



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Anatomy for Engineers

BIOMEDE 2800

Credit Hours:

3.00

Course Levels:

Undergraduate (1000-5000 level)

Course Components:

Lecture

Lab

Course Description:

This course investigates the basic anatomical structure and physiological function of the human body with a biomechanical emphasis.

Prerequisites and Co-requisites:

Prereq: Enrollment in BIOMEDE pre-major or major; or permission of instructor.

Concur: Physics 1250

Course Goals / Objectives:

- Provide basic anatomical and physiological knowledge in many organ systems from a BME perspective. Focus will be given to ones most likely to be important for the student's future career and those that are innately relatable to most people.
 - Present students with ample opportunities to learn how to self-educate, a skill set that will be necessary for success in any career path. This will include how to identify quality primary and secondary sources.
 - Exposed to common/rare pathologies so they are familiar with potential applications of their engineering skills; appreciate the interconnectedness of the human body; and acknowledge that there are many facets (not just biological) to any condition.
 - Begin to develop other important professional skills such as team-work, oral presentation skills, and patient empathy
 - Apply standard anatomical terminology related to direction, planes, body cavities, and motion
 - Identify samples from common imaging modalities and select/justify which modality is most appropriate for certain tissues and pathologies.
 - Describe the essential cellular units, tissue structures, and function of bone, joints, muscle, the nervous system, cardiovascular system, and pulmonary system.
 - Name the macro components of the upper arm, forearm, and abdomen and list general function.
 - Solve basic mathematical models of the human body and apply new parameters to predict function.
 - Find and evaluate credibility of information sources (from biomedical or peer-evaluated sources)
& Summarize how at least 1 pathology changes organ form and function as well as how biomedical engineering has been used to provide diagnosis or treatment
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Course Topics:

- Intro and Class Expectations
 - Anatomical & General Terminology
 - Medical Imaging
 - Bone
 - Joints
 - Muscle
 - Nervous System
 - Cardiovascular
 - Pulmonary
 - Arm
 - Abdomen
 - Presentations
 - Instructor Review Session
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Designation:

Required