

Biotechnology/Biomedical Certificate Programs

By L'cinda Scott-McCall

The following is an updated list of some of the institutions that are offering certificate and training programs:

Boston University -- The Undergraduate Certificate in Biotechnology is designed for professionals looking to acquire additional skills and knowledge in one of Massachusetts' strongest growth industries. Biotechnology certificate candidates should have at least two years of college, with biology, chemistry, and math, or equivalent work experience. Please contact the program director at cphilli@bu.edu for additional information.

California State University, East Bay (CSUEB) --The Biotechnology Certificate Program-- This certificate program consists of 34 units and is designed to give recognition to students who complete a curriculum emphasizing cellular and molecular techniques. This is an appropriate capstone for biology or chemistry students and is preparatory for careers in industrial and academic biological research, development, and production.

The Certificate Program in Biotechnology is open to undergraduates and graduates of accredited institutions who have a degree major in any field of biological sciences or chemistry and who have achieved a GPA of at least 2.75 in the major and at least 3.0 in the prerequisite courses.

Colorado State University School of Biomedical Engineering -- The School of Biomedical Engineering offers undergraduate students who are in good academic standing the opportunity to earn credits in an interdisciplinary studies program (ISP) to complement their primary major. This 21 credit program is similar to a minor and is open to all majors. It is designed to introduce students to biomedical engineering and strengthen their skills in engineering and science. The program provides a solid foundation in biomedical engineering and life sciences, as well as a familiarity with the clinical environment.

Columbia University -- Biotechnology Certificate Program-- College graduates with little or no background in biology who want graduate school preparation in biotechnology should follow the five-course curriculum designed with the Department of Biological Sciences. The course plan is also useful for those interested in a career change, choosing to specialize in biotechnology, or are likely to work in fields that interact with the biotechnology industry, such as business or law.

Duke University--- **Biomolecular and Tissue Engineering Training Program - NIH NIGMS Biotechnology Predoctoral Training Grant** -- The Duke Center for Biomolecular and Tissue Engineering (CBTE) was awarded a biotechnology predoctoral training grant from NIGMS in 1994 that supports a significant fraction of students seeking a CBTE certificate. The grant supports the stipend, tuition and fees for nine predoctoral fellows, with the graduate school contributing a tenth fellowship for non-US citizens. CBTE faculty and students interested in the CBTE curriculum submit applications to the CBTE Steering Committee, which awards the NIH fellowships for two years of support. Generally, students are awarded a NIH CBTE fellowship during their first or second year of graduate study and are supported for two years.

Certificate in Photonics -- In recognition of the growing importance of Photonics as an enabling multidisciplinary field, Duke Graduate School and the Pratt School of Engineering have created a Certificate in Photonics. The purpose of the certificate is to broaden the scope of the typical disciplinary graduate student-training program. Students are encouraged to develop interdisciplinary and transferable sets of skills in their course work and research activities. The program is designed to

accommodate both Professional MS and PhD students who have been admitted to one of the participating departments.

Indiana University Indiana University Medical Scientist Training Program -- The goal of our MSTP is to individualize training and to develop for participants an academic program that integrates state-of-the-art clinical medical training with cutting-edge biomedical research. The Program offers a broad range of academic programs that span from the traditional programs of anatomy and cell biology, cellular and integrative physiology, biochemistry and molecular biology, microbiology and immunology, pharmacology and toxicology, and medical and molecular genetics to next generation programs in biomedical engineering, medical biophysics, and medical neurobiology. The Indiana University School of Medicine MD-PhD combined degree program (Medical Scientist Training Program--MSTP) offers fellowship and full-tuition scholarships to students during all phases of their medical/graduate training.

Ivy Tech Community College-Bloomington -- Biotechnology Program -- The Biotechnology program will prepare you to work in a variety of life science laboratory settings. Emphasis is placed on learning applications such as analysis of biological molecules, use of bioreactors and fermentors, recombinant DNA technology, generation of cell cultures and safe operation of laboratory equipment.

Ohio State Agricultural Technical Institute, OH -- Bioenergy Certificate -- The increasing demand for energy and renewable energy sources will continue to drive the need for trained bioenergy technicians. This Certificate Program in Bioenergy prepares students with the skills and knowledge to get started in the industry. It will also serve as a first-year requirement towards an Associate of Science degree in the Renewable Energy major at Ohio State ATI.

Rhode Island Community College -- Biotechnology Certificate (BIOT) -- The Biotechnology Certificate Program prepares students for entry into the biomanufacturing industry in a little over a year, with an emphasis on the knowledge and skills necessary to succeed in this emerging field. Students receive hands-on instruction designed for individuals at all levels of workplace experience and education. Students earning the certificate will be qualified for many entry level positions, and those with prior experience and/or education can use the certificate as a bridge to more advanced positions.

Roxbury Community College-- Certificate in Biotechnology/Biomanufacturing -- The Biotechnology/Biomanufacturing Certificate Program is designed for the student who wishes to learn about the field of biotechnology or who may already have a scientific background but desires to study the details of this burgeoning field in the hope of gaining an entry level position at one of the many biotechnology companies, hospitals, clinics or labs in the greater Boston areas: research assistants, lab technicians, manufacturing technicians, quality control technicians, documentation coordinators, and instrumentation calibration coordinators are examples of such careers. Contact: Roxbury Community College, 1234 Columbus Avenue, Roxbury Crossing, MA 02120, Phone: 617-427-0060

San Diego State University Department of Biology: Certificate in Biotechnology -- San Diego State's biotechnology training program is designed to introduce undergraduate, post baccalaureate, and postdoctoral students and technicians to state-of-the-art techniques used in molecular biological research laboratories as well as to qualify certificate recipients for employment in various sectors of the biotechnological arena.

