



IND464: Musculoskeletal Basic Science
Fall 2019
Monday 12-12:50 pm, Adolph Auditorium

Course Co-Directors:

Danielle Benoit, PhD

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Associate Professor, Department of Biomedical Engineering, Chemical Engineering,
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Alayna Loiselle, PhD

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Office hour: TBD

Course website: Blackboard

Prerequisites: Graduate standing or permission.

Course description:

This course provides an overview of key basic science concepts relating to musculoskeletal tissues including bone, bone marrow, cartilage, muscle and tendon. Lectures address a range of topics, including developmental biology, musculoskeletal tissue homeostasis and pathologies. Lectures are designed for real time interaction, and student/fellows are encouraged to contribute to the discussion.

Course Aims and Objectives:

To learn basic science concepts necessary to pursue Musculoskeletal research. 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 background section

E-mail: You should only use email as a tool to set up a one-on-one meetings with myself, Dr. 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 (tentative, other topics to be added):

| <i>Date</i> | <i>Lecture Title</i> | <i>Presenter</i> | <i>Room</i> |
|-------------|---|-----------------------|-------------|
| 9/2 | No class – Labor Day | | |
| 9/9 | Musculoskeletal development | Jennifer Jonason, PhD | Adolph |
| 9/16 | Bone Homeostasis & Pathology | Roman Eliseev, PhD | Adolph |
| 9/23 | Disc Development and Degeneration | Addisu Mesfin, MD | Adolph |
| 9/30 | Bone Regeneration | Chao Xie, MD | Adolph |
| 10/7 | Tendon development & homeostasis | Catherine Kuo, PhD | Adolph |

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| 10/14 | No class- Fall Break | | |
| 10/21 | Tendon Pathology & Regeneration | Alayna Loiselle, PhD | Adolph |
| 10/28 | Muscle Biology & Pathology | Joe Chakkalakai, PhD | Adolph |
| 11/4 | Cartilage Biology & Pathology | Whasil Lee, PhD | Adolph |
| 11/11 | Bone Marrow Biology & Pathologies | Ben Frisch, PhD | Adolph |
| 11/18 | Population Health | Caroline Thirukumaran, PhD | Adolph |
| 11/25 | Orthopaedic Oncology | Emily Carmody, MD | Adolph |
| 12/2 | Promis | Judy Baumhauer, MD | Adolph |
| 12/9 | Rheumatology | Homaira Rahimi, MD | Adolph |