University of Rochester Biomedical Engineering (BME) Program

First two years - ALL Students

1st Fall
- BME 101 Introduction to Biomedical Engineering
- *MTH 161 Calculus I
- CHM 131 Chemistry I
- Primary Writing or Humanities / Social Science

1st Spring
- Primary Writing or Humanities / Social Science
- MTH 162 Calculus II
- CHM 132 Chemistry II
- PHY 121 Mechanics

Soph Fall
- BME 201 & 201P Biomechanics & MATLAB
- MTH 162
- #MTH 165 Differential Equations
- BIO 110 Biology
- PHY 122 Physics II Electricity & Magnetism

ALL Students

Soph Spring
- BME 210 Biosystems & Circuits
- #MTH 164 Multidimensional Calculus
- Humanities / Social Science & WRT 273 ** Prof Identity
- ME 226 Solid Mechanics
- ★ Basic Science Elective

Concentrations:

Biosignals & Biosystems

- Humans / Social Science & WRT 273** Prof Identity
- ME 226 Solid Mechanics
- ★ Basic Science Elective

Cell & Tissue Eng

- ★ Basic Science Elective
- ★ Basic Science Elective
- ★ Basic Science Elective
- ★ Basic Science Elective
- ★ Basic Science Elective
- Elective

Medical Optics

- ★ Basic Science Elective
- ★ Basic Science Elective
- ★ Basic Science Elective
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★ All students must complete at least two additional BASIC SCIENCE Electives (at least 8 credits) in addition to BIO 110, CHM 131/132 and PHY 121/122. Any natural science with a number of 110 or higher (biology, chemistry, microbiology, environmental science, neuroscience, physics, or selected courses from brain & cognitive sciences) may be used to fulfill this requirement. Independent study courses cannot be used to satisfy this requirement. Students in C&T concentration must take either BME 411, B101 or B102 as one of the BSE courses. See curriculum guide for further information.

For a list of Upper-Level BME's for each concentration, see Curriculum Guide.

Three of the four required Humanities/Social Science courses must form a CLUSTER.

** WRT 273 may be taken either Spring sophomore year or fall junior year.

Pre-requisites for each course are noted at the top of each box (underlined courses are co-requisites).

*An alternative to the MTH 161 and 162 sequence is the MTH 141, 142, 143 sequence. Careful attention must be paid to the effects of this longer sequence, including the possible need to take a course in the summer following the first year. Students taking the 141-3 series also take PHY 113 instead of PHY 121. MTH 171-4 also fulfills the Math requirements.

#MTH 164 may be taken before MTH 165 – both courses are taught Fall & Spring.

- JR Fall
  - BME 230 Intro to Signals & Imaging
  - ★ MTH 162, PHY 221
  - ME 123 Basic Science Elective
  - ★ Basic Science Elective

- JR Spring
  - BME 201/202P Biomedical Computation & Statistics
  - ★ MTH 164, MTH 210, 132, 211, 160, 162
  - ★ Basic Science Elective

- SR Fall
  - BME 295 Quantitative Physiology
  - ★ MTH 164, 165, BME201, ME123
  - Upper Level BME

- SR Spring
  - BME 296 Senior Design Project
  - Humanities / Social Science
  - Elective

Electives

- ★ Basic Science Elective
- ★ Basic Science Elective
- ★ Basic Science Elective
- ★ Basic Science Elective
- ★ Basic Science Elective

- Upper Level BME

- Secondary Science
- ★ Primary Writing or Humanities / Social Science