BIOTECHNOLOGY (BIOT)

BIOT 107
Biotechnology: Transforming Society Through Biology
3 Units (AA/AS; Citrus B1; CSU; UC; CSUGE B2)
54 lecture hours
Grade Mode: Standard Letter
Strongly recommended: ENGL 101.
This lecture course serves as an introduction to biology concepts and their application in the field of biotechnology. Lecture content will emphasize the biology, business, and legal/ethical issues surrounding biotechnology. The course is appropriate for a wide range of students, including non-majors, who would like to explore how biological solutions may be employed to address today's societal issues. Topics include molecular and cellular biology, genetic engineering, drug development, GMOs, and biofuels.

BIOT 108
Intro to Biotechnology: Real World Biology Applications
4 Units (AA/AS; Citrus B1; Citrus B3; CSU; UC; IGETC 5B; IGETC 5C; CSUGE B2; CSUGE B3)
54 lecture hours, 54 lab hours
Grade Mode: Standard Letter
Strongly recommended: Intermediate algebra or higher; ENGL 101.
This course will serve as a general introduction to biology with a focus on biotechnology appropriate for a wide range of students, including non-majors. Topics will encompass the biology, business, and legal/ethical issues surrounding biotechnology. Lecture content will emphasize cell structure and function, molecular biology, genetic engineering, drug development, biofuels, and discussion of utilizing living systems to address current societal challenges. The laboratory provides students with expanded hands-on experience of biotechnology techniques and applications.

BIOT 110
Biotechnology I: Basic Lab Skills and Documentation
5 Units (AA/AS; CSU; UC)
36 lecture hours, 162 lab hours
Grade Mode: Standard Letter
Strongly recommended: BIOT 107 or BIOT 108 or BIOL 105 or BIOL 124; Intermediate algebra or higher; ENGL 101.
This course introduces students to scientific instrumentation and techniques employed in the biotechnology industry. The course includes a significant laboratory component focused on laboratory safety, operation of standard equipment, industry documentation practices, laboratory math, preparation of chemical solutions, aseptic technique, and DNA isolation and manipulation. Students will gain an appreciation for the diversity of biotechnology companies in our region and local workforce trends. Good communication, teamwork, and work-readiness skills are emphasized.

BIOT 125
Quality and Regulatory Practices in Biotechnology
3 Units (AA/AS; CSU)
54 lecture hours
Grade Mode: Standard Letter
Strongly recommended: Intermediate algebra or higher; ENGL 101.
This course serves as an introduction to basic quality principles and tools with an emphasis on their application in biotechnology. Students will explore concepts related to quality control, quality assurance, validation, documentation, and regulatory compliance within this industry. The course prepares students for examination through the American Society for Quality to become a Certified Quality Improvement Associate (CQIA).

BIOT 150
Biotechnology II: Biomanufacturing and Quality Principles
4 Units (AA/AS; CSU)
36 lecture hours, 108 lab hours
Grade Mode: Standard Letter
Prerequisite(s): BIOT 110.
Strongly recommended: Intermediate algebra or higher; ENGL 101.
This course builds upon the concepts and laboratory techniques introduced in Biotechnology I: Basic Lab Skills and Documentation. Students will closely examine the biomanufacturing sector, including facility design, the production process, quality control, and quality assurance. Governmental regulation of the biomanufacturing industry will be highlighted as students explore Good Manufacturing Practice and Good Documentation Practice. This course includes a significant laboratory component focusing on large-scale protein production and purification, environmental monitoring, equipment validation, and clean room operations. Resume writing and job interview skills for biomanufacturing employment opportunities will be emphasized.