THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Tissue Mechanics

BIOMEDE 5421

Credit Hours:
3.00 - 3.00

Course Levels:
Undergraduate (1000-5000 level)
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
Mechanical characteristics and behavior of tissues at the organ and system level and how these properties relate to physiological and pathological function.

Prerequisites and Co-requisites:
Prereq: 4410 or equiv, and Sr standing; or Grad standing; or permission of instructor.

Course Goals / Objectives:
- Identify sites of remodeling activity in both cortical and trabecular bone
- Calculate the activation frequency in a given area of bone with knowledge of the turnover rate
- Compute the relative stresses and strains in the tissues around a load-bearing joint
- Calculate the mechanical stiffness produced by endosteal and periosteal new bone formation to axial, bending, and torsional loading

Course Topics:
- Forces in Joints
- Skeletal Biology
- Mechanical properties of bone, Bone fracture and fatigue,
- Bone remodeling and adaptation
- Biology and mechanics of joints, ligaments and tendons
- Cellular mechanics, soft tissue mechanics

Designation:
Elective