

BIOENGINEERING

Fall Quarter	Units	Winter Quarter	Units	Spring Quarter	Units
FIRST YEAR					
BIEN 001 <i>Freshmen Seminar</i>	1	BIOL 005A & BIOL 05LA <i>Cell & Molecular Biology & Lab</i>	5	BIOL 005B <i>Organismal Biology</i>	4
CHEM 001A & CHEM 011A <i>General Chemistry & Lab</i>	5	CHEM 001B & CHEM 011B <i>General Chemistry & Lab</i>	5	CHEM 001C & CHEM 011C <i>General Chemistry & Lab</i>	5
ENGL 001A <i>Beginning Composition</i>	4	ENGL 001B <i>Intermediate Composition</i>	4	ENGL 001C or Alternate* <i>Applied Intermediate Composition</i>	4
MATH 009A <i>First Year Calculus</i>	4	MATH 009B <i>First Year Calculus</i>	4	MATH 009C <i>First Year Calculus</i>	4
SECOND YEAR					
BIEN 010 <i>Overview of Bioengineering</i>	4	CHEM 112A (12A) <i>Organic Chemistry</i>	4	CHEM 112B (12B) <i>Organic Chemistry</i>	4
MATH 046 <i>Differential Equations</i>	4	CS 010 <i>C++ Programming</i>	4	EE 001A & EE 011A <i>Engineering Circuit Analysis I & Lab</i>	4
PHYS 040A <i>Physics (Mechanics)</i>	5	MATH 010A <i>Multivariable Calculus</i>	4	MATH 010B <i>Multivariable Calculus</i>	4
Breadth _____ <i>Humanities/Social Sciences</i>	4	PHYS 040B <i>Physics (Heat/Waves/Sound)</i>	5	PHYS 040C <i>Physics (Electricity/Magnetism)</i>	5
THIRD YEAR***					
BIEN 101 <i>Quantitative Biochemistry</i>	4	BIEN 105 <i>Circulation Physiology</i>	4	BIEN 115 <i>Quantitative Physiology</i>	4
BIEN 110 <i>Biomechanics of the Human Body</i>	4	BIEN 125 <i>Biotechnology & Molecular Engr.</i>	4	BIEN 120 <i>Biosystems & Signals Analysis</i>	4
STAT 155 <i>Probability & Statistics for Engr</i>	4	BIEN/CEE 140A <i>Biomaterials</i>	4	BIEN 130 <i>Bioinstrumentation</i>	4
Breadth _____ <i>Humanities/Social Sciences</i>	4	Technical Elective** _____	4	BIEN 130L <i>Bioinstrumentation Lab</i>	2
FOURTH YEAR					
BIEN 175A <i>Senior Design</i>	2	BIEN 175B <i>Senior Design</i>	4	BIEN 175C <i>Senior Design</i>	4
BIEN 135 <i>Biophysics & Biothermodynamics</i>	4	Technical Elective** _____	4	Technical Elective** _____	4
BIEN 155 <i>Biotechnology Lab</i>	2	Breadth _____ <i>Humanities/Social Sciences</i>	4	Breadth _____ <i>Humanities/Social Sciences</i>	4
Technical Elective** _____	4	Breadth _____ <i>Humanities/Social Sciences</i>	4	Breadth _____ <i>Humanities/Social Sciences</i>	4

To earn a B.S., you must complete all College and University requirements. For a full list of requirements, go to www.catalog.ucr.edu.

ENGLISH COMPOSITION*

A C or better is required in all English Composition courses to satisfy the graduation requirement. Please consult with your Academic Advisor for ENGL 1C alternatives.

BREADTH REQUIREMENTS

For an approved list of Breadth courses, go to <http://student.engr.ucr.edu/policies/requirements/breadth.html>.

Humanities: (3 courses)

- A. World History: _____
- B. Fine Arts, Lit., Phil. or Rlst: _____
- C. Human Persp. on Science: _____

Social Sciences: (3 courses)

- A. Econ. or Posc.: _____
- B. Anth., Psyc, or Soc.: _____
- C. General Social Science: _____

Ethnicity: (1 course)

- 1. _____

Upper Division: (2 courses)

- 1. _____
- 2. _____

TECHNICAL ELECTIVES **

Please note that Technical Electives may be offered throughout the Academic Year. Consult with your Faculty Mentor about potential offerings. See approved technical electives on back.

*** Technical Electives may be taken in the third year if prerequisites have been met.

Bioengineering Technical Electives

You must complete 4 courses (at least 16 units) of Technical Elective coursework.
Acceptable courses in the Department of Bioengineering are listed below.

Course	Course Title (Units)
BIEN/MSE 136	Tissue Engineering (4)
BIEN 137	Advanced Biomechanics (4)
BIEN 138	Fundamental Principles of Wound Repair (4)
BIEN/CEE 140B	Biomaterials (4)
BIEN 142	Introductory Biomedical Optical Imaging (4)
BIEN/CEE 159	Dynamics of Biological Systems (4)
BIEN 160	Biomedical Imaging (4)
BIEN 165	Biomolecular Engineering (4)
BIEN 166	Bioinspired Engineering for Sustainable Energy (4)
BIEN 167	Medical Diagnostics (4)

**Note that you may meet this Technical Elective requirement with Upper Division courses from other departments in the College of Engineering, however for some of these courses you may need to obtain permission of the instructor for enrollment.