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Biotechnology Program Prepares Future Researchers

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Biotechnology Program Prepares Future Researchers

If you watch TV or read the papers, you've probably seen stories about new discoveries in gene therapy, development of new tests and drugs to diagnose and treat a variety of diseases, or new ways of studying the molecular and genetic structure of cells. The vocabulary appearing in these stories words such as genetic engineering, the human genome project, molecular medicine-is fast becoming part of everyday language. These new ways to detect, test and treat diseases were made possible through innovative research that applies and merges biologic phenomena and engineering principles into a new and growing science - the field of biotechnology.

People from such diverse backgrounds as genetics, pharmacology, microbiology, computer programming, mechanical and chemical engineering, environmental science, and medicine have combined forces in both academic and commercial settings to apply biological principles to solve problems in health care technology and the manufacturing of pharmaceutical products. These people, collectively called biotechnologists, represent a broad and varied group of researchers, scientists, technologists, and technicians whose work barely existed 20 years ago.

Significant advances in biotechnology research and development are taking place in the Philadelphia area, in the city's academic health centers, and in the almost 200 biotech companies to the north, west, and south of the city. Clearly, the Philadelphia area is fast becoming an internationally recognized hub of biotechnology activity. Researchers at Thomas Jefferson University are in the midst of this activity. But how does an aspiring laboratory acquire the knowledge, skills, and experience needed to begin a career in this fast-growing field? Thomas Jefferson University now has the answer. In the fall of 1995, Jefferson will accept the first class of students into its new bachelor of science degree program in biotechnology.

Under the auspices of the College of Allied Health Sciences, Thomas Jefferson University's undergraduate division, the biotechnology program is offered by the Department of Laboratory Sciences. Students will enter this two-year program as college juniors, having already completed two years at another accredited college. Graduates will be prepared not only for entry-level positions in biomedical research laboratories, but also for graduate programs in biotech-related fields.

The biotech curriculum includes courses in molecular biology, immunodiagnostics, flow cytometry and computer imaging, DNA amplification techniques and tissue culture. Added to these biotech-specific courses, students will learn to use laboratory instrumentation; correlate laboratory data with pathologic processes; design and conduct research studies; and explore the political, regulatory, ethical, and business environments in which biotechnology products are developed.

Training is extended to the hands-on experiences essential to biotech laboratory practice by way of blocks of time spent in Jefferson's research laboratories and in private health care research industry labs such as the Coriell Institute for Medical Research. By the time students have completed the classroom, laboratory, and practical components of this curriculum, they will have been introduced to a broad array of biotechnology laboratory methods, work settings, and products being developed. Students will be able to decide whether they are interested in careers in

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clinical or preclinical research, commercial manufacturing, assay development, manufacturing, marketing and sales, or quality control. While Jefferson's program concentrates on biotech applications for health care, students will be equally well-prepared for jobs in agricultural (plant and animal) or environmental biotechnology. Those students interested in furthering their education will have the academic preparation necessary for graduate programs in molecular biology, immunology, genetics, and related fields.

Jefferson's ties with the biotech industry, with other medical centers and research institutes, and with nearly two dozen colleges and universities contribute to the unique opportunities available through this new program. With this network of academic and industry activity, not only can students start planning their careers from their first college years, they are also in a prime location for entering the biotech job market.

Jefferson's biotech program is one of only a handful of baccalaureate-level programs of this type in the country. For more information, contact Lydia E. McMorrow, PhD, at 215-955-0822, or stop by the Department of Laboratory Sciences, 19th floor of the Edison Building.

About the Authors

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