



**Notes**

- Grey box = either semester
- $\longrightarrow$  = prerequisite;  $\dashrightarrow$  = corequisite
- Students planning to **study abroad** sophomore 2 should take EK 301 in sophomore 1.
- Premed students take CAS CH203/4 sophomore year and defer WR 151/2/3 and Hub elective.
- Students must complete 48 credits of upper-division program coursework (not including Hub or writing).
- See back for Hub Unit Legend

**Hub Electives: must include all Hub requirements below to fulfill degree requirements:**

- 1. Philosophical Inquiry & Life's Meanings (PLM)
- 2. Aesthetic Exploration (AEX)
- 3. Historical Consciousness (HCO)
- 4. Social Inquiry (SO1 or SO2)
- 5. Individual & Community (IIC)
- 6. First Global Citizenship & Intercultural Literacy (GCI)
- 7. Second Global Citizenship & Intercultural Literacy (GCI)
- 8. Ethical Reasoning (ETR)
- Total of at least 16 credits

### **REQUIREMENTS**

Biomedical Engineering (BME) majors are required to complete a minimum of 133 credits as detailed on the Program Planning Sheet on the other side of this page. **Pre-Med Majors** should consult with the BU Pre-Professional Advising Office and their ENG Faculty Advisors.

### **HUB ELECTIVES**

All students are required to complete a total of 26 Hub requirements. Eighteen of these Hub requirements are incorporated into courses required for the BME BS degree. The remaining eight Hub requirements must be satisfied through four (or more) Hub Electives that incorporate the following seven Hub areas: Philosophical Inquiry; Aesthetic Exploration; Historical Consciousness; Social Inquiry; Individual in Community; Ethical Reasoning; Global Citizenship & Intercultural Literacy (2X). Search for courses that fulfill specific combinations of Hub requirements at: <https://www.bu.edu/phpbin/course-search/>

### **CONTINUA & FIELDS IN BIOMEDICAL SYSTEMS ELECTIVE** BME majors complete one Continua & Fields Elective (4 credits) from the following:

ENG BE 420 Introduction to Solid Biomechanics  
 ENG BE 435 Transport Phenomena in Living Systems  
 ENG BE 436 Fundamentals of Fluid Mechanics

### **PROFESSIONAL ELECTIVES** BME majors complete two Professional Electives (8 credits) from the following:

All ENG BE, EC, EK, and ME 300, 400, and 500 level courses are suitable as a professional elective (except ENG EK 409 and all directed study & directed research, BE 500, and courses with material that overlaps with requirements – see **Notes** below); directed study and BE 500 may be acceptable by petition.  
 CAS CH 203, CAS CH 204 and all CAS CH 300, 400 and 500 level courses (except: CAS CH 391, 392, 401, 402, 491, 492).  
 All CAS PY 300, 400, and 500 level courses (except PY 355, 371, 401, 402, 482, 491, 492).  
 All CAS MA 300, 400, and 500 level courses (except CAS MA 381, 401, 402, 581).  
 CAS BI 206, CAS BI 216 and all CAS BI 300, 400 and 500 level courses (except BI 315, 371, 372, 394)

ENG ME 357 Intro to CAD (2 cr)	HUB XC 433 D1 The Art and Sci of Tech Consulting	QST SI 482 Technology & Its Commercialization
ENG ME 358 Design & Manufacture (2 cr)	QST SI 480 The Business of Technology Innovation	

### **ENGINEERING ELECTIVES** BME majors complete one Engineering Elective course (4 credits) from the following list:

ENG BE 404 Advanced Controls	ENG BE 555 Introduction to Biomedical Optics	ENG EC 516 Digital Signal Processing
ENG BE 420 Intro to Solid Biomechanics	ENG BE 556 Optical Spectroscopic Imaging	ENG EC 522 Intro to Computational Imaging
ENG BE 425 Intro to Biomedical Materials Science	ENG BE 559 Foundations Biomed Data Sci & ML	ENG EC 526 Parallel Algorithm for High Perf Computing
ENG BE 435 Transport Phenomena in Living Tissues	ENG BE 567 Nonlinear Systems in BME	ENG EK 481 Nanomaterials & Nanotechnology
ENG BE 436 Fundamentals Fluid Mechanics	ENG BE 571 Intro to Neuroengineering	ENG ME 302 Engineering Mechanics II
ENG BE 471 Quantitative Neuroscience	ENG BE 572 Neurotechnology Devices	ENG ME 305 Mechanics of Materials
ENG BE 503 Comp Methods in Biomed	ENG EC 311 Intro to Logic Design	ENG ME 309 Structural Materials
ENG BE 508 Quant Studies Resp & Card Sys	ENG EC 327 Intro Software Engineering	ENG ME 419 Heat Transfer
ENG BE 511 Biomedical Instrumentation	ENG EC 410 Intro to Electronics	ENG ME 441 Mechanical Vibrations
ENG BE 517 Optical Microscopy of Biological Mtrls	ENG EC 414 Intro to Machine Learning	ENG ME 503 Kinetic Processes in Materials
ENG BE 521 Continuum Mechanics BME	ENG EC 455 Electromagnetic Systems I	ENG ME 555 MEMS: Fabrication & Materials
ENG BE 533 Biorheology	ENG EC 471 Physics Semiconductor Devices	ENG ME 571 Medical Robotics
ENG BE 549 Struct & Function Extracell Matrix	ENG EC 503 Intro to Learning from Data	
ENG BE 552 Computational Synth Bio for Eng	ENG EC 505 Stochastic Processes	

### **BIOMEDICAL ENGINEERING ELECTIVES** BME majors complete two Biomedical Engineering Electives (8 credits) from the following:

All **ENG BE 400 and 500 level courses** (except BE 451, BE 452 & BE 500); BE 451, BE 500, and BE 600-level & 700-level courses may be acceptable by petition.

### **BIOMEDICAL ENGINEERING DESIGN ELECTIVES** BME majors complete one Biomedical Engineering Design Elective (4 credits) from the following:

ENG BE 428 Device Diagnostics & Design  
 ENG BE 468 Clinical Applications of Biomedical Design

### **Hub Unit Legend:**

QR1 = Quantitative Reasoning 1	WR1 = Writing, Research & Inquiry	RIL = Research and Information Literacy
QR2 = Quantitative Reasoning 2	WIN = Writing-Intensive Course	TWC = Teamwork/Collaboration
SI1 = Scientific Reasoning 1	OSC = Oral and/or Signed Communication	CRI = Creativity/Innovation
SI2 = Scientific Reasoning 2	DME = Digital/Multimedia Expression	
FYW = First-Year Writing Seminar	CRT = Critical Thinking	

### **Notes:**

- Any requirement satisfied via AP/IB earns a **maximum of one Hub requirement** and students may need to replace missing Hub requirements.
- Any requirement satisfied via transfer earns **zero Hub requirements** and students may need to replace missing Hub requirements.
- For each of the following sets of courses, only **one** course can be taken for credit in each set due to the overlap of material:
  - ENG ME 403, ENG ME 404, ENG EC 402, ENG BE 404
  - ENG ME 303, ENG BE 436
  - ENG ME 306, ENG BE 425
  - ENG EK 103, CAS MA 142, CAS MA 242
  - ENG BE 403, ENG EC 401
  - ENG EK 381, CAS MA 381, CAS MA 581