### Biomedical Engineering – 2022 (133 credits)

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

- 1. One unit Philosophical Inquiry & Life’s Meanings
- 2. One unit Aesthetic Exploration
- 3. One unit Historical Consciousness
- 4. One unit Social Inquiry
- 5. One unit Individual & Community
- 6. First unit Global Citizenship & Intercultural Literacy
- 7. Second unit Global Citizenship & Intercultural Literacy
- 8. One unit Ethical Reasoning

**Total of at least 16 credits**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS MA 123</td>
<td>Calculus I</td>
<td>4</td>
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<tr>
<td>ENG EK 100</td>
<td>Freshman Seminar</td>
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<tr>
<td>CAS CH 101</td>
<td>Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>ENG EK 125</td>
<td>Programming for Engineers</td>
<td>4</td>
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<tr>
<td>CAS WR 120</td>
<td>Writing Seminar</td>
<td>4</td>
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<tr>
<td>ENG EK 131</td>
<td>Intro to ENG</td>
<td>2</td>
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<tr>
<td>ENG EK 103</td>
<td>Comp Lin Alg</td>
<td>3</td>
</tr>
</tbody>
</table>

### Notes
- 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 150 and Hub elective.
- Grey box = either semester
- Students must complete 48 credits of upper-division program coursework (not including Hub or writing).
REQUIREMENTS

Biomedical Engineering 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 units. Eighteen of these Hub units are included in courses required for the BME BS degree. The remaining eight Hub units 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). Lists of courses that fulfill combinations of these Hub units are at: www.bu.edu/eng/current-students/ugrad/requirements/hub-electives/

CONTINUA & FIELDS IN BIOMEDICAL SYSTEMS ELECTIVE

Biomedical Engineering majors complete one Continua & Fields Elective from the following:

- ENG BE 419 Principles of Continuum Mechanics & Transport
- ENG BE 420 Introduction to Solid Biomechanics
- ENG BE 435 Transport Phenomena in Living Systems
- ENG BE 436 Fundamentals of Fluid Mechanics

PROFESSIONAL ELECTIVES

Biomedical Engineering 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 BE 500, and courses with material that overlaps with requirements – see Notes below)

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 371, 401, 402, 482, 491, 492).

All CAS MA 300, 400, and 500 level courses (except CAS MA 381, 401, 402).

All CAS BI 206, CAS BI 216 and all CAS BI 300, 400 and 500 level courses (except BI 315, 371, 372, 391, 392)

- ENG BF 527 Applications in Bioinformatics
- ENG EK 156 Design & Manufacture
- CAS CH 627 RNA Structure
- CAS CH 629 DNA Nanotechnology
- SAR HS 360 Muscle Biology in Health & Disease
- QST SI 480 The Business of Technology Innovation
- QST SI 482 Technology & Its Commercialization
- ENG BF 527 Application in Bioinformatics
- ENG EK 156 Design & Manufacture
- CAS CH 627 RNA Structure
- CAS CH 629 DNA Nanotechnology
- SAR HS 360 Muscle Biology in Health & Disease
- QST SI 480 The Business of Technology Innovation
- QST SI 482 Technology & Its Commercialization

ENGINEERING ELECTIVES

Biomedical Engineering majors complete one Engineering Elective course from the following list:

- ENG BE 400 Biomedical Special Topics
- ENG BE 404 Advanced Controls
- ENG BE 419 Principles of Continuum Mechanics
- ENG BE 420 Intro to Solid Biomechanics
- ENG BE 435 Transport Phenomena in Living Tissues
- ENG BE 436 Fundamentals Fluid Mechanics
- ENG BE 503 Comp Methods in Biomed
- ENG BE 508 Quant Studies Resp & Card Sys
- ENG BE 511 Biomedical Instrumentation
- ENG BE 400 Biomedical Special Topics
- ENG BE 404 Advanced Controls
- ENG BE 419 Principles of Continuum Mechanics
- ENG BE 420 Intro to Solid Biomechanics
- ENG BE 435 Transport Phenomena in Living Tissues
- ENG BE 436 Fundamentals Fluid Mechanics
- ENG BE 503 Comp Methods in Biomed
- ENG BE 508 Quant Studies Resp & Card Sys
- ENG BE 511 Biomedical Instrumentation
- ENG EC 410 Intro to Logic Design
- ENG EC 416 Intro Digital Signal Processing
- ENG EC 455 Electromagnetic Systems I
- ENG EC 471 Physics Semiconductor Devices
- ENG EC 505 Stochastic Processes
- ENG EC 581 Nanomaterials & Nanotechnology
- ENG ME 302 Engineering Mechanics II
- ENG ME 305 Mechanics of Materials
- ENG ME 306 Materials Science
- ENG ME 309 Structural Materials
- ENG ME 419 Heat Transfer
- ENG ME 441 Mechanical Vibrations
- ENG ME 555 MEMS: Fabrication & Materials

BIOENGINEERING ELECTIVES

Biomedical Engineering majors complete two Biomedical Engineering Electives (8 credits) from the following:

All ENG BE 400 and 500 level courses (except BE 500); BE 700 level courses may be petitioned.

ENG BF 527 Application in Bioinformatics

BIOENGINEERING DESIGN ELECTIVES

Biomedical Engineering majors complete one Biomedical Engineering Design Elective from the following:

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

Notes:
For each of the following seven 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 BE 402, ENG EC 402
2. ENG ME 303, ENG BE 436
3. ENG ME 501, ENG EC 501
4. ENG EC 102, ENG EC 103, CAS MA 142, CAS MA 242
5. ENG BE 401, ENG BE 403, ENG EC 401
6. ENG ME 366, ENG EC 381, ENG EC 481, ENG BE 200
7. ENG ME 460, ENG ME 560

11/15/2018