BE700 Class Syllabus and Schedule - Spring, 2017
Cancer Biology and Oncology for Engineers

Instructor: Prof. Darren Roblyer
Office: ERB231
E-mail: roblyer@bu.edu
Office Hours: by appointment

Lecture: Monday and Wednesday 2:30pm-4:15 pm, ERA B11

Course Website: On BU’s blackboard Learn https://lms.bu.edu

Lecture Schedule and JC signup sheet: https://docs.google.com/spreadsheets/d/1-bYBYzIdzNji_ziNfV0MH Hv2MPRvU8bEjgORDBUCQO/edit?usp=sharing

Textbook: None required

References (optional, #1 Highly Recommended):
2. The Emperor or all Maladies: A Biography of Cancer, Siddhartha Mukherjee
3. The Molecular Basis of Cancer (Third Edition) Edited by: John Mendelsohn, MD, Peter M. Howley, MD, Mark A. Israel, MD, Joe W. Gray, PhD, and Craig B. Thompson, MD

Course Papers (Reference material and Presentation Papers):
https://www.dropbox.com/sh/t1hd8y8f4u2z0i3/AACQkSoQeBW9bev_y9KOKtDha?dl=0

Course Prerequisites:
Engineering graduate students will benefit from a basic background in molecular and cell biology for this class.

Course Description:
This course is designed to be an introduction to cancer biology and oncology from the perspective of the engineer. The course will cover basic cancer biology including cancer genetics, tumor metabolism, angiogenesis, and the metastatic cascade, and then discuss how new technologies enable better diagnosis, prognosis, and treatment. There will be a strong imaging component to the class including optical, MRI, mammography, and PET-CT modalities. The course will be a combination of traditional lectures, class discussions, and journal club, and each student will be expected to present several times during the semester.

Grading (subject to change):

• JC Presentations: 2 per person for the semester: 20% each
• Midterm (3/15/2017): 25%
• Final (5/3/2017): 25%
• Participation/JC quizzes: 10% - everyone starts with 10%, reduces with unexcused absences, lack of interaction with lecture/presenters, and incorrect quiz answers

**Journal Club Policies:** Each officially registered student (full or audit) will present 2 JC papers during the semester. Students will pick from key primary papers in the literature – the link to the papers, signup sheet, and the actual pdf’s are listed at the top of this syllabus. Presentations should be ~30 minutes long. The JC presentation must cover the following items:

- **Background** - Why is this study being conducted?
- **Methods**
  - Will likely require background research, getting figures from other papers to explain
  - Define new words to you
- **Results**
  - Present the most relevant figures
  - Explain all important aspects of data, know what the axes mean
  - Have an interpretation of the data – data dump is not OK
- **Your analysis**
  - Why is this paper important?
  - Place results in the context of the subfield (e.g. angiogenesis, metastasis, etc.)
  - What led up to this study, what came after it?
  - How did it change cancer research or clinical care?
- **BE VISUAL!** Figures speak louder than words

As a JC audience member, remember the following:

- This is not a passive experience for the audience
- You must read/take notes/understand the paper before coming to class
- Be prepared to ask 2 questions for each paper
- I will give “quizzes” for each paper prior to JC. This is to provide a little motivation for reading the paper.
- I will grade and critique each presenter using a standardized form (posted on Blackboard).

**General Class Policies:** All students must attend class. Late assignments will be given a zero. There will be no exceptions. Any special circumstances must be discussed with me prior to the due date. Assignments determined to be copied from other class members will be given a zero and students may be subject to more serious disciplinary action per the discretion of the instructor and TA. Grades will be available throughout the semester on the Blackboard Learn site. These posted grades do not necessarily reflect your final course grades as adjustments/curving will likely be applied.