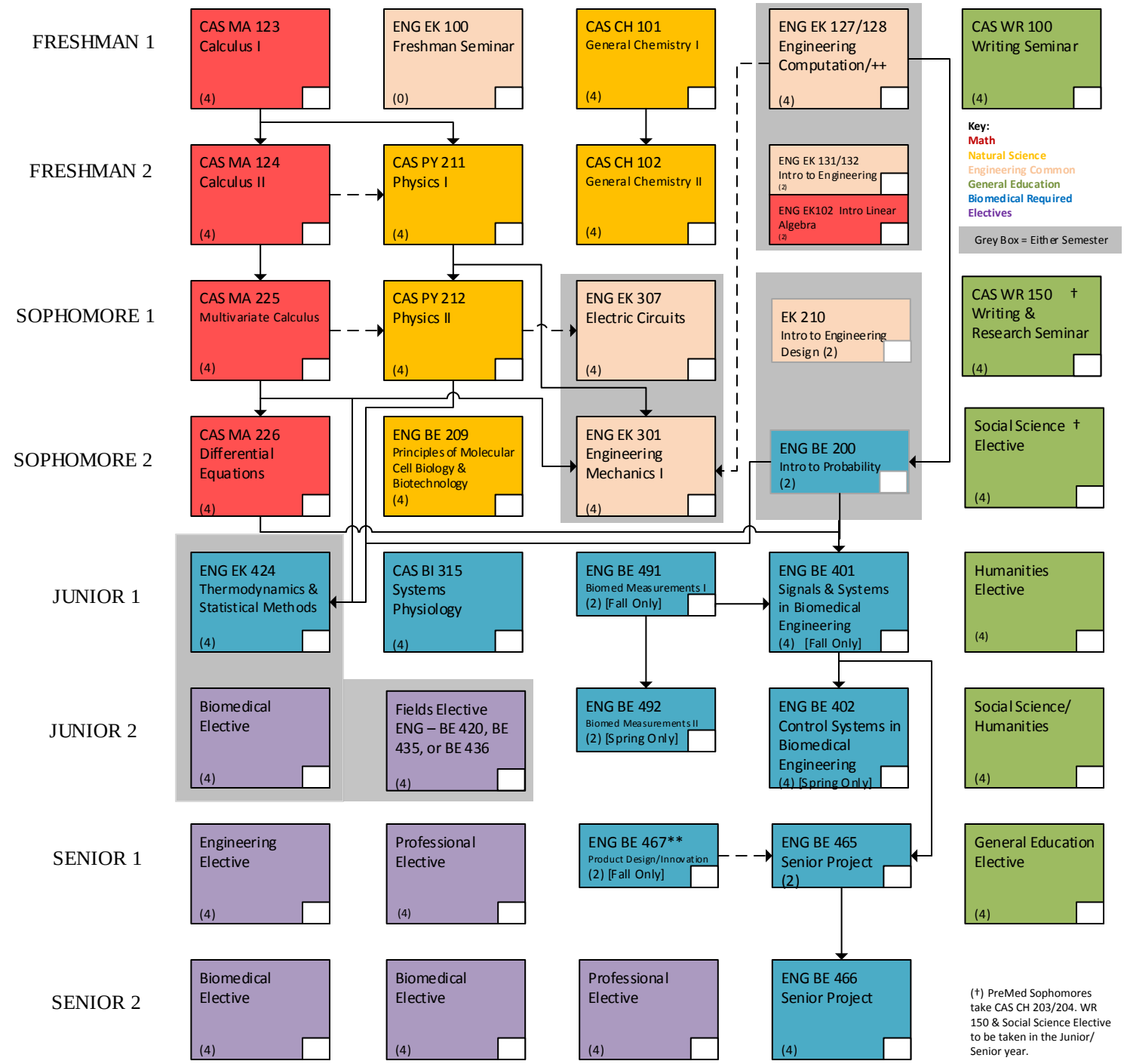
BU College of Engineering

Biomedical Engineering – 2018

Undergraduate Program Planning Sheet

NAME:_____ **U.I.D.#** U_____ **DATE:**_____



(†) PreMed Sophomores take CAS CH 203/204. WR 150 & Social Science Elective to be taken in the Junior/ Senior year.

STUDY ABROAD: Students who plan to study abroad in Sophomore 2 should take EK 301 in Sophomore 1

**** BME students may waive BE467 if student has taken or plans to take BE428. Student must still complete 136 credits to complete BME Degree (the 2 credits are not waived). This waiver covers 2018 students (Jan/May/Sept) only**

Extra Courses ( ) ( ) ( ) ( ) ( ) ( )

Prereq.= ⟶
Coreq.= ⟶

- ❑ **GRADUATION REQUIREMENT: 136 credits**
- ❑ **ENG Credit Req**: 48 credits/Upper Division Program courses completed at BU.

General Education Requirements Checklist

- ❑ 1. CAS WR 100
- ❑ 2. CAS WR 150
- ❑ 3. 1 Course in Social Science
- ❑ 4. 1 Course in Humanities
- ❑ 5. 1 Course SS or HUM
- ❑ 6. 1 Couse General Education Elective
- ❑ 7. Total of at least 24 credits

Please note, this is a model of completion for the BME undergraduate curriculum. If this model is followed, all necessary prerequisites and co-requisites should be fulfilled. However, if you choose to deviate from this model, you will need to speak with your advisor to ensure you are taking everything you need in the correct order. Students majoring in Biomedical Engineering are required to complete a minimum of 136 credits as detailed on the Program Planning Sheet on the other side of this form

BU College of Engineering

BIOMEDICAL ENGINEERING

REQUIREMENTS

Design Req: 4 credits from the design Elective list must be taken to fulfill a professional, engineering, or biomedical elective

Pre-Med Majors: Students should consult with the BU Pre-Professional Advising Office and their ENG Faculty Advisors

General Education courses: For a list of specific courses that satisfy the Social Science, Humanities, and the General Education Elective, please go to the College of Engineering Undergraduate Requirements website at: http://www.bu.edu/eng/current-students/ugrad/requirements/.

