



## **Example Program of Study**

### **Non-thesis MS**

#### **Focus areas: Biomaterials, Tissue Engineering, Biomechanics**

#### Requirements for an MS degree:

- 30 credits are needed for an MS degree
- suggested time to degree is 2 years
- students can take up to 6 credits of 4000-level classes, the rest need to be 5000-level
- students can take up to 3 credits of Graduate reading classes or equivalent
- students need to take 2 CORE classes of their choosing
- students need to take 2 semesters of ESCI 5000 Seminar (0 credits)

#### Additional considerations:

- any class can be substituted with a class from the list provided at the end
- students can take a class in a different department or program at SLU, if they inquire with the instructor and have the necessary pre-requisites
- In consultation with their academic advisor, students can select different classes (than indicated here) to match their academic background, interests, and future career goals as long as the requirements listed above are fulfilled

#### Fall semester, Year 1 (6 credits)

BME 4400: Biomaterials (3 credits) – CORE class  
BME 5600: Quantitative Physiology I (3 credits) – CORE class  
ESCI 5000: Seminar (0 credits)

#### Spring Semester, Year 1 (9 credits)

BME 4200: Biomechanics (3 credits) – CORE Class  
BME 5400: Tissue-Material Interfaces (3 credits, ODD years)  
BME 5650: Quantitative Physiology II (3 credits) or BME 5930: Biotransport (3 credits, ODD years)

#### Fall semester, Year 2 (6 credits)

BME 5410: Tissue Engineering (3 credits)  
PUBH 5040: Generating Evidence from Public Health Data (3 credits)  
ESCI 5000: Seminar (0 credits)

#### Spring semester Year 2 (9 credits)

BME 5430: Regenerative Engineering (3 credits)  
BME 5930: Biofluids (3 credits, EVEN years)  
BME 5320: Drug Delivery (3 credits, EVEN years)



## **Example Program of Study**

### **Non-thesis MS**

#### **Focus area: Robotics, Imaging, Neuroscience**

#### Requirements for an MS degree:

- 30 credits are needed for an MS degree
- suggested time to degree is 2 years
- students can take up to 6 credits of 4000-level classes, the rest need to be 5000-level
- students can take up to 3 credits of Graduate reading classes or equivalent
- students need to take 2 CORE classes of their choosing
- students need to take 2 semesters of ESCI 5000 Seminar (0 credits)

#### Additional considerations:

- any class can be substituted with a class from the list provided at the end
- students can take a class in a different department or program at SLU, if they inquire with the instructor and have the necessary pre-requisites
- In consultation with their academic advisor, students can select different classes (than indicated here) to match their academic background, interests, and future career goals as long as the requirements listed above are fulfilled

#### Fall semester, Year 1 (6 credits)

BME 4400: Biomaterials (3 credits) – CORE class or BME 4700: BME Entrepreneurship (3 credits)

BME 5600: Quantitative Physiology I (3 credits) – CORE class

ESCI 5000: Seminar (0 credits)

#### Spring Semester, Year 1 (9 credits)

BME 4200: Biomechanics (3 credits) – CORE Class

BME 5130: Medical Imaging (3 credits) – CORE class

BME 5650: Quantitative Physiology II (3 credits) or BME 5930: Biotransport (3 credits, ODD years)

#### Fall semester, Year 2 (6 credits)

BME 5150: Brain Computer Interface (3 credits)

MENG 5930-02 (Chi-Hou Lei): Model and simulation (3 credits)

ESCI 5000: Seminar (0 credits)

#### Spring semester Year 2 (9 credits)

BME 5930: Machine Learning in Computational Neuroscience (3 credits)

BME 5930: Robotics (3 credits)

BME 5930: Biofluids (3 credits, EVEN years)



## **Example Program of Study**

### **Non-thesis MS, with project**

#### **Focus area: Biomaterials, Tissue Engineering, Biomechanics**

#### Requirements for an MS degree:

- 30 credits are needed for an MS degree
- suggested time to degree is 2 years
- students can take up to 6 credits of 4000-level classes, the rest need to be 5000-level
- students can take up to 3 credits of Graduate reading classes or equivalent
- students need to take 2 CORE classes of their choosing
- students need to take 2 semesters of ESCI 5000 Seminar (0 credits)

#### Additional considerations:

- any class can be substituted with a class from the list provided at the end
- students can take a class in a different department or program at SLU, if they inquire with the instructor and have the necessary pre-requisites
- In consultation with their academic advisor, students can select different classes (than indicated here) to match their academic background, interests, and future career goals as long as the requirements listed above are fulfilled

#### Fall semester, Year 1 (6 credits)

BME 4400: Biomaterials (3 credits) – CORE class  
BME 5600: Quantitative Physiology I (3 credits) – CORE class  
ESCI 5000: Seminar (0 credits)

