

Program: Anatomy and Cell Biology

Course Name: Development, Structure and function of the Musculoskeletal System

Course Number: New

Course Director: Fayez F. Safadi, Ph.D. Room 610 OMS. Tel. 2-5655 email. fsafadi@temple.edu

Credits: 3

Semester: Spring, every year

Times: Meets Twice weekly for 2 hours

Location: OMS 625

Prerequisites: All students are required to have a background in Cell and Developmental Biology.

Description: The goal of the course is to provide the fundamental elements of the musculoskeletal system including embryology, histology, cell and molecular biology, genetics of muscle, tendon, and bone. The basic mechanisms by which cells are regulated are also discussed. This course is intended to satisfy the needs of graduate students in basic sciences department at Temple Schools of Medicine, Dentistry, Health Profession, Engineering and clinical fellows in Orthopedic surgery, Rheumatology and Endocrinology.

The area to be studied include:

- 1) Musculoskeletal morphology and organization
- 2) Muscle development, cell biology, and physiology
- 3) Tendon development, cell biology and physiology
- 4) Bone cell biology, physiology: Modeling, remodeling and histomorphometry
- 5) Bone development and skeletal growth
- 6) Skeletal stem cells
- 7) Signal transduction of skeletal cells
- 8) Mechanical adaptation of the skeletal system
- 9) Bioengineering of the skeletal system
- 10) Neuronal and hormonal and regulation of the skeletal system
- 11) Genetics of the skeletal system
- 12) Metabolic diseases of the musculoskeletal system

Students are expected to participate in class by contributing to discussion. Students are also expected to discuss seminal papers in the field in a journal club setting. At the end of the course each student will present a 15-minute discussion of an area related to the course but had not been previously discussed.

Textbook & Readings:

Each instructor will provide an outline for his or her lecture.

Exams are indicated on the course schedule. Any exam may also have a take home section which will be completed using reference materials but not with consultation of other students faculty etc.

Class attendance is required. Student absence must be excused or will reflect on a student's grade.

The grade in the course will take into account all exams, class participation and oral presentations. The examinations will weigh the greatest (about 80%).

Office Hours – The Course Director is available during the normal work day hours. Other instructors are available on the same terms.