Master of Biotechnology

The Master of Biotechnology is a professional science degree program designed to meet the needs of the biotechnology industry and associated organizations. The program combines advanced study of related science, professional preparation, business and real-world experience for biotechnology-oriented students. The purpose of the degree is to prepare students for careers in technology-related organizations with a breadth of workplace knowledge.

Throughout the program, students will be exposed to real-world problems/applications, teamwork/communication skills, leading-edge technologies, managerial/interpersonal skills, informatics, ethics, industrial knowledge and problem solving skills.

The rigorous program is taught in the evenings and weekend to accommodate the working student. The program design is a cohort model that requires students to go through the program together over a five-semester period with a predetermined course sequence. It is a non-thesis degree program requiring a rigorous "Internship or Semester-In-Residence" project.

Each student will be guided and evaluated by an Advisory Committee that will be made up of university faculty, program instructors and industry mentors, as well as program advisors.

Student Learning Outcomes

The student who graduates with a Master of Biotechnology will be able to:

1. Apply concepts and principles of the sciences that are fundamental to the discipline of biotechnology.
2. Understand procedural and operational uniqueness of the highly regulated, quality-oriented and demanding intellectual property business of the life science industry.
3. Be able to derive logical conclusions based upon acquired knowledge, available information and analytical procedures.
4. Relate critical and managerial insight, skills and techniques for managing teams, budgets, projects and decisions in a business environment.
5. Understand the fundamentals of communicating and working with others for success.
6. Identify regulatory, societal and environmental issues and their impact upon biotechnology advances, product offerings and business.

Admission Requirements and Application

Admission to the program requires an undergraduate degree with a major in a bioscience or chemistry or related area. Alternatively, applicants with B.A./B.S. degree in a related field with a minor or equivalent work/certification experiences may be considered for conditional admission. While a minimum of a baccalaureate degree is required, applicant evaluation will consider pertinent background, prerequisite courses and opportunity for successful completion. Generally, applicants should have courses or experience in:

- Molecular Cell Biology or Molecular or Cellular Biotechnology
- Microbiology
- Statistics
- Chemistry/Biochemistry

Applicants who have not completed an upper-division biochemistry course may be required to take CHEM 341 or 351.

Specific admission criteria are:

- Applicant must meet the general requirements for admission to graduate studies at CSUSM.
- An undergraduate grade point average in all completed science and math courses of at least 2.75 or a GPA of at least 3.0 in the last 35 semester units of science and math.
- All applicants, regardless of citizenship, who do not possess a bachelor's degree from a post-secondary institution where English is the principal language must take the combined Test of English as a Foreign Language (TOFEL) and the Test of Written English (TWE). Test results must be submitted for evaluation where a minimum score of 550 on the TOFEL and 4.5 on the TWE are expected.

Applicants must provide the following information:

- Application Form
- Application Fee
- One set of official transcripts from all colleges/universities attended.
- Official scores reports of the General GRE and TWE.
- Two letters of recommendation from persons familiar with the applicant's capacity for academic and professional success.
- One-page statement from the applicant on the reason for pursuing a Master of Biotechnology.

Student candidates may apply at any time throughout the year. However, selection and admission will be completed by early May for the fall semester start. Later applications will be considered, as spaces remain available. Feedback to applicants, but not final admission decisions, will be provided on a timely basis regardless of the time of application.

Degree Requirements and Courses

The Master of Biotechnology requires thirty-eight (38) semester hours of coursework and project-oriented work experience with a local life-science entity. Students must complete a set of courses and project work experience with a 3.0 GPA and earn at least a "C" (2.0) in each course. Predetermined advanced level courses and credit hours are:

Science Fundamentals and Professional Preparation

BIOT 600	5
BIOT 620	3
BIOT 630	3
BIOT 650	3
BIOT 655	2
BIOT 660	2
BIOT 690	2
CHEM 450	3

Business Core

BA 503	3
BA 504	3
BA 505	2
BA 506	2

Internship / Residency and Project

BIOT 680	5

A student with demonstrated expertise in a required course that would make the course a repeat of attained knowledge or previous coursework may take other electives (up to 2 courses or 6 hours) offered at the graduate level as approved by the Advisory Committee.

In lieu of a thesis, the candidate must successfully complete a Project Abstract, project/work assignment with performance assessment, a written report/paper and pass an oral. It is intended that the "Internship/Residency/Project" be completed in a 16-week semester period according to established guidelines for the course experience. The type of experience for the Internship / Semester-In-Residence / Project depends upon the student's situation, current employment and right-to-work status.

Advancement to Candidacy

The student will advance to Master's Degree candidacy upon the completion of 23 semester credit hours of coursework, satisfying the Graduate Writing Assessment Requirement (GWAR), and approval of a Project Abstract by the student's Advisory Committee. The GWAR may be completed either by an acceptable standardized test score for the Analytical Writing subtest of the GMAT or GRE, or a paper(s) that receive(s) a passing score as described in university policy.

Continuation

Graduate students must maintain an overall GPA of 3.0 and earn at least a C (2.0) in each course, except those taken for credit/no credit. Any student whose overall GPA falls below 3.0 for two consecutive semesters will be dropped from the program. A full-time student should be enrolled in the predetermined course schedule and credit hours each semester for the program. In addition, a project report must be submitted, defended and approved at the end of the Internship or Semester-In-Residence. In usual circumstances where project requirements are not be completed, defended and approved at the end of the Internship or Semester-In-Residence, the student may complete the requirements within six months under the guidance of the advisory committee.