#### Spring Semester, Year 1 (9 credits)

BME 4200: Biomechanics (3 credits) – CORE Class  
BME 5400: Tissue-Material Interfaces (3 credits, ODD years)  
BME 5650: Quantitative Physiology II (3 credits) or BME 5930: Biotransport (3 credits, ODD years)

#### Fall semester, Year 2 (6 credits)

BME 5410 - Tissue Engineering (3 credits)  
BME 5850 – Design of BME Lab experiments (3 credits) or BME 5960: Master's Project (3 credits semester) with individual faculty member  
ESCI 5000: Seminar (0 credits)

#### Spring semester Year 2 (9 credits)

BME 5430: Regenerative Engineering (3 credits)  
BME 5930: Biofluids (3 credits, EVEN years)  
BME 5320: Drug Delivery (3 credits, EVEN years)



## **Example Program of Study**

### **Non-thesis MS, with project**

#### **Focus area: Robotics, Imaging, Neuroscience focus**

#### Requirements for an MS degree:

- 30 credits are needed for an MS degree
- suggested time to degree is 2 years
- students can take up to 6 credits of 4000-level classes, the rest need to be 5000-level
- students can take up to 3 credits of Graduate reading classes or equivalent
- students need to take 2 CORE classes of their choosing
- students need to take 2 semesters of ESCI 5000 Seminar (0 credits)

#### Additional considerations:

- any class can be substituted with a class from the list provided at the end
- students can take a class in a different department or program at SLU, if they inquire with the instructor and have the necessary pre-requisites
- In consultation with their academic advisor, students can select different classes (than indicated here) to match their academic background, interests, and future career goals as long as the requirements listed above are fulfilled

#### Fall semester, Year 1 (6 credits)

BME 4400: Biomaterials (3 credits) – CORE class

BME 5600: Quantitative Physiology I (3 credits) – CORE class

ESCI 5000: Seminar (0 credits)

#### Spring Semester, Year 1 (9 credits)

BME 4200: Biomechanics (3 credits) – CORE Class

BME 5130: Medical Imaging (3 credits) – CORE class

BME 5650: Quantitative Physiology II (3 credits) or BME 5930: Biotransport (3 credits, ODD years)

#### Fall semester, Year 2 (6 credits)

BME 5150: Brain Computer Interface (3 credits)

BME 5850: Design of BME Lab experiments (3 credits) or BME 5960: Master's Project (3 credits) with individual faculty member

ESCI 5000: Seminar (0 credits)

#### Spring semester Year 2 (9 credits)

BME 5930: Machine Learning in Computational Neuroscience (3 credits)

BME 5930: Robotics (3 credits)

BME 5930: Biofluids (3 credits, EVEN years)



## **Example Program of Study**

### **Thesis MS**

#### **Focus area: Biomaterials, Tissue Engineering, Biomechanics**

#### Requirements for an MS degree:

- 30 credits are needed for an MS degree
- suggested time to degree is 2 years
- students can take up to 6 credits of 4000-level classes, the rest need to be 5000-level
- students can take up to 3 credits of Graduate reading classes or equivalent
- students need to take 2 CORE classes of their choosing
- students need to take 2 semesters of ESCI 5000 Seminar (0 credits)
- students must take 6 credits of Thesis Research for Thesis MS

#### Additional considerations:

- any class can be substituted with a class from the list provided at the end
- students can take a class in a different department or program at SLU, if they inquire with the instructor and have the necessary pre-requisites
- In consultation with their academic advisor, students can select different classes (than indicated here) to match their academic background, interests, and future career goals as long as the requirements listed above are fulfilled

#### Fall semester, Year 1 (6 credits)

BME 4400: Biomaterials (3 credits) – CORE class

BME 5600: Quantitative Physiology I (3 credits) – CORE class

ESCI 5000: Seminar (0 credits)

#### Spring Semester, Year 1 (6 credits)

BME 5430: Regenerative Engineering (3 credits)

*For EVEN years:* BME 5930: Biofluids (3 credits) or BME 5320: Drug Delivery (3 credits) or

BME 5650: Quantitative Physiology II (3 credits)

*For ODD years:* BME 5400: Tissue-Material Interfaces (3 credits) or BME 5650: Quantitative Physiology II (3 credits) or BME 5930: Biotransport (3 credits)

ESCI 5000: Seminar (0 credits, every semester; 2 semesters required for degree)

#### Summer Semester, Year 1 (6 credits)

PUBH 5040: Generating Evidence from Public Health Data (3 credits, ON-LINE)

BME 5980: Graduate Reading Course (3 credits, with faculty advisor)

#### Fall semester, Year 2 (6 credits)

BME 5410: Tissue Engineering (3 credits)

BME 5010: Research Analysis (2 credits)

BME 5990: Thesis Research (1 credit)

#### Spring semester Year 2 (6 credits)

BME 5040: Technical Communication (1 credits)

BME 5990: Thesis Research (3 credits)



