



# Education and Training Program

The Education and Training Program's dual mission is to develop a trained workforce to support North Carolina's growing biotechnology industry, and to educate the public about the science, applications and issues related to biotechnology. Current initiatives include the following:

## Education Grants

- **Education Grants** provide seed funding to support new biotechnology education initiatives at North Carolina institutions.
- **Education Enhancement Grants.** These awards support biotechnology education projects at any level from grade school to graduate school. The maximum award amount is \$100,000. Since 1990, more than \$5 million in awards have been made to North Carolina institutions to equip teaching laboratories, develop new courses, and update existing courses in biology, chemistry and related specialties. Any non-profit institution may apply. Application guidelines and instructions can be found at [www.ncbiotech.org/services\\_and\\_programs/grants\\_and\\_loans/education\\_enhancement/index.html](http://www.ncbiotech.org/services_and_programs/grants_and_loans/education_enhancement/index.html).
- **Biotechnology Education Mini-Grants.** Schools, museums and other community non-profit organizations may apply for up to \$6,000 to support biotechnology education projects at the K-12 level. Many grants are awarded to teachers who wish to incorporate biotechnology activities into existing courses or establish new courses that are entirely devoted to biotechnology. For detailed information and online application instructions, see [www.ncbiotech.org/services\\_and\\_programs/grants\\_and\\_loans/mini\\_grant/index.html](http://www.ncbiotech.org/services_and_programs/grants_and_loans/mini_grant/index.html).

## Teacher Preparation

Through the Center's K-12 professional development program, any teacher in North Carolina can bring hands-on biotechnology into his or her classroom by attending a Center workshop. Workshop graduates can

access lab equipment on loan, receive a yearly "gift certificate" for free lab supplies, and can completely outfit their labs through the grant programs offered by the Center. To date over 1400 teachers have participated in these workshops. This program is primarily for high school biology and chemistry teachers, but Career and Technical Education teachers, middle school teachers and community college faculty can also benefit. The Biotechnology Center supports biotechnology teachers in North Carolina in several ways:

- **Summer Biotechnology Workshops.** Teachers learn how to incorporate fun and effective hands-on activities in the classroom that reinforce biotechnology concepts. Workshops are held at sites around the state and are generally one week in duration. Teachers receive daily stipends, free room and board, renewal credits and a comprehensive text or other educational materials.
- **Free Lab Supplies.** Summer workshop graduates qualify to receive annual "gift certificates" from Carolina Biological Supply. Teachers may use these to purchase lab supplies including ready-to-use biotechnology kits.
- **Free Access to Lab Equipment.** Summer workshop graduates (and other teachers with appropriate training) may borrow the Center's reservable equipment kits for use in their classrooms for up to two weeks. Kits include gel boxes, power supplies, microcentrifuges and micropipettors. Thermal cyclers are also available on the same loan terms for educators who have graduated from a qualifying workshop.
- **Video Loan Program.** Teachers at any school in North Carolina may borrow biotechnology videos from the North Carolina Biotechnology Center's library for up to two weeks. To borrow videos from our collection, please use our online Teacher Video Request Form ([www.ncbiotech.org/services\\_and\\_programs/education\\_support/video\\_loan\\_form.html](http://www.ncbiotech.org/services_and_programs/education_support/video_loan_form.html)).

# Workforce Preparation

Industry growth requires a steady supply of appropriately trained and educated workers at different levels and in many different specialties.

- **Assessing Industry Needs.** Education and Training Program staff periodically survey employment needs in the state's biotechnology industry and study the education and training requirements for personnel. The last survey, conducted in the winter of 2002-2003, focused on the bioprocessing sector of the industry as well as the pharmaceutical manufacturing industry. Results are available in the publication *Window on the Workplace 2003*, which can be requested from the Biotechnology Center or found on the Center's website at [www.ncbiotech.org/resource\\_center/publications.html](http://www.ncbiotech.org/resource_center/publications.html). This survey was undertaken to support planning by the UNC System and North Carolina Community College System for the Golden LEAF-funded Biomanufacturing and Pharmaceutical Training Consortium.
- **The Model Employee.** This publication about the biomanufacturing and pharmaceutical industries is written for North Carolina educators. It contains job descriptions, task lists and an analysis of the technical knowledge and skills required for six entry-level jobs in the two industries. To view or download a copy, visit [www.ncbiotech.org/resource\\_center/publications.html](http://www.ncbiotech.org/resource_center/publications.html).
- **Process Technician Training.** In conjunction with industry and the North Carolina Community College System, Center staff designed and wrote *BioWork*, a one-semester course that provides basic education for entry-level process technicians in the bioprocess, pharmaceutical and chemical manufacturing industries. *BioWork* content includes industrial safety, GMP, math, basic chemistry and microbiology, and an introduction to process manufacturing technology, aseptic manufacturing and cell culture. The course is offered at community colleges around the state. For more information, visit [www.ncbiotech.org/services\\_and\\_programs/workforce\\_development/biowork\\_course/index.html](http://www.ncbiotech.org/services_and_programs/workforce_development/biowork_course/index.html). For detailed information on colleges and classes, see [www.ncbionetwork.org/index.cfm?dir=edopps.cfm&relProgramID=1](http://www.ncbionetwork.org/index.cfm?dir=edopps.cfm&relProgramID=1).

- **Career Pathways: A Guide for Students, Parents and Educators in North Carolina.** A student's guide to biotechnology careers in North Carolina. In addition to a summary of the science and application of biotechnology, this publication introduces six major types of career opportunities and how they relate to a typical biomanufacturing process. To view *Career Pathways*, visit [www.ncbiotech.org/resource\\_center/publications.html](http://www.ncbiotech.org/resource_center/publications.html).

## For more information

To learn more about the Education and Training Program, visit [www.ncbiotech.org](http://www.ncbiotech.org) or contact the Education and Training Program staff listed below at 919-541-9366:

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