

Physiology 4530B “Skeletal Health and Disease”; Wednesday 9:30 – 11:30, DSB 2016

Course manager: Frank Beier (fbeier@uwo.ca); instructors: J. Dixon, C. Séguin; TA: Melina Bellini

Musculoskeletal disorders such as osteoarthritis, osteoporosis and degenerative disc disease have huge impact on individuals’ quality of life and the healthcare system, especially as our population ages. Moreover, recent evidence shows that events that are physiologically linked to the skeleton can drive pathology in other tissues, such as the mineralization of blood vessels in atherosclerosis. This course will provide an overview of the development and biology of skeletal tissues, introduce current techniques used to study skeletal physiology and examine the biological bases of common musculoskeletal diseases and their treatments.

Evaluation: 15 % written summary/critique of assigned paper (example will be provided); 10 % presentation/debate; 25 % midterm exam, 50 % final exam

Course outline:

1. Introduction to the Skeleton and Skeletal Development – Jan 10 (Beier)
2. Cartilage Biology and Pathology of Osteoarthritis – Jan 17 (Beier)
3. Student Discussions – Jan 24 (Beier)
4. Diseases of Ectopic Ossification, Metabolic Roles of the Skeleton – Jan 31 (Beier)
5. Student Discussions – Feb 7 (Beier)
6. Midterm Exam – Feb 14
7. Endocrinology of the skeleton – Feb. 28 (Dixon)
8. Bone remodeling– March 7 (Dixon)
9. Osteoporosis and related metabolic bone diseases – March 14 (Dixon)
10. Spine Biology and Degenerative Disc Disease – March 21 (Séguin)
11. Skeletal regeneration – March 28 (Séguin)
12. Mechanobiology – April 4 (Séguin)