

## **BME 595 - Special Topics in Biomedical Engineering - Graduate Courses**

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

### **AY 2022-2023**

#### **BME595 F01: ST: NEUROENGINEERING**

*Instructor: Adam Lammert*

*Credit: 3*

**Fall 2022**

The course will cover fundamental concepts in neuroengineering, and how those concepts are applied in the most successful neuroprosthetic currently in use: the cochlear implant. Properties of neural function will be analyzed using an engineering perspective that incorporates aspects of signal processing and computational modeling. Over the semester, we will build a working cochlear implant model from the bottom up that will transduce acoustic vibrations into patterns of neural activity.

#### **BME595 F02: ST: MED DEVICE GLOBAL HEALTH**

*Instructor: Solomon Mensah*

*Credit: 3*

**Fall 2022**

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 F03: ST: INNOVATION VALUE CREATION BIOMEDICAL ENGINEERING**

*Instructor: Len Polizzotto/George Pins*

*Credit: 3*

**Fall 2022**

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 IN BME**

*Instructor: Len Polizzotto*

*Credit: 3*

**Spring 2023**

This course will explore what is entailed in commercializing medical products and services. It will include discussions about the processes and procedures of understanding market needs, writing a compelling business plan, protecting intellectual property, FDA compliance, manufacturing options, marketing and distribution, and financial analysis. Outside experts will be brought in as appropriate. 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.

**Previous BME 595 Special Topics courses**

**BME595 S02 Engineering Models of Human Disease**

*Instructor: Catherine Whittington*

*Credit: 1*

**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 = BME593 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 July 7, 2022*