DEPARTMENT OF BIOMEDICAL ENGINEERING
INSTRUCTIONAL INCUBATOR
UNIVERSITY OF MICHIGAN

BME Course Summary

Introduction

1. Course Information

Course Name	*Intro to Imaging and Image-based Human Anatomy*
Institution	*Stanford*
Course Number	**220**
# credits	**3**
Meeting times	**Mon, Wed 2:30-4:20pm**
Is this a required course?	**No**
Pre-requisites	**Introductory physics, biology, and calculus**
Target audience (e.g. 1st, 2nd year):	**2nd year**
Textbook	**Imaging Atlas of Human Anatomy, The Essential Physics of Medical Imaging, Basic Principles of MR Imaging**
Course Website (if it exists)	**http://web.stanford.edu/class/bioe220/**

2. Course Description

In the space below, “paste” the description of the course. This can be the actual description listed in the syllabus from the course.

Focus on learning the fundamentals of each imaging modality including X-ray Imaging, Ultrasound, CT, and MRI, to learn normal human anatomy and how it appears on medical images, to learn the relative strengths of the modalities, and to answer, "What am I looking at?"

3. Course Learning Objectives

In the space below, “paste” the course learning objectives if explicitly stated.

- to learn the fundamentals of each imaging modality including X-ray Imaging, Ultrasound, CT, and MRI.

- to learn normal human anatomy and how it appears on medical images.
- to learn the relative strengths of the modalities and
- to answer, “What am I looking at?”

4. Fundamental Tools and Skills

In the space below, describe the fundamental tools and skills that are addressed in the class. For example, labvview, arduino’s, the design process etc.

Reading and Identifying human anatomy through different imaging methods. Ultrasound, image processing, MRI

5. Exercises or Experiential Projects of Interest

Exercise/Project	Project Overview	Learning Activities and Assessments	Required Resources for Project Completion
EXAMPLE	Students make pulse oximeters.	**Learning Activities** • Students will use resistors and a bread board to … • In a short essay assignment, students explain… **Assessment** • Students complete a laboratory report that explains …	Function generator, resistors, oscilloscope….
Brain Cutting Lab	Student look at and ID parts of real brain slices	Learning Activities Assessment - Students will need to be able to	Anatomy lab, microscope, plasticized brain
Unltrasound Lab	This lab will cover basic ultrasound imaging and let you	Learning Activities - Students will use a ultrasound machine to image the structure of different samples and identify key structures	Ultrasound system, ultrasound lab,

Exercise/Project	Project Overview	Learning Activities and Assessments	Required Resources for Project Completion
	scan a phantom with an ultrasound system.	Assessment - can students identify the structures shown on screen	

6. Additional thoughts

If you have any other thoughts about this course, but have not been able to reflect it elsewhere in the document, please feel free to do so here.

The reason I picked this course was because I thought it was interesting that Stanford was having a 200-level class on medical imaging and how it is used in medicine and research. I would've loved a class like this as an undergrad instead of as a grad student. Also a class like this is inherently hands-on and active. There's plenty of testing material for you to quiz and ask questions about and you can look at the actual samples. If students are given opportunities to go study in the labs themselves they are allowed some control over their education. If an engineering project could be tied into this class I think it would make it even better.