Bioengineering: Biotechnology – Program Map – Catalog Year 2021 – 22

First Year

MATH 021
Calc I for Sci & Engr (4)

SPRK 001
Introduction to Computing (4)

CHEM 002
Bioengineering Seminar (1)

MATH 022
Calc II for Sci & Engr (4)

PHYS 008 & Lab
Intro Physics I (4)

CHEM 010
General Chem II (4)

MATH 023
Vector Calculus (4)

PHYS 009 & Lab
Intro Phys II (4)

BIOE 021
Introduction to Biomaterials (4)

Semester 3

MATH 024
Lin Algebra/Diff Equations (4)

PHYS 009 & Lab
Intro Phys II (4)

WRI 010
College Wri & Comp (4)

ENGR 030
Introduction to Conservation Principles in Engineering (4)

Semester 4

MATH 032
Probability and Statistics (4)

CHEM 010
General Chem II (4)

ENGR 065
Circuit Theory (4)

Semester 5

BIOE 130
Biothermodynamics (4)

PHYS 009 & Lab
Intro Phys II (4)

BIOE 002 & BIOE 002L
Molecular Biology for Engineers (5)

ENGR 191
Professional Seminar (1)

Semester 6

BIOE 115
Biomechanics (4)

WRI 010
College Wri & Comp (4)

BIOE 113
Bioengineering Seminar (1)

Technical Elective (Complete 8 units):
- Bio 003 (4 units)
- BioE 100 (4 units)
- BioE 113 (4 units)
- BioE 195 (1-4 units)
- Any other upper division BioE course
- MSE 114 (4 units)
- MSE 118 (3 units)
- MSE 126 (4 units)

Semester 7

BIOE 128
Biotechnology Lab (2)

BIOE 140
Biomolecular Engineering (4)

BIO 003
Bio 003 (4 units)

BIOE 145
Bioprocess Engineering (4)

Semester 8

Social Science, Arts, and Humanities GE (4)

ENGR 194
Engineering Capstone Design II (3)

Social Science, Arts, and Humanities GE (4)

Social Science, Arts, and Humanities GE (4)

Technical Elective (highly recommended BioE 113)

Technical Elective (highly recommended BioE 113)

Intellectual Badge Completion:
To complete badges, students must overlap Social Science, Arts, and Humanities GE’s with badge categories. See page 2.

This guide is an unofficial document intended to be used for advising/course planning only. This document cannot be used to supersede or waive requirements listed in the UCM Catalog.
General Education Requirements – PAY ATTENTION TO

Writing in the Discipline – Suggestion BioE 113 (will also count as technical elective)

AREA B: Social Science, Arts and Humanities. Students must take three courses in the area of Social Science, Arts and Humanities. At least one course must be from Social Science and one course must be from Arts and Humanities.

- Social Science – There is a place holder for this course. You will need to select a course. Cross with Intellectual Experience Badges.
- Arts and Humanities – There is a place holder for this course. You will need to select a course. Cross with Intellectual Experience Badges.
- Social Science, Arts and Humanities – There is a place holder for this course. You will need to select a course. Cross with Intellectual Experience Badges.

Intellectual Experience Badges

<table>
<thead>
<tr>
<th>Intellectual Experience Badge Breakdown to Maximize Graduation Requirements &amp; Required Courses</th>
<th>ONE COURSE CAN SATISFY A MAXIMUM OF TWO BADGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific Method</td>
<td>Completed with Major Requirements</td>
</tr>
<tr>
<td>Literary and Textual Analysis</td>
<td>Completed with Major Requirements</td>
</tr>
<tr>
<td>Media and Visual Analysis</td>
<td>Completed with Major Requirements</td>
</tr>
<tr>
<td>Quantitative and Numerical Analysis</td>
<td>Completed with Major Requirements</td>
</tr>
<tr>
<td>Societies and Cultures of the Past</td>
<td>Completed with Major Requirements</td>
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<tr>
<td>Diversity and Identity</td>
<td>Completed with Major Requirements</td>
</tr>
<tr>
<td>Global Awareness</td>
<td>Completed with Major Requirements</td>
</tr>
<tr>
<td>Sustainability</td>
<td>Completed with Major Requirements</td>
</tr>
<tr>
<td>Ethics</td>
<td>Completed with Major Requirements</td>
</tr>
</tbody>
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Suggested Courses to overlap Social Science, Arts and Humanities courses and Intellectual Experience Badges

- Social Science – ANTH 001, COGS 001, CRES 070, ECON 001, GASP 070A, GASP 070B, GASP 070C, PH 001, PH 005, POLI 001, POLI 002, POLI 003, POLI 005, POLI 006, PSY 001, SOC 001

- Arts and Humanities – CCST 060, CRES 001, CRES 076A, ENG 032, GASP 006, GASP 055B, GASP 060, GASP 076A, HIST 055, SPAN 050, SPAN 060

- Social Science, Arts and Humanities – Select a Social Science, Arts, and Humanities course from https://ge.ucmerced.edu/intellectual-experience-badges/global-awareness. Do not select a course in Natural Science (Bio, ESS, Phys) or Engr (Engr, ME, BioE, CE, EnvE, CSE, MSE).

Subject to availability and updating, always check your Audit.