University of California, Irvine -- Life Sciences Certificates

Clinical Research Certificate

Clinical Laboratory Science/Medical Technology (CLS/MT) Training Certificate

Clinical Trials: Medical Device & Drug Development Certificate--Online Courses Available

Comparative Effectiveness Research and Evidence Based Medicine Certificate

Medical Product Development Certificate--Online Courses Available
Regulatory Affairs Management Program

University of California, Santa Cruz -- Certificate Program in Biotechnology -- UCSC Extension's Biotechnology Certificate provides a solid understanding of the scientific disciplines that underlie the industry's activities, a foundation in the principles that guide drug discovery and development, an appreciation of cutting-edge bioscience research and technology, and a broader awareness of today's biopharmaceutical industry. This combination of general and practical knowledge enhances the skills of professionals currently working in this industry and helps prepare others to enter this dynamic field.

Who Should Attend This Program

This program is designed for chemists, biologists and other scientists who want to enhance their knowledge of the principles and applications of biotechnology. It also benefits individuals from other disciplines who need a solid scientific foundation in order to enter or work more effectively in the biopharmaceutical field.

University of California, Davis -- Designated Emphasis in Biotechnology (DEB) -- The Designated Emphasis in Biotechnology (DEB) is an inter-graduate group program that allows Ph.D. students to receive and be credited for training in the area of biotechnology. The UCD Biotechnology Program is the administrative home for this program. The DEB provides a nurturing interactive environment to promote integration of multiple disciplinary approaches to the conduct of research and to promote learning in biotechnology. The mission is to prepare well-educated students to approach problems with creativity and flexibility. The program will provide tools for the students to be leaders, visionaries, entrepreneurs, researchers and teachers in the broad area of biomolecular technology.

University of Hawaii Community Colleges, Kapi'olani Community College -- Certificate Programs

Biotechnician --Certificate of Achievement
Medical Assisting:
Associate in Science-College Transfer (AS)
Certificate of Achievement (CA)
Medical Lab Technician --Associate in Science-College Transfer (AS)

University of Rhode Island Certificate Programs -- Biotechnology Training Initiative Courses and Seminars -- Short courses and seminars ranging from half day to four full days are offered in various areas of operations and management of biotechnology, biomanufacturing, and clinical trials as well as basic areas of related research. Courses vary each semester and have included offerings in Tangential Flow Filtration (lecture and laboratory workshops); Environmental Health & Safety Challenges in Biotechnology and Emerging Industries; Genomics and Proteomics; Tools of Biotechnology; Survey of Systems Biology; and various Good Practices Courses such as Good Clinical Practice, Investigator Clinical Practice Training Program course, SOP Writing Skills (Basic and Improve), and Technical Writing.

University of San Francisco -- Certificate in Biomedical Engineering -- Biomedical Engineering is a highly interdisciplinary field where basic engineering principles are applied to problems in the biomedical sciences. Typical specific areas of interest include: understanding basic biochemical and physiological processes, designing and analyzing medical diagnostics and procedures, evaluation and design of health care systems and facilities, design and valuation of prosthetic devices, an general biomedical product development. The College of Engineering offers an undergraduate Enhancement Certificate in Biomedical Engineering. There are two main purposes for the certificate program 1) to

accommodate students interested in entering medical school following graduation (this program satisfies most of the typical minimal admission standards for medical school); and 2) to prepare students for graduate education program, drawing from all engineering disciplines, biology, physical sciences, biomedical and clinical sciences. Undergraduate students anticipating graduate studies in the bioengineering area (or related fields such as medicine) are strongly encouraged to gain research experience as part of their program. Research possibilities exist in Engineering, the Health Sciences Center, Public Health, and Arts and Sciences.

The Certificate in Biomedical Engineering provides students an opportunity to get an introduction to a rapidly developing field of study and to receive recognition for their endeavors. Students in the program must fulfill all the requirements for an Engineering undergraduate degree, such as Bachelor of Science in Chemical Engineering and also meet the additional requirements of the Certificate program.

[University of Virginia, Biotechnology Associate Degree Program](#) -- PVCC offers a two- year associate degree in biotechnology. This program provides PVCC students with the education and training needed to perform selected activities in a research laboratory. By successfully completing this biotechnology curriculum, students will develop the skills necessary to be competitive for laboratory specialist positions at the University of Virginia and for other lab research positions at biotech companies. This program was developed in response to a demonstrated need for additional laboratory specialists at UVA.

Biotechnology Career Studies Certificate --Download PDF description of the Program.

Distance Education

[The Johns Hopkins Biotechnology Distance Education](#) -- The Johns Hopkins MS in Biotechnology offers a wide range of online courses that can conveniently fit into your schedule. Designed for busy bioscience professionals, the online courses provide in-depth coverage of theoretical, applied, and specialized subjects and are taught by expert faculty from academia, the private sector, and the government.

Additional Online Training, Certificate and Distance Learning Programs

Such websites as California Virtual Campus (<http://www.cvc.edu/>) are also offering training and certificate programs. The California Virtual Campus site is designed for those who want to further their educational objectives by linking to online courses and other services offered by the golden state's colleges and universities. Many colleges and universities in other states are also offering Distance and Online E-Learning Certificate and Training Programs.

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