2019-2020 Biomolecular Engineering and Bioinformatics: Biomolecular DRAFT

Math and Statistics

MATH 19A (or MATH 20A) Calculus I

MATH 19B (or MATH 20B) Calculus II

STAT 131 Intro to Probability Theory

STAT 132Ψ Statistical Inference

Chemistry

CHEM 1A General Chemistry

CHEM 1B/M (7 units) General Chemistry/Lab

CHEM 1C/N (7 units) General Chemistry/Lab

CHEM 8A Organic Chemistry

CHEM 8B Organic Chemistry

Laboratory Courses

(Strongly Recommended) BME 21L Introduction to Basic Laboratory Techniques OR **BIOL 20L** Experimental Biology Laboratory

AND

(Strongly Recommended) BME 22L Foundations of Design and Experimentation in Molecular Biology, Part 1 OR **CHEM 8L** Organic Chemistry Laboratory

AND

(Strongly Recommended) BME 23L Foundations of Design and Experimentation in Molecular Biology, Part II OR **CHEM 8M** Organic Chemistry Laboratory

Biology & Genetics

BIOL 20A Cell & Molecular Biology

BIOE 20B Development & Physiology

(Strongly Recommended) BME105 Genetics in the Genomics Era

OR

BIOL 105 Genetics

Humanities

BME 80G Bioethics

BME 185 (Recommended) Technical Writing for Biomolecular Engineers

OR

CSE 185E Technical Writing for Computer Engineers

Physics and Electronics

PHYS 5A/L (6 units) (or PHYS 6A/L) Intro to Physics/Lab

BME 51A Applied Electronics I

BME 51B Applied Electronics II

Bioinformatics

BME 110 Computational Biology Tools

BME 160 Research Programming/Lab

BME 163 Applied Visualization and Analysis

Design Elective

BME 128 or BME 140 or BME 177

One course cannot be used to satisfy both the Elective and Design Elective.

Elective

BIOL 115, METX 119, BIOC 100C, BME 122H, BME 128, BME 128L, BME 130, BME 132, BME 140, BME 177, BME 178, or 5-unit BME grad course(e.g. BME 230B)$

Biochemistry

BIOC 100A Biochemistry & Molecular Biology

BIOC 100B Biochemistry & Molecular Biology

Biomolecular Capstone

Students must complete one of the following:

Bioinformatics Capstone#

BME 205 Bioinformatics Models and Algorithms

BME 230A Introduction to Computational Genomics and Systems Biology

iGEM

BME 180 (2 units) Professional Practice in Bioengineering

BME 188A Synthetic Biology Research A

BME 188B Synthetic Biology Research B

Senior design

BME 129A Bioengineering Project I

BME 129B Bioengineering Project II

BME 129C Bioengineering Project III

Senior thesisα

BME 195 Senior Thesis

BME 123T Thesis Presentation

BME 195F Senior Thesis

BME 195 Senior Thesis

2019-12 Biomolecular Engineering and Bioinformatics: Biomolecular DRAFT

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

$ Not including BME 205 or BME 230A if using Bioinformatics capstone
# Please note that BME 205 has prerequisites not required by the Biomolecular Concentration
Ψ Students may petition to substitute STAT 206 for STAT 132.
Ω CSE 20 Beginning Programming in Python is recommended before BME 160 for students who have never programmed.
α The thesis option consists of 12 credits of Independent Study (BME 198), Field Study (BME 193), or Senior Thesis Research (BME 195) in biomolecular engineering; and BME 123T Senior Thesis Presentation, 5 credits. Students pursuing the senior thesis option must write a two-page thesis proposal and seek approval of their project from the undergraduate director in the quarter preceding the independent study courses, typically spring quarter of the third year.

Student Name:

Staff Advisor Signature: