

**Animal Models to study Diseases (3 CR)\_5301\_Hybrid  
Spring 2023**

**Lecture Time:** Tuesdays and Thursdays (6:00pm-7:20pm), Physical Science building 314

**Instructor:** Dr. Sangeeta Tiwari, Department of Biological Sciences

**Office:** Bioscience Research Building, Room 3.148

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### **COURSE OBJECTIVES**

This course is designed to provide the student with a foundation of existing small and large commonly used animal models in human diseases- breeding, maintaining and generating new mouse lines for their research purposes. Design experiments for addressing the research questions, perform and collect data using various techniques and analyse animal data. It also prepares students to write animal studies (vertebrate section) for their fellowships including NIH funding.

### **COURSE GOALS**

1. Learn the fundamental concepts in using animal models to study human diseases
2. Apply the concepts you've learned to address the appropriate questions in the study of human diseases
3. Extrapolate information and facts from what you already know
4. Communicate your understanding of human diseases and their study using an appropriate animal model
5. Learn to think critically

**ACADEMIC DISHONESTY.** It is the official policy of the University of Texas at El Paso that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Please see <http://www.studentaffairs.utep.edu> for details

**DISABILITIES.** If you have or suspect you have a disability and need an accommodation, please contact the Center for Accommodations and Support Services (CASS) at 747-5148, at [cass@utep.edu](mailto:cass@utep.edu) or go to Union Building East, Room 106.

**BLACKBOARD.** I will post all materials for this course on Blackboard. It is your responsibility to download anything required for the class session and to bring it with you to class. I strongly recommend that you visit the course Blackboard site before each class. iRATs/Quizzes will be given on Blackboard. I will do all the announcements via blackboard and no individual mails will be send. Dates and announcements for posting the exams, quizzes, IRATS and presentations will be **announced on the blackboard or on the updated syllabus**. Please check **posted updated syllabus** on the blackboard as I will keep it updating with time.

**MISSED EXAMS.** If you know ahead of time that you will not be able to take an exam on the scheduled date, notify me and I will allow you to take the **exam before the scheduled exam** date, with no penalty. If you miss an exam and you can provide reasonable PROOF for your absence, the exam will be rescheduled at my convenience but must be taken before the graded exam is distributed to the class. If you miss the exam and you cannot provide proof for your absence, there will be **NO make-ups!!** All the exams will be at scheduled class time 6pm-7:20pm or as instructed by instructor.

**COURTESY.** As a courtesy to your classmates, please give your full attention to all speakers and limit your in-class discussions to topics related to course topics. Cell-phones and pagers must be turned off during class sessions. The use of laptop or notebook computers or tablets during class sessions is limited to note-taking and coursework only – please refrain from browsing the internet or checking your email during class. Please be on time for class – roll may be taken at the start of each class.

**DROP POLICY.** As per policy of the College of Science, a student may not take the same course more than three times, including dropped courses. The College of Science aligns with UTEP with respect to the drop date of March 30th. No requests for a withdrawal will be approved after that date. Students can always petition the Registrar for a complete withdrawal from all course pending documentation.

### **GRADING SYSTEM**

Grading is NOT based on a curve. You will each EARN a grade that reflects the effort you put into the course and the knowledge you have gained. Your grade will be based on a comprehensive assessment of your skills and their development throughout the course of the semester, using the following criteria.

**INDIVIDUAL READINESS ASSESSMENT TESTS (iRATs)/Quizzes.** These will be given on Blackboard and are designed to test your knowledge of the material presented in your reading assignments or papers. iRATs/Quizzes will cover the most important aspects of the paper; they will include data interpretation. Each paper will be evaluated in a quiz. Quizzes will be given in the classroom from as class starts.

**Each student has to submit their own iRAT/Quiz on the blackboard to be graded.**

**2. PRESENTATIONS.** I will provide selection of papers and each student has to present 2-3 papers or as instructed by instructor. Schedule for paper presentation and presenter will be distributed later. Research your topic and develop a x-minute (details will be mentioned later) presentation about the topic to be presented in class. Rubric must be followed for your presentation. Grades will be posted on blackboard for the presentation. For group proposal writing involving vertebrate section be sure to document the role of each group member and turn it to me. Closer to the date we will assign times and papers.

