

# M.S. Med Curriculum

All courses must be taken for letter grade.

## Required Courses for the M.S. Med Degree

Note: The “F,W,S” in parentheses indicate when the course is typically expected to be offered, with “F” indicating Fall, “W” indicating Winter, and “S” indicating Spring.

### 1. Core Courses (total of five required):

#### *Core Emphasis (all three required)*

- BENG 294A. Patient Centered Clinical Medicine for Bioengineers – 4 units (F)
- BENG 294B. Engineering in the Patient Healthcare System– 4 units (W)
- BENG 294C. Clinical Experience in Bioengineering– 4 units (S)

#### *Life Science Core (one required)*

- Select one of the following – 4 units
  - BENG 230A. Biochemistry (F)
  - BENG 230B. Cell and Molecular Biology (W)
  - BENG 230C. Cardiovascular Physiology (S)
  - BENG 230D. Respiratory and Renal Physiology (S)
  - BENG 232. Musculoskeletal Health, Injury, and Disease (S)
  - BENG 234. Introduction to Neurophysiology: Molecules to Systems (S)
  - BENG 260. Neurodynamics (F)

#### *Engineering Sciences Core (one required)*

- Select one of the following – 4 units
  - BENG 202. Bioinformatics II: Introduction to Bioinformatics Algorithms (W)
  - BENG 211. System Biology and Bioengineering I: Biological Components (F)
  - BENG 221. Mathematical Methods for Bioengineering (F)
  - BENG 223. Thermodynamics, Statistical Mechanics, Interfacial Phenomena in Living Systems (W)
  - BENG 226. Foundations of Bioengineering I: Tissue and Cell Properties (S)
  - BENG 227. Transport Phenomena in Living Systems (S)
  - BENG 241A. Tissue Engineering and Regenerative Medicine: Foundations (F)
  - BENG 280A. Principles of Biomedical Imaging (F)

### 2. Electives (total of seven required):

Twenty-eight units of elective course work are required for completion of course requirements. Graduate courses offered in the Departments of Bioengineering, Mechanical and Aerospace Engineering, and Nanoengineering may be used to fulfill the elective course requirement with some exceptions. Please speak with Bioengineering Graduate Student Affairs for more information. Graduate courses in the School of Medicine or in the Division of Biological Sciences may also be used to fulfill the elective course requirement. Courses taken in fulfillment of the elective course requirement must be taken for a letter grade. Other courses may be approved by petition. Up to twelve units of upper-division undergraduate course work limited to the below courses typically required for admission to medical school may be used toward the degree:

- BICD 100. Genetics
- BIMM 100. Molecular Biology
- BENG 140A. Bioengineering Physiology
- BENG 140B. Bioengineering Physiology
- BIPN 100. Human Physiology I
- BIPN 102. Human Physiology II