

## **286f The Academic Institution's Response to the Biotechnology Industry's Demand for a Well Trained Workforce**

*Kamal A. Rashid*

A major limitation to growth in the biotechnology industry is the shortage of well-trained personnel. Traditional training in biological sciences or biochemical engineering is no longer adequate to land a job in industry. Workforce development is invaluable because continued economic success of the biotech industry requires a highly trained workforce. The combined biotechnology and pharmaceutical industry is expected to be one of the top ten fastest growing industries between now and 2012 with a projected growth of 70% which compounds the industry's human resource demand. By 2007, the biotechnology industry expansion is expected to increase jobs by 13% according to the U.S. Department of Labor's statistics. Thus workforce training must also increase to keep pace with those commercial demands. Providing education and task-oriented training for a rapidly expanding workforce is a challenge for educational institutions. Specific challenges include finding experience technicians with specialty skills that align with a highly regulated work environment including cGMPs, validation and quality control issues. Colleges and universities produce many graduates with bachelor, master and doctoral degrees in life sciences and engineering. Often, however, these graduates are not adequately prepared with the proper skills for entry level positions. They usually lack specific skills and job-related experience that are critical to the successful manufacture of a product. Many of the hands-on practical techniques involved in biopharmaceutical production processes are not taught in classical biochemistry, microbiology or engineering classes in a traditional academic environment. Universities, as teaching institutions, must extend themselves and link with the biotechnology industry and state and federal agencies to create a well trained workforce. The objective of this presentation is to highlight some of the efforts underway at Utah State University to extend the University's linkage to the biopharmaceutical industry to prepare it for the many challenges that the new revolution in life sciences has brought to the arena. At Utah State University we are offering several short, intensive courses in the area of biotechnology and bioprocessing for industry personnel, as well as undergraduate courses that offer hands-on intensive curriculum designed to reflect industrial applications.