



BIOTECHNOLOGY

COURSE DESCRIPTION

Biotechnology is an exploratory course designed to introduce students to methods and technologies that support bioscience research and practice. Students are also introduced to career possibilities in the field of biotechnology.

STRANDS

- Students will investigate the past, present, and future applications of Biotechnology as well as relevant careers.
- Students will demonstrate appropriate safety procedures and equipment use in the laboratory.
- Students will follow laboratory procedures properly.
- Students will describe the properties of atoms and molecules and prepare lab reagents.
- Students will describe the structure and function of cells and their components.
- Students will demonstrate proper bacterial identification and maintenance of cultures.
- Students will compare and contrast different types of nucleic acids and proteins and illustrate the flow of genetic information within the cell.
- Students will explain recombinant DNA techniques in bacteria.

PERFORMANCE OBJECTIVES

- Research and present biotechnology concepts using effective communication skills.
- Demonstrate appropriate use of personal protective equipment.
- Demonstrate proper aseptic/sterilizing procedures.
- Demonstrate proper use of biotechnology equipment.
- Demonstrate proper use and handling of micropipettes.
- Demonstrate proper handling of chemicals.
- Maintain accurate records and documentation according to good documentation practices (GDP).
- Perform a bacterial transformation and analyze results.
- Prepare bacterial growth media.
- Demonstrate the ability to culture and maintain microorganisms.



DAVIS ESSENTIAL SKILLS AND KNOWLEDGE

- Perform a restriction digest and analyze the results with gel electrophoresis.
- Demonstrate the ability to use PCR technology.
- Demonstrate the ability to use proper separation techniques to differentiate between proteins based on size and structure (chromatography & SDS-PAGE).
- Prepare solutions of defined concentrations and pH.