

B I O T E C H N O L O G Y

Postbaccalaureate Certification Program at California State University, Fresno

Overall Description:

In the fall 1988 semester, the California State University, Fresno (CSUF) initiated a Postbaccalaureate Certificate Program in Biotechnology. Successful completion of this one-year, laboratory-intensive program leads to a Certificate of Advanced Studies in Biotechnology.

In the last 20 years, biotechnology has developed into a major growth industry in California, nationally, and internationally. This development has permeated the industrial areas of pharmaceuticals, food processing, agricultural production, and medicine. Further, the technology designed for biotechnology is applicable for advanced research in molecular biology, genetics, biochemistry, and the plant and animal sciences. The program at CSUF is unique among those offered at comparable institutions in that it is designed for both depth and breadth of coverage.

The course of study leading to the certificate includes molecular biology and several laboratory courses, each focusing on one of the current technologies in the field. The laboratory component includes education in protein purification, recombinant DNA technology, plant micropropagation, animal and plant cell culture technology, and monoclonal antibody (hybridoma) production. Large scale macromolecular separation techniques, protein and DNA electrophoresis, enzyme isolation and characterization, gene splicing, plant and animal cell transformation, bioprocessing, and genetic selection techniques are but a few of the special procedures covered in the laboratories. Individuals completing the certificate will have a strong experimental background in preparation for employment in the biotechnology industry and/or for advanced graduate study.

Course of Study:

The program, listed below, consists of a 20 unit core and a 0-6 units of additional professional courses.

Semester I

Molecular Biology I	Biol/Chem 241A	F only	3 units
Protein Purification	Biol/Chem 242	F only	3 units
Micropropagation	Plant Sci 102	F only	3 units
Seminar	Biol/Chem 248	F & Sp	1 unit

Semester II

Molecular Biology II	Biol/Chem 214B	Sp only	3 units
Recombinant DNA	Biol/Chem 243	Sp only	3 units
Hybrid./Cell Culture	Biol/Chem 244	Sp only	3 units
Seminar	Biol/Chem 248	F & Sp	1 units

Additional Prof. Courses		F or Sp	0-6 units
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Admission Requirements:

1. A baccalaureate degree in Biology, Chemistry, Plant Science, or a related discipline.
2. A 3.0 overall undergraduate GPA and a 3.0 overall GPA in undergraduate science and math courses.
3. Minimum course requirements of genetics, microbiology with laboratory, biochemistry with laboratory, and immunology with a laboratory. Students can be admitted to the program with prerequisite course deficiencies (the most common deficiencies are the Biochemistry Laboratory component and the Immunology Lecture and/or Laboratory components). Such students will be required to complete these courses, and thus they sometimes require more than one year to complete the program (three semesters is the most common).
4. Students can be admitted to the program with prerequisite course deficiencies (the most common deficiencies are the Biochemistry Laboratory component and the Immunology Lecture and/or Laboratory components). Such students will be required to complete these courses, and thus they sometimes require more than one year to complete the program (three semesters is the most common).

Admission Time Table:

A maximum of twelve students can be accepted into the program per year. Screening of applicants begins in May, and acceptances are issued in June of each year for admission in Fall of the following academic year. Applications will be accepted until all openings are filled. Traditionally students commence the program with the Fall semester, although some students have been admitted to begin with the Spring semester. Once the Certificate Program is begun, each student has five years to complete the courses in the program; continuous enrollment is not required. Courses are traditionally scheduled in the afternoon and evening hours in an effort to accommodate employed students.

CSU Fresno International Graduate Application Deadlines: The international application, fee, and all required documents, transcripts, and test scores must be received no later than:

Fall Semester - March 1

Spring Semester - October 1

Coordination with Master's Degree Program

Students can simultaneously pursue a Master's Degree in each of the participating departments, or in other departments as appropriate. Some of the Certificate Program courses may apply towards a 30 unit Master's Degree Program. Nine of the 20 Certificate units must be reserved for the Biotechnology Certificate alone, but the selection of courses designated to the Certificate may vary from student to student. It is imperative that each student consult with the Biotechnology Program Coordinator and the Graduate Coordinator of the desired department as early as possible in their graduate career to ensure maximum coordination between the Certificate and Master's Degree programs. Individual student programs may vary to ensure academic strength for each student's

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needs, but the following lists the maximum number of Certificate Program credits, which may apply to a Master's program for the participating departments:

Biology: Up to eleven Certificate units can apply to a Master's Degree

Chemistry: Up to Nine Certificate units can apply to a Master's Degree

Plant Science: Up to Seven Certificate units can apply to a Master's Degree

Additional Information:

Additional information concerning admission to the CSU Fresno graduate program, application deadlines and international students requirements can be found at:

<http://www.csufresno.edu/gradstudies/admission/index.htm>

For an application and further information about the Biotechnology Certificate Program and about specific graduate programs at CSU Fresno, please contact:

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