



IND 532: Current Techniques in Musculoskeletal Research

Spring 2022

Monday 12-12:50 pm, Locations below

Course Co-Directors:

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Course website: Blackboard

Prerequisites: Graduate standing or permission.

Course description:

This course provides an overview of several cutting-edge techniques that can be used to advance the trainees research program, and to familiarize students with several Core facilities and unique expertise within the University. Lectures address a range of topics, including tissue mechanics, small animal surgery techniques and URMC core facilities. Lectures are designed for real time interaction, and student/fellows are encouraged to contribute to the discussion.

Course Aims and Objectives:

To learn about the research resources of the University of Rochester to support research with a focus on musculoskeletal applications. Note this course is a critical pedagogical feature of the long-standing T32 'Training in Musculoskeletal Research' and has been run as a 'seminar' for the past 10 years.

Attendance: Since this class is graded in part on participation, attendance is mandatory. Students are expected to arrive on time, fully attend and participate in ALL class sessions. Extenuating circumstances causing absence should be discussed with the instructor **before** the absence occurs, not post-facto. If you must miss a class, you can make it up by submitting a two-page paper on the topic for that day.

Assessment and Grading Criteria:

50% Attendance/participation

50% NIH style proposal one aim 'Research Approach' section

E-mail: You should only use email as a tool to set up a one-on-one meetings with Drs. Benoit or Loiselle, or the course lecturers. Your message should include at least two times when you would like to meet and a brief (one-two sentence) description of the reason for the meeting. Emails sent for any other reason will not be considered or acknowledged. I strongly encourage you to participate in class discussion and ask questions during class. For more in-depth discussions, please plan to meet in person. Our conversations should take place in person rather than via email, thus allowing us to get to know each other better and fostering a more collegial and effective learning atmosphere (Courtesy of S.S Duvall, Salem College).

Academic Integrity: Academic integrity is a core value of the University of Rochester. Students who violate the University of Rochester University Policy on Academic Honesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since academic dishonesty harms the individual, other students, and the integrity of the University, policies on academic dishonesty are strictly enforced. For further information on the University of Rochester Policy on Academic Honesty, please visit the following website:

http://www.rochester.edu/college/honesty/docs/Academic_Honesty.pdf

Students in this course are expected to conduct themselves in an honest and ethical manner, as well as to respect the intellectual work of others. Students should complete all required readings and work on their own, though open discussions with others regarding course content and issues raised in the case studies is always encouraged. Any writing assignment completed in lieu of an approved absence must represent the student's own work, with any ideas or text taken from others being appropriated identified and cited.

Accommodations for students with disabilities: Students needing academic adjustments or accommodations because of a documented disability must contact the Disability Resource Coordinator for the school in which they are enrolled (see link below for contact information).

<http://www.rochester.edu/eoc/DisabilityCoordinators.html>

Lecture Schedule

Date	Lecture Topic	Presenter	Class location
January 24th	Mechanical testing	Emma Gira, MS	2-7536
January 31st	MicroCT/ In vivo imaging	Lyndsay Schnur, MS & Mark Kenney, MS	2-7544
February 7th	Flow cytometry/ CyTOF	Ananta Paine, PhD	2-7534
February 14th	Electron Microscopy	Karen Bentley, MS	2-7520
February 21st	Metabolomics	Roman Eliseev, PhD, MD	2-7544
February 28th	Small animal recovery surgery	Katie Nolan, DVM	2-7534
March 7th	Mouse Genetics	Anne Nichols, PhD	2-7534
March 14th	No Class		
March 21st	Mass spectrometry & Proteomics	Kyle Swovick, PhD	1-7619
March 28th	Histological analyses	Jeff Fox	1-7619
April 4th	Muscle Physiology Testing	Calvin Cole, PhD	Ryan Case Method Room
April 11th	Biomaterials	Sayantani Basu, PhD	2-7534
April 18th	Genomics	John Ashton, PhD	1-7619
April 25th	Intravital microsopy	Allison Yeh, PhD	2-7534