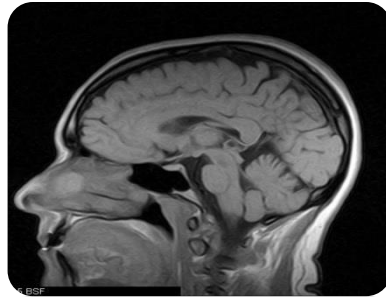
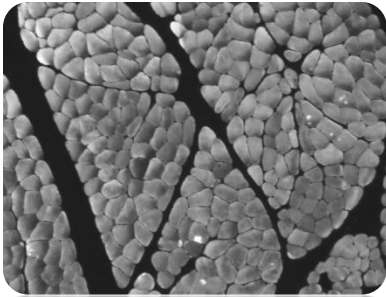


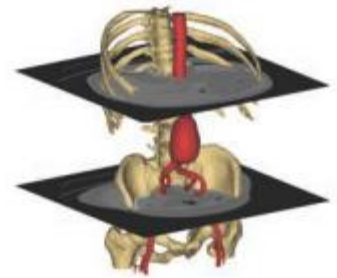
# BME 738 - Biomedical Imaging

**Instructor:** Dr. Kim Cluff, [kim.cluff@wichita.edu](mailto:kim.cluff@wichita.edu)  
**Classroom; Days/Time:** Tuesday & Thursdays 1:30pm – 2:45pm;  
**Prerequisites:** PHY 314 (Fields & Waves; Calculus based Physics); BME 335 (Biomedical computer applications); or by instructor consent



## Course Description

The Biomedical imaging course prepares students with a knowledge of medical imaging and gives hands on experience with ultrasound imaging, dual-energy x-ray absorptiometry (DEXA), spectral imaging, and medical image processing labs. This course covers various medical imaging modalities, such as planar x-ray, x-ray computed tomography (CT), DEXA, magnetic resonance imaging (MRI), nuclear medicine imaging - positron emission tomography (PET) & single-photon emission computed tomography (SPECT), ultrasound imaging, and spectral imaging. Students will also gain hands on experience with medical image processing software to import CT or MRI scans and construct 3D models of the human anatomy. The course introduces the fundamental physical and engineering principles used in medical imaging and image processing. The primary focus of this course will be on physical principles, instrumentation methods, and image processing methods. Strengths, limitations, sensitivity, and appropriate applications for each modality of imaging will be examined as well.



Concepts learned in class will be used to solve real world medical imaging problems. The level of instruction for this course should be appropriate for upper level undergraduate students and graduate students, who have completed calculus and physics. Some experience in signals and systems, digital image processing, and prior knowledge of MatLab software programming is helpful, but not necessary.