**Rubric for Oral Presentations (Adapted from [https://www.researchgate.net/figure/Rubric-for-the-assessment-of-the-oral-presentation\\_tbl2\\_336672347](https://www.researchgate.net/figure/Rubric-for-the-assessment-of-the-oral-presentation_tbl2_336672347))**

**3. EXAMS.** A total of TWO exams will be given during the semester, each worth X points. The exams will test your understanding of all of the materials covered in the in class, and on presentations etc, and your ability to APPLY the concepts you have learned. The FINAL EXAM is of X points.

**5. IN-CLASS EXERCISES/poll.** Various in-class exercises/Poll will be distributed throughout the semester to reinforce the presented topics. These will be due at the end of the class period or by the end of the day of respective class (11:59pm), as time permits and at the professor's discretion. In-class exercises will be done in groups and ONLY those who participate will be given credit for the assignment. In-class interactive questioning system that allows professor to gauge the level of student understanding and students to ask anonymous questions. These will be used throughout the class period and semester. The sum total will be accounted for in the final grade.

### **IN SUMMARY, grades will be calculated as follows:**

iRATs/Quizzes	160 points (8 iRATs/20 pts each)
Midterm	200 points
Final Exam	200 points (Final Exam)
Presentation	300 points (100 or 150 points per presentation)
In-class exercises/Poll/	100 points
Other	40 points

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Totals

1000 points

Where, A = 90 – 100%  
B = 80 – 89.9%  
C = 70 – 79.9%  
D = 60 – 69.9%  
F = 59.9% and below

## SYLLABUS

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<b>Aquatic animal Models</b>	Jan 19	No Class
	Jan 24	Introduction and Overview of the syllabus for class
	Jan 26	Aquatic models to study human disease
	Jan 31	No Class
	Feb 2	<b>Student presentation #1</b>
<b>Mouse Models</b>	Feb 7	Mouse strains commonly used to study diseases
	Feb 9	<b>Student presentation #2</b>
	Feb 14	Mouse Colony management and Experimental design
	Feb 16	Mouse models to study drug therapeutics
	Feb 21	<b>Student presentation #3</b>
	Feb 23	Mouse models for Vaccine research
	Feb 28	<b>Student presentation #4</b>
Non-Mammalian Models	March 2	Non-Mammalian models to study human disease (Guest Speaker*)
	March 7	<b>Student presentation #5</b>
	March 9	No Class instead speaker will present on March 10
	March 10	<b>Friday Seminar at 12:30pm-1:30pm pm (Speaker)</b>
	March 21	Midterm Exam
<b>Genetic manipulation of Mice</b>	March 23	Introduction to mouse genetics & Genetic approaches for mice generation
	March 28	<b>Student presentation #6</b>
	March 30	Mouse models to study Cancer (Guest Speaker)*

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<b>Data collection Techniques and Analysis in mice</b>	April 4	Techniques used in mice studies and data Interpretation
	April 6	<b>Student presentation #7</b>
<b>Vertebrate section Fellowship grants</b>	April 11	Preparation of animal study proposal for fundings and scholarships
		<b>Student dicusssion and preparation in groups</b>
	April 13, 18, 20	No Class (travel to conference)
<b>Larger vertebrate Animal models</b>	April 25	Rabbit models (Guest Speaker)*
	April 27	<b>Paper discussion in groups # 8</b>
	May 2	Macaque models (Guest Speaker)*
	May 8	<b>Final Exam</b>

\*Guest Speaker schedule will be posted soon as per their availability

Key dates from University Academic Calendar:

02/01/2023: Census Day

03/13/-03/17/2023: Spring Break

03/31/2023: Cesar Chavez Holiday

03/30/2023: Course drop/withdrawal deadline

05/04/2023: Last day of Classes

05/05/2023: Dead day

#### COVID-19 PRECAUTION STATEMENT From UTEP

- Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms.
- If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations.
- If you have tested positive for COVID-19, you are encouraged to report your results to [covidaction@utep.edu](mailto:covidaction@utep.edu), so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID-19 testing.
- The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people.
- The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes.
- For more information about the current rates, testing, and vaccinations, please visit [epstrong.org](http://epstrong.org).