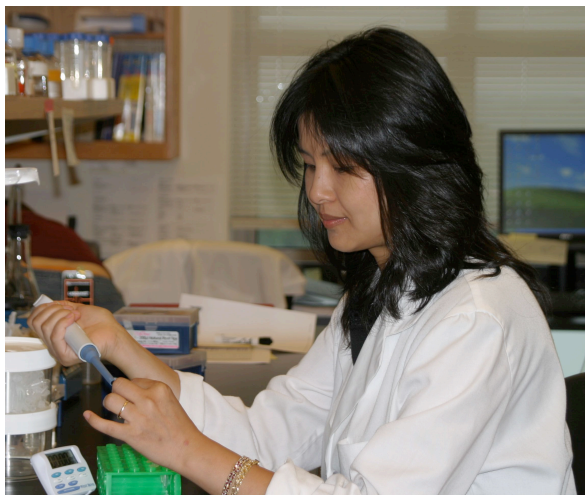


## Ellyn's Top Ten Reasons for CC Intro to Biotech

10. Biotechnology has become one of the fastest growing industries in the nation. Employment in the biotechnology field increased nationwide by almost 50 percent between 1997 and 2002 (*Careers in Biotechnology, 2nd Edition*). CC biotechnology programs can prepare students for the biotech workplace.

9. As companies move from research and development to the manufacturing of pharmaceuticals, industrial, and agricultural products, an increase in jobs will continue with a particularly high demand for entry-level, certificated biomanufacturing technicians. There are many jobs for many academic and skill levels. There is a need for 1-year and 2-year biotechnology training programs at career, technical, and community colleges.



8. For manufacturing of biotechnology products, technicians with more hands-on training and experience are desired. In fact, currently there is a shortage of lab technicians. The Bureau of Labor Statistics (2003) forecasts an increase in the need for biotechnicians due to “the growing number of agricultural and medicinal products developed from using biotechnology techniques,” with fastest employment growth occurring in the drug manufacturing industry and research and testing firms. At several large biotech companies, as many as seven out of ten posted jobs are for laboratory technicians.

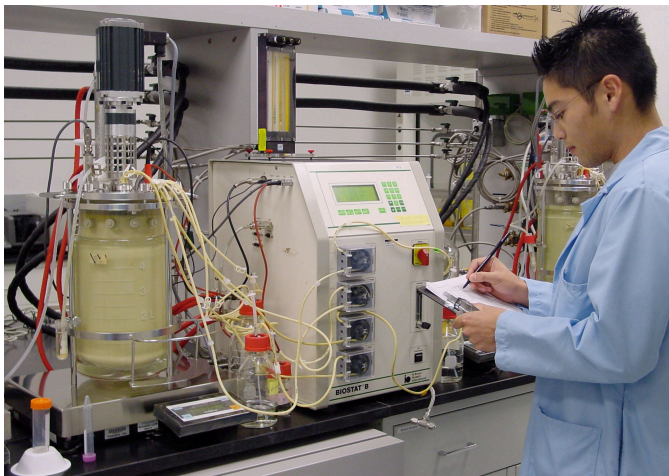
7. Currently, and in the foreseeable future, there is an absolute shortfall of the number of skilled employees needed for both research/development and manufacturing. In fact, companies such as Genentech, Genencor, Cell Genesys, Gilead Sciences, Chiron, Roche, and Amgen are not only hiring but making “deals” with educational facilities (community, technical, and career colleges) and their students to get them to focus their education and training for entry into manufacturing.

6. Virtually every state has some kind of biotechnology industry. There are plenty of jobs in both the business and science sides of biotech in industrial, academic, and governmental facilities. At the Biotechnology Industry Organization website (<http://www.bio.org/members/>) biotechnology companies and facilities are listed. Most states have a biotechnology industry support organization that is anxious to work with career, technical, and community colleges to prepare the workforce that is needed to attract new biotechnology business to their area (Visit <http://www2.bio.org/members/biostateaffiliates.asp>).

5. Biotechnology technical training courses teach self-directedness, responsibility, organization, and workplace etiquette, in addition to lab proficiencies. These are the “soft skills” required to

work in a biotechnology research and development or manufacturing facility. Biotech employers appreciate programs that produce potential employees with these qualities.

4. Biotech courses are skills-based making them interesting and appropriate for an adult. Biotech classes integrate and apply biology, chemistry, physics, and mathematics concepts with hands-on applications. Students see meaning in the math and science in their courses making these tough subjects “do-able” for students of all academic and socioeconomic levels.
3. Biotechnology is an industry with excellent benefits and good job satisfaction. The biotechnology jobs that are being created are relatively specialized and thus are relatively high paying. Depending on the job duties and the type and location of a company, a typical biotechnician might start with a salary of \$35,000 per year and be given excellent benefits as well. For example, a Laboratory Assistant II makes approximately \$33-44K while a Process Associate I makes approximately \$43-50,000, according to [www.salary.com](http://www.salary.com). According to the Council on Biotechnology Information at <http://www.whybiotech.com/index.asp?id=4188>), in 2001, Iowa, one of the top five states in agricultural biotech, had agriculture and food biotechnology positions with an average annual salary of \$52,310.



2. Careers in biotechnology are inherently interesting and attractive to students of all ages, including high school graduates and adults looking for retraining or a career change. Who isn't interested in cloning, forensics, and saving the world from disease and famine? These important human endeavors attract students to biotechnology programs and keep them there → Excellent Student Enrollment and Attendance.

And at number 1 ...

1. Finally, there is a curriculum and curricular support to facilitate the implementation of biotechnology training programs at virtually any career, technical, or community college. Ellyn Daugherty, EMC/Paradigm Publishing & Sargent-Welch have joined forces to help colleges create biotech programs that meet the needs of a school's local student and industry populations. EMC/Paradigm ([www.emcp.com/biotech](http://www.emcp.com/biotech)) provides a comprehensive textbook and lab manual program, written by one of the leading biotechnology educators in the country, and Sargent-Welch ([www.sargentwelch.com/biotech](http://www.sargentwelch.com/biotech)) provides the lab equipment and lab design needed to quickly conceive and start a biotechnician program.