



BASIC BIOTECHNOLOGY WORKSHOPS

DESIGN FOR HIGH SCHOOL STUDENTS



BDTC

Bioprocess Development & Training Complex
Mayaguez, Puerto Rico

Bioprocess Development and Training Complex

Our Company

Bioprocess Development and Training Complex (BDTC) has the mission to promote the growth of the biotechnology industry in Puerto Rico and the Americas. Our vision is to be a preferred partner for industry and academia for biotech training and research and development. BDTC provides biotechnology education and customized training to industry and academia. Technical support is also offered to help develop bioprocesses and to improve operating procedures.



Objective

The Bioprocess Development and Training Complex, located at the Guanajibo Research and Innovation Park (GRIP) in Mayaguez, Puerto Rico, has design several workshops that allow students to conduct experiments and experience the basic techniques of DNA technology and biotechnology themselves. We hope to enhance their understanding of the science behind biotechnology manufacturing and bioprocess engineering.



Biotechnology Workshops

Size Exclusion Chromatography Workshop

Chromatography techniques are very common methods used in biotechnology research and industry to isolate and purify proteins, DNA, or other molecules. The size exclusion chromatography workshop provides a laboratory-based activity that teaches students the basic principles of a technique used to separate liquid mixtures of molecules by their size, or molecular weight. At this workshop, students will have the opportunity to separate a mixture of the biomolecules hemoglobin and vitamin B₁₂ using chromatography columns containing microscopic porous beads.

\$180 per group (10 students)
\$9 additional student

DNA Isolation Workshop

The deoxyribonucleic acid (DNA) stores the genetic instructions needed for the development and functioning of all known living organisms. The DNA workshop provides a chance for students to employ real-world laboratory procedures used to extract DNA from organisms for biotechnology applications. This workshop allows students to enhance their knowledge about the structure and function of the DNA molecule. At this workshop, students will extract their own DNA from their cheek cells and watch it precipitate as a white strand that can be collected and transfer to a vial.

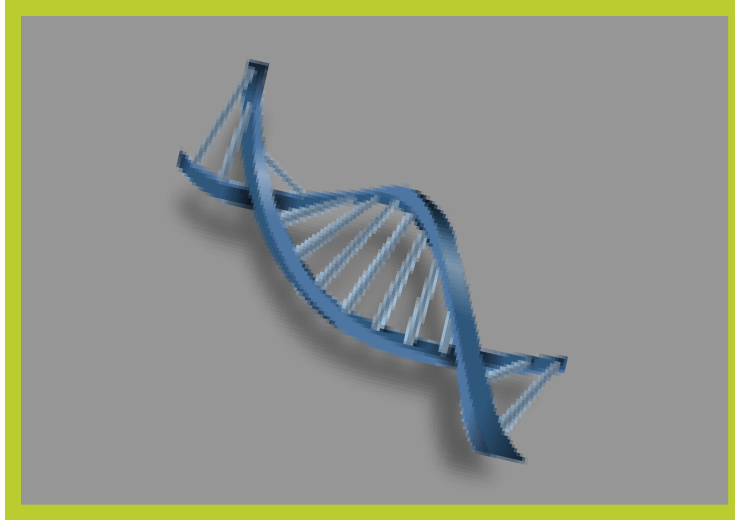
\$200 per group (10 students)
\$10 additional student

Microbial Culture Workshop

A microbiological culture, or microbial culture, is a method of multiplying microbial organisms by letting them reproduce in predetermined culture media under controlled laboratory conditions. A DNA sequence for a protein of interest could be cloned into a plasmid which is then transformed into the bacterium *Escherichia coli*. In this workshop the students will have the opportunity to grow the bacteria and observed the expression of a fluorescent protein. Cells will be incubated at 37 °C and growth will be monitor using spectrophotometer.

\$150 per group (10 students)
\$8 additional student

- *All workshops will have a duration of 4 hours.
- *Capacity for 20 students per workshop.



Bioprocess Development & Training Complex

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