Spring 2021

OPSE 410-002: Biophotonics

Benjamin Thomas

Follow this and additional works at: https://digitalcommons.njit.edu/phys-syllabi

Recommended Citation

This Syllabus is brought to you for free and open access by the NJIT Syllabi at Digital Commons @ NJIT. It has been accepted for inclusion in Physics Syllabi by an authorized administrator of Digital Commons @ NJIT. For more information, please contact digitalcommons@njit.edu.
Advance Optics and Biophysics Applications

Optical Science and Engineering (OPSE 410) Spring 2021
Professor Benjamin Thomas, Department of Physics

Email: bthomas@njit.edu
Office: 483 Tiernan Hall
Webex room: https://njit.webex.com/meet/bthomas
Office hours: Thursday 2:30 pm to 3:30 pm or request appointment by email.

Synopsis of this course: A quantitative view of selected optical concepts of biophysics and optical instruments used for medical applications. The course will give you a chance to learn about the use of optics in biology related fields. The course is organized as a series of lectures and lab work. Extinction, optical absorption spectroscopy, differential optical absorption spectroscopy and other optical methodologies will be used to probe material related to biology.

Text (optional):


- “Quantitative Biomedical Optics: Theory, Methods, and Applications” Irving J. Bigio, Sergio Fantini (Cambridge Texts in Biomedical Engineering) 1st Edition

Assessment Plan:
Final grade on the basis of the following assignments and weighting:
Lab. reports / Homework 30 %
Quiz, oral participation 10 %
Oral presentation 10 %
Common exam 20 %
Final exam 30 %

Translate % values into letter grades with the standard physics department scale as follows:
F: <40; D: 40-50; C: 50-60; C+: 60-69; B: 69-75; B+: 75-82; A: >82

Outcomes plan: Students will learn about:
1. the basics of optics and interactions between light and biological matter
2. How common optical instruments used in the medical field work
3. Optical methodologies to probe and study tissues

Academic integrity and honesty are important to both students and professors. The NJIT Student Council and the faculty strongly support fairness for all students. To help ensure this equity the NJIT Administration requires that every professor bring cheating to the attention of the Dean of Students.