# Bioengineering B.S. Degree: Biomolecular 2016-2017 Curriculum Chart

## Math & Statistics
- **MATH 3** or **AMS 3** or math placement of 400 or higher
  - **MATH 19A** Calculus [F/W/Sp]

- **MATH 19B** Calculus [F/W/Sp]

- **MATH 11B or MATH 19B or AMS 11B**
  - **AMS 131** Intro to Probability Theory [F/Sp]

- **AMS 131 or CMPE 107**
  - **AMS 132** Statistical Inference [W]

## Chemistry
- **MATH 3** or **AMS 3** or math placement of 300 or higher
  - **CHEM 1A** General Chemistry [F/W/Sp]

- **CHEM 1B/M** General Chemistry [F/W/Sp]

- **CHEM 1C/N** General Chemistry [F/W/Sp]

- **CHEM 1B, 1C, N**
  - **CHEM 8A/L** Organic Chemistry [F/W]

## Biochemistry OR
- **CHEM 108A or CHEM 8A**
  - **CHEM 8A** Organic Chemistry [W/Sp]

- **BIOL 100A** Biochemistry & Molecular Biology [F]

- **BIOL 100B** Biochemistry & Molecular Biology [W]

- **BIOL 100 OR 101 or BIOC 100A**
  - **BIOL 100A** Biochemistry Laboratory [W/Sp]

## Design Project OR Senior Thesis
- **BME 129A** Bioengineering Project I [Sp]

- **BME 129B** Bioengineering Project II [F]

- **BME 129C** Bioengineering Project III [W]

## Biochemistry Lab Elective*
- *Biochemistry Lab Electives:
  - **BIOL 110L**: Cell Biology Lab
  - **BIOL 115L**: Eukaryotic Molecular Bio Lab
  - **BIOL 120L**: Development Lab

## Biology Elective*
- *Biology Electives:
  - **BIOE 110**: Cell Biology
  - **BIOE 115**: Eukaryotic Molecular Biology
  - **METX 119**: Microbiology

## Programming
- **MATH 3** or **11A or 19A or AMS 3** or math placement of 400 or higher
  - **CMPS 12A/L**
    - **CMPS 12L** Intro to Programming [F/W]

- **CMPS 120 or CMPE 110**
  - **CMPS 110** Bioinformatics Tools [F/W]

- **BIOL 20A or 21A**
  - **BME 160/L** Research Programming [F/Sp]

- **CMPS 12B or CMPE 12 or CMPE 160**
  - **CMPE 165** Technical Writing [F/W/Sp]

## Physics & Electronics
- **MATH 19A or 20A**
  - **PHYS 5A/L** Intro to Physics I [F/W]

- **MATH 19B or 20B**
  - **PHYS 5C/N** Intro to Physics III [Sp]

- **MATH 19A**
  - **BME 51A** Applied Electronics I [W]

- **MATH 19B**
  - **BME 51B** Applied Electronics II [Sp]

## Electives
- *Bioengineering Design Elective*
  - **BME 128**: Protein Engineering
  - **BME 140**: Biomanufacturing
  - **BME 177**: Engineering Stem Cells

## Design Elective*
- *Bioengineering Design Electives:
  - **BME 188**: Synthetic Biology – Mentored Research A [Su]

## ISEM Project
- **BME 188A**: Synthetic Biology – Mentored Research B [Su]

## Notes:
- Denotes pre-requisites and co-requisites.
- Courses in which you receive a grade of C-, D+, D, or D- earn credit toward graduation, but cannot be used to satisfy a major requirement or a general education requirement, and cannot satisfy a prerequisite for another course.
- The School of Engineering has different major declaration deadlines than the UCSC Academic/Administrative calendar. Our deadlines and process can be found on: [http://ua.soe.ucsc.edu/declare](http://ua.soe.ucsc.edu/declare)
- **CMPS 5F Intro to Prog. in python is recommended for students who have never programmed**
- Pre-req for **BME 188A** is **BME 180** and perm. of instructor; pre-req for **BME 188B** is **BME 188A** and perm. of instructor

Information about the prerequisites and scheduling of courses can change without notice—please check your plan each quarter and adjust for any changes.

[http://ua.soe.ucsc.edu • advising@soe.ucsc.edu • (831) 459-5840 • 07/11/2016](http://ua.soe.ucsc.edu • advising@soe.ucsc.edu • (831) 459-5840 • 07/11/2016)
## Bioengineering B.S. Degree: Biomolecular

### 2016-2017 Curriculum Chart

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### Bioengineering Electives Approval Form

Elective 1: ____________________________
Elective 2: ____________________________
Elective 3: ____________________________
Elective 4: ____________________________

Explanation for choice of electives:

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Student Name: ____________________________
Staff Advisor: ____________________________
Faculty Advisor: ____________________________