CONTINUA AND FIELDS IN BIOMEDICAL SYSTEMS ELECTIVE (4 credits required)

ENG BE 419 Principles of Continuum Mechanics and 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 (8 credits required)

All ENG BE, EC, EK, and ME 300, 400, and 500 level courses are suitable as a professional elective
[Exceptions due to overlap of material *: BE 500, EC 381, EC 402, EK 500, ME 308, ME 403, ME 404, ME 501]
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).
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
SAR HS 360 Muscle Biology in Health & Disease
QST SI 480 The Business of Technology Innovation
QSt SI 482 – Technology & Its Commercialization
CAS CH 627 – RNA Structure
CAS CH 629 – DNA Nanotechnology

ENGINEERING ELECTIVES (4 credits required)

ENG EC 311 Intro to Logic Design
ENG EC 327 Intro Software Engineering
ENG EC 412 Analog Electronics
ENG EC 415 Communications Systems
ENG EC 416 Intro Digital Signal Processing
ENG EC 450 Microprocessors
ENG EC 455 Electromagnetic Systems I
ENG EC 456 Electromagnetic Systems II
ENG EC 471 Physics Semiconductor Devices
ENG EC 505 Stochastic Processes
ENG EC 580 Modern Active Circuit Design
ENG EK 481 Nanomatrls & Nanotechnology
ENG ME 302 Engineering Mechanics II
ENG ME 305 Mechanics of Materials
ENG ME 306 Material Science
ENG ME 309 Structural Mechanics
ENG ME 407** Cmp-Aided Des & Manufacture
ENG ME 419 Heat Transfer
ENG ME 441 Mechanical Vibrations
ENG ME 555 MEMS: Fabrication& Materials

*Additionally, any Biomedical Elective (below) that has not been used to satisfy the BME Elective requirement **(except BF 527)** may be used as an Engineering Elective.*

BIOMEDICAL ENGINEERING ELECTIVES (12 credits required)

All **ENG BE 400 and 500 level courses** (except BE 500); BE 700 level courses may be petitioned.
ENG EC 410 Introduction to Electronics, **ENG BF 527** Application in Bioinformatics,

DESIGN ELECTIVES (4 credits required) *One of the elective choices above (Prof, ENG or BME) must include one 4-credit or two 2-credit courses from the design electives list.*

Fulfills Professional Elective:
ENG EK 156 - Design and Manufacture (2 cr)
ENG ME 359 – CAD/ Machine Components (2 cr)
ENG ME 360 – Product Design

Fulfills Fields Elective
ENG BE 435 – Transport Phenomena

Fulfills Engineering Elective:
ENG EC 311 – Introduction to Logic Design
ENG EC 412 – Analog Electronics
ENG EC 416 – Intro to Digital Signal Processing
ENG EC 580 – Modern Active Circuit Design
ENG ME 407** – Computer-Aided Design & Manufacture

Fulfills Biomedical Elective:
ENG BE 428 – Device Diagnostics & Design
ENG BE 437 – Nanometer Scale Processes
ENG BE 503 – Numerical Meth/Mod in BME
ENG BE 513 – Biological & Environ Acoustics
ENG BE 511 – Intro Biomed Instrumentation
ENG EC 410 – Introduction to Electronics

DEGREE ENHANCEMENTS

CONCENTRATIONS : Students may choose to add a Concentration in ***Energy Technologies, Nanotechnology*** or ***Technology Innovation***. Students completing a Minor in Mechanical Engineering may choose to add a concentration in ***Aerospace Engineering***. A concentration requires 4 courses which satisfy courses within the major. Hence, a concentration can usually be completed without additional coursework. More information on concentrations and the specific requirements for each can be found at http://www.bu.edu/eng/academics/programs/concentrations/. Students may also pursue minors in other Colleges at Boston University. For more information, please contact the College of the minor.

MINORS: Students may choose to add a minor in any one of the other degree programs or divisions ***(Materials Science & Engineering or Systems Engineering)*** within the College of Engineering A minor consists of 5 courses, 2 of which may also be used to satisfy requirements for the major. Completing a Minor will add a minimum of 12 credits to the total credits for the degree. More information on minors and the specific requirements for each can at http://www.bu.edu/eng/academics/programs/minors/.

DOUBLE MAJORS: Students may earn two engineering BS degrees. Double majors require a minimum of 168 credits and students must fulfill the requirements for each of the degree programs. See http://www.bu.edu/eng/academics/special-programs/ for more details.

OTHER WAYS TO ENHANCE YOUR DEGREE

Students have several additional options available to them including **study abroad, research,** and **co-op/internship** opportunities. For more information on these programs, please visit the College of Engineering Undergraduate website: http://www.bu.edu/eng/academics/.

Notes: For the following 10 sets of courses, only 1 course can be taken for credit in each set due to the overlap of material:

(1) ENG ME 305, ENG BE 420
(2) ENG ME 404, ENG BE 402, ENG EC 402
(3) ENG ME 303, ENG BE 436
(4) ENG ME 441, ENG ME 515
(5) ENG ME 501, ENG EC 501
(6) ENG ME 501, ENG EC 501
(7) ENG EK 102, CAS MA 142, CAS MA 242
(8) ENG BE 401, ENG EC 401
(9) ENG ME 366, ENG EC 381, ENG BE 200, ENG EK 500
(10) ENGME 359, ENG ME 407 ** (Summer Only)