plans to Use Assessment Results

We are expecting to use this EBE course as a model for technique-based learning. Eventually, the goal is to convert the techniques learnt into Digital Badging and accrual of micro-credentials which are a big draw for employment in the Animal Science field. Therefore, the assessment data will be used to explore the feasibility of launching Digital Badging. The department will review the results when planning curricular revisions to the Lab Animal Science option. The department will also use positive assessment results to identify and share pedagogical best practices with other instructors and programs.

4. Evaluation Criteria

Please see assessment rubric below.

Criteria	Does not meet standards	Meets standards	Exceeds standards	Total
<u>SUMMATIVE</u>	< 18 %	~19-27 %	>27 %	30%
Practical exams (Summarizes ALL techniques)	<ol style="list-style-type: none"> 1. Student does not participate in all the activities for the exam. 2. Student cannot handle animal appropriately. 3. Student cannot perform at least half of expected tasks, such as giving injections, identifying animals, maintaining anesthesia, blood collection, surgical procedures, euthanasia, or other tasks taught during the course. 	<ol style="list-style-type: none"> 1. Student participates in all the activities for the exam. 2. Student handles animals appropriately. 3. Student can perform more than half of expected exam tasks. 	<ol style="list-style-type: none"> 1. Student participates in all the activities for the exam. 2. Student handles animals with a variety of techniques, including fear free practices. 3. Student can perform 90% of expected exam tasks. 	
<u>FORMATIVE</u>	<21 %	~ 22-30 %	>31 %	35%
Quizzes OR Assignments	<ol style="list-style-type: none"> 1. Student does not complete assignments on time. 2. Student's response does not fulfill the requested task. 3. For graded assignments, student answers more than half incorrectly. 	<ol style="list-style-type: none"> 1. Student does complete assignments on time. 2. Student's response does fulfill the requested task. 3. For graded assignments, student answers more than half correctly. 	<ol style="list-style-type: none"> 1. Student's response meets and exceeds the requested task. 2. Demonstrates extensive understanding of the topic. 3. For graded assignments, student answers 90-100% correctly. 	
<u>FORMATIVE</u>	<21 %	~22-30 %	>31 %	35%
Competency evaluations (CE)	<ol style="list-style-type: none"> 1. Student does not demonstrate basic knowledge of techniques or class topics. 2. Student does not participate in competency evaluation(s). 	<ol style="list-style-type: none"> 1. Student does demonstrate basic knowledge of techniques or class topics. 2. Student does participate in competency evaluation(s). 	<ol style="list-style-type: none"> 1. Student demonstrates extensive knowledge of techniques or class topics. 2. Student actively participates in competency evaluation(s), and may be observed helping other students learn tasks. 	
			TOTAL POINTS (sum of 3 Criteria)	100%