



- 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 units of upper-division program coursework (not including Hub or writing).
 - See back for Hub Requirements 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 units

**REQUIREMENTS**

Biomedical Engineering (BME) majors are required to complete a minimum of 133 units 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 units) 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 units) 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 units)

ENG ME 358 Design & Manufacture (2 units)

HUB XC 433 D1 Art&Sci Tech Cnsltng (F24 & Sp25)

HUB XC 438 The Art & Sci of Tech Consulting

QST SI 480 The Business of Technology Innovation

QST SI 482 Technology & Its Commercialization

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

ENG BE 404 Advanced Controls

ENG BE 420 Intro to Solid Biomechanics

ENG BE 425 Intro to Biomedical Materials Science

ENG BE 435 Transport Phenomena in Living Tissues

ENG BE 436 Fundamentals Fluid Mechanics

ENG BE 471 Quantitative Neuroscience

ENG BE 503 Comp Methods in Biomed

ENG BE 508 Quant Studies Resp & Card Sys

ENG BE 511 Biomedical Instrumentation

ENG BE 517 Optical Microscopy of Biological Mtrls

ENG BE 518 Mdrn Opt Microsc for Biomed Imagng

ENG BE 521 Continuum Mechanics BME

ENG BE 533 Biorheology

ENG BE 526 Fundamentals of Biomaterials

ENG BE 549 Struct & Function Extracell Matrix

ENG BE 552 Computational Synth Bio for Eng

ENG BE 555 Introduction to Biomedical Optics

ENG BE 556 Optical Spectroscopic Imaging

ENG BE 557 Prog Fundmntls for BME Data Analysis

ENG BE 559 Foundations Biomed Data Sci & ML

ENG BE 562 Computational Bio: ML Fundamentals

ENG BE 567 Nonlinear Systems in BME

ENG BE 571 Intro to Neuroengineering

ENG BE 572 Neurotechnology Devices

ENG EC 311 Intro to Logic Design

ENG EC 327 Intro Software Engineering

ENG EC 410 Intro to Electronics

ENG EC 414 Intro to Machine Learning

ENG EC 455 Electromagnetic Systems I

ENG EC 471 Physics Semiconductor Devices

ENG EC 503 Intro to Learning from Data

ENG EC 505 Stochastic Processes

ENG EC 516 Digital Signal Processing

ENG EC 522 Intro to Computational Imaging

ENG EC 526 Parallel Algorith for High Perf Computing

ENG EK 481 Nanomaterials & Nanotechnology

ENG ME 302 Engineering Mechanics II

ENG ME 305 Mechanics of Materials

ENG ME 309 Structural Materials

ENG ME 419 Heat Transfer

ENG ME 441 Mechanical Vibrations

ENG ME 503 Kinetic Processes in Materials

ENG ME 555 MEMS: Fabrication & Materials

ENG ME 571 Medical Robotics

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

ENG BE 428 Device Diagnostics & Design*

ENG BE 468 Clinical Applications of Biomedical Design

ENG BE 478 Engineering Design for Refugee Health*

***NOTE:** BE 428 & BE 478 cannot both be taken for credit

Hub Requirements Legend:

QR1 = Quantitative Reasoning 1

QR2 = Quantitative Reasoning 2

SI1 = Scientific Reasoning 1

SI2 = Scientific Reasoning 2

FYW = First-Year Writing Seminar

WRI = Writing, Research & Inquiry

WIN = Writing-Intensive Course

OSC = Oral and/or Signed Communication

DME = Digital/Multimedia Expression

CRT = Critical Thinking

RIL = Research and Information Literacy

TWC = Teamwork/Collaboration

CRI = Creativity/Innovation

Notes:

a) Any requirement satisfied via AP/IB fulfills a **maximum of one Hub requirement** and students may need to replace missing Hub requirements.

b) Any requirement satisfied via transfer fulfills **zero Hub requirements** and students may need to replace missing Hub requirements.

c) 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:

(1) ENG ME 403, ENG ME 404, ENG EC 402, ENG BE 404

(2) ENG ME 303, ENG BE 436

(3) ENG ME 306, ENG BE 425

(4) ENG EK 103, CAS MA 242

(5) ENG BE 403, ENG EC 401

(6) ENG EK 381, CAS MA 381

(7) ENG BE 428, ENG BE 478

(8) CAS PY 313, CAS PY 314, CAS PY321 & 321