## **Example Program of Study**

### **Thesis MS**

#### **Focus area: Robotics, Imaging, Neuroscience**

#### Requirements for an MS degree:

- 30 credits are needed for an MS degree
- suggested time to degree is 2 years
- students can take up to 6 credits of 4000-level classes, the rest need to be 5000-level
- students can take up to 3 credits of Graduate reading classes or equivalent
- students need to take 2 CORE classes of their choosing
- students need to take 2 semesters of ESCI 5000 Seminar (0 credits)
- students must take 6 credits of Thesis Research for Thesis MS

#### Additional considerations:

- any class can be substituted with a class from the list provided at the end
- students can take a class in a different department or program at SLU, if they inquire with the instructor and have the necessary pre-requisites
- In consultation with their academic advisor, students can select different classes (than indicated here) to match their academic background, interests, and future career goals as long as the requirements listed above are fulfilled

#### Fall semester, Year 1 (6 credits)

BME 5600: Quantitative Physiology I (3 credits) – CORE class

BME 4700: BME Entrepreneurship (3 credits) or MENG 5930-02 (Chi-Hou Lei): Model and simulation (3 credits)

ESCI 5000: Seminar (0 credits)

#### Spring Semester, Year 1 (6 credits)

BME 5130: Medical Imaging (3 credits) – CORE class

BME 5930: Machine Learning in Computational Neuroscience (3 credits)

ESCI 5000: Seminar (0 credits)

#### Summer Semester, Year 1 (6 credits)

PUBH 5040: Generating Evidence from Public Health Data (3 credits, ON-LINE)

BME 5980: Graduate Reading Course (3 credits, with faculty advisor)

#### Fall semester, Year 2 (6 credits)

BME 5150: Brain Computer Interface (3 credits)

BME 5010: Research Analysis (2 credits)

BME 5990: Thesis Research (1 credit)

#### Spring semester Year 2 (6 credits)

BME 5040: Technical Communication (1 credits)

BME 5990: Thesis Research (3 credits)



## **List of graduate classes**

### Fall BME Classes

BME 5410: Tissue Engineering (3 credits)  
BME 5600: Quantitative Physiology I (3 credits) – CORE class  
BME 4400: Biomaterials (3 credits) – CORE class  
BME 5150: Brain Computer Interface (3 credits)  
BME 5010: Research Analysis (2 credits)  
BME 4700: BME Entrepreneurship (3 credits)  
BME 5930: Biomechanical Testing and Evaluation (3 credits)

### Spring BME Classes

BME 4200: Biomechanics (3 credits)  
BME 5040: Technical Communications (1 credit)  
BME 5130: Medical Imaging (3 credits) – CORE class  
BME 5320: Drug Delivery (3 credits, EVEN years)  
BME 5400: Tissue-Material Interfaces (3 credits, ODD years)  
BME 5430: Regenerative Engineering (3 credits)  
BME 5650: Quantitative Physiology II (3 credits, ODD years)  
BME 5930: Special Topics: Biotransport (3 credits, ODD years)  
BME 5930: Special Topics: Biofluids (3 credits, EVEN years)  
BME 5930: Special Topics: Machine Learning in Computational Neuroscience (3 credits)  
BME 5930: Special Topics: Medical Robotics (3 credits)

### Spring/Fall Semester BME Classes

ESCI 5000: Seminar (0 credits)  
BME 5850: Design of BME Lab experiments (3 credits)  
BME 5915: Internship with Industry (1-3 credits)  
BME 5980: Graduate Reading Course (3 credits)  
BME 5970: Research Topics (3 credits)  
BME 5960: Master's Project (3 credits)

### Summer Semester BME and BME-Related Classes

PUBH 5040: Generating Evidence from Public Health Data (3 credits, ON-LINE)  
BME 5980: Graduate Reading Course (3 credits)  
BME 5970: Research Topics (3 credits)  
BME 5960: Master's Project (3 credits)

### BME-Related Classes from Other Programs

PATH 5350: Intro to Microscopy (3 credits, Fall)  
BIOL 5640: Concepts of Immunology (3 credits)



## Biomedical Engineering

Graduate Program Coordinator: Silviya Zustiak

Last updated: 05/26/2022

BIOL 4440: Vertebrate Histology: Structure and Function of Tissues (3 credits)

AENG 5130: Intro to CFD (3 credits)

BIOL 5080: Advanced Cell Biology (3 credits)

BIOL 5120: Signal Transduction (3 credits)

PHYS 5020: Nanoscience and Nanofabrication Frontiers (3 credits, Fall)

PHYS 5980: Methods in Cell Mechanobiology (3 credits, Spring)

Biophysics (Physics) (3 credits)

CHEM 5610: Biochemistry 1 (3 credits, Fall)

Cancer Biology (Biology) (3 credits)

CHEM 5630: Chemical Biology and Biotechnology (3 credits, Fall)

MENG 5930-02 (Chi-Hou Lei): Model and simulation (3 credits, Fall)