BME 595 - Special Topics in Biomedical Engineering - Graduate Courses

Note: All BME 595 courses listed below fulfill Biomedical Engineering course distribution credit.

AY 2021-2022

BME595 F01: ST: MED DEVICE GLOBAL HEALTH  
*Instructor: Solomon Mensah*  
*Credit: 2*  
**Fall 2021**

This course will aim to combine entrepreneurship principles, business models, evident based customer discovery techniques and general product development protocols for the development of medical devices for use in low resource areas.

BME595 F05: ST: INNOVATION VALUE CREATION BIOMEDICAL ENGINEERING  
*Instructor: Len Polizzotto, George Pins*  
*Credit: 3*  
**Fall 2021**

This course will introduce students to the principles of innovation and its 5 disciplines. Students will learn to determine true end-users need, development of a value proposition based on these needs, how to iterate and participate in value creation forums. The goal of the course to ensure that all student research projects are creating sustained value for society.

BME595 S01 ST: COMMERCIAL ANALYSIS BME (not sure whether is the same course that Ray used to teach. I used his course description)  
*Instructor: Funmi Ayobami*  
*Credit: 3*  
**Spring 2021**

This course will be a seminar/discussion style course with experts from various academic and industry organizations providing information on the processes and procedures used to evaluate the commercialization potential of medical products and services. This is an important area of engineering design that is not commonly covered to a great level of depth in undergraduate courses. Thus, this course provides both undergraduate and graduate students the opportunity to gain some experience and expertise in this area.

BME595 S02 ST: ENGINEERING MODELS OF HUMAN DISEASE  
*Instructor: Catherine Whittington*  
*Credit: 1*  
**Spring 2021**

The class will focus on how researchers think about and design models of human disease both in vitro and in vivo with heavier emphasis on in vitro models. Existing model systems will be introduced and evaluated to assess their utility and limitations for certain diseases and applications (e.g., cancer,
cardiovascular disease, etc.). Information from those models, combined with disease-specific elements, will be used to determine how we as engineers and physical scientists can use our toolkit to better design them. Problems will be studied in the context of clinical case studies, current advances in science and technology (research, industry, clinic), etc. from descriptive and quantitative perspectives. However, the focus of the course is not to delve deep into disease history and/or perform an intense review of current disease-specific research. We will perform a survey of the relevant information in those areas to inform strategies that move the field forward. The class structure will be a balance of lecture, discussion, and active learning with a mix of individual and group assignments that will include writing, micro-teaching, and proposal and project development.

Previous BME 595 Special Topics courses

BME 595C = BME 564. Cell and Molecular Biology for Engineers
Instructor: Rolle
3 credits – LIFE SCIENCE (doesn’t count as an engineering course)

BME 595T = BME 555. BioMEMS and Tissue Microengineering
Instructor: D. Albrecht

BME 595B. Biofabrication for Tissue Engineering and Regenerative Medicine
Instructors: M.Rolle, Kruger

BME 595C = BME 593 Scientific Communication
Instructor: K. Troy

BME 595S. Computational Biomechanics of the Musculoskeletal System
Instructor: K. Troy

BME595O = BME553 BIOMECHANICS OF ORTHOPAEDIC DEVICES
Instructor: K.Troy

BME595D = BME535 MEDICAL DEVICE DESIGN CONTROLS*
Instructor: W.Moore

*Does not fulfil technical depth requirement.

Updated August 19, 2021