

BME 6502 Introduction to Medical Imaging

Fall 2015

Catalog Description: This course covers modern medical imaging technologies from a biomedical engineering perspective. The physics, mathematics, instrumentation and clinical applications of all common medical imaging modalities including x-ray radiography, computed tomography (CT), ultrasound imaging, positron emission tomography (PET), and magnetic resonance imaging (MRI) will be discussed. Emerging imaging modalities including diffuse optical tomography (DOT), fluorescence molecular tomography (FMT), and photoacoustic tomography (PAT) will also be introduced.

Credits: 03

Prerequisites:

Only a basic knowledge of physics and calculus is required.

Instructor: Huabei Jiang, J. Crayton Pruitt Family Professor

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Phone: (352) 273-9336

Office hours: Friday 3:00-4:30pm in BMS J297 or email for appointment

Email: hjiang@bme.ufl.edu

Class Meeting: Tues. 5th/6th periods (11:45am), and Thurs. 6th period (12:50pm) in Room 316 CHE

Required textbook:

Introduction to Biomedical Imaging, Andrew Webb, John Wiley & sons, Inc. publishers. 2003. ISBN: 0-471-23766-3

Course Objectives:

The primary objective of this course is to lay the engineering foundations for understanding commonly used and emerging biomedical imaging modalities. Major topics include:

- X-ray imaging
- Computed tomography
- Nuclear medicine
- Ultrasonic imaging
- Magnetic resonance imaging
- Diffuse optical tomography
- Fluorescence Molecular Tomography
- Photoacoustic tomography

Grade Determination:

40% Midterm Exam/Projects

60% Final Exam

The grading scale:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
≥92	90-91	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	< 60

The grading policies:

Undergraduate students, in order to graduate, must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. Graduate students, in order to graduate, must have an overall GPA of 3.0 or better (B or better). Note: a B- average is equivalent to a GPA of 2.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit:

<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>

Policies:

Late policy for homework: 20% deducted per day, unless prior arrangements were made with the instructor. Students are encouraged to work together on the homework, but the work that's handed in must be individual work.

Academic Honesty:

In adopting this Honor Code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the University community. Students who enroll at the University commit to holding themselves and their peers to the high standard of honor required by the Honor Code. Any individual who becomes aware of a violation of the Honor Code is bound by honor to take corrective action. A student-run Honor Court and faculty support are crucial to the success of the Honor Code. The quality of a University of Florida education is dependent upon the community acceptance and enforcement of the Honor Code. We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

Students with Disabilities:

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.