



Philadelphia University

Faculty of Science

Department of Biotechnology and Genetic Engineering

Benchmarks Statements for Biotechnology and Genetic Engineering Programme

Introduction

Biotechnology is a set of biological techniques, in particular, recombinant DNA techniques. Biotechnology is one of the fastest growing areas of human knowledge and biotechnologists can be found working in many areas of biology. Biotechnology is developed through basic research and now applied to research such as Genetic Engineering and molecular bioengineering as well as in physiological and medical areas. Furthermore Biotechnology participates in the product development in medicine, Agriculture, animal, Marine, Microbiology and Pharmaceutics areas. For instance, the production of antibiotics by the large scale fermentation of micro-organisms. With the advent of Molecular Biology and Molecular Genetics in recent years, biotechnology has entered a new and exciting phase of endeavour. It has produced new products and processes that have had positive influences on our lives and will continue to do so.

The Department of Biotechnology and Genetic Engineering at Philadelphia University offers the degree of B.Sc. in Biotechnology and Genetic Engineering (4 Years duration). The Biotechnology and Genetic Engineering programs is characterized by its excellent teaching quality, provides a very rich learning environment for undergraduates.

Aims of the Programme

This programme is designed to give you the opportunity to:

- The programme aims to provide students with a broad overview of the field with a focus on applied aspects.

- Emphasis is placed on the ways in which knowledge of biotechnology may be applied for different purposes such as pharmaceuticals.
- This programme offers extensive laboratory training through all years of the programme.
- There is a common first year with other degrees such as nursing, pharmacy, leaving you an option to transfer to similar degree programmes at the end of the first year.

Learning Outcomes

A- Knowledge

- Introduce knowledge and Understanding the definition of Biotechnology by using the living organisms to produce goods and services for practical and industrial purposes.
- Biotechnology is strategic technology and an important component of industrialized nations.
- All students gain a broad overview of the biology field at level one. Thereafter you will acquire more detailed specialist knowledge in your chosen areas.
- The programme aims to provide a background to a large number of the scientific techniques used in biological investigations.
- Students will acquire an understanding of the laboratory procedures and techniques used, which will allow the rapid acquisition of more specialist skills later in their career.
- An awareness of the wider implications of scientific research on society as a whole.

Knowledge is developed through

- Lectures
- Workshops
- Practical
- Training Courses
- Reading
- Internet

B-Thinking skills

- The ability to comprehend, analyze and criticise published information in biology.
- The ability to formulate hypotheses with the minimum of assistance.
- The ability to use integrated approaches to problem solving.

Thinking skills are developed through

- Computer aided learning
- Presentations
- Preparing for tutorials and seminars/workshops
- Completing course work assignments (including data analysis essays, presentations etc)
- Independent reading

C-Subject-Based Practical skills

- The ability to analyze data from your own and other people's experiments and to interpret them in the light of published work.
- The ability to select and apply a range of practical skills relevant to your chosen areas of biology.
- The ability to design and carry out experimental work.
- The ability to effectively communicate your work to scientists and the general public.
- The ability to select and utilize appropriate computer software.
- The ability to carry out literature searches effectively to find information on a specific topic.

Practical skills are developed through

- Laboratory Practical and/or fieldwork
- Computer simulations and use of IT

D-Skills for life and work (general skills)

- The development of your own style of independent learning.
- The ability to communicate ideas and experiments to others and to debate relevant scientific and /or ethical issues.
- Communication skills.
- Team work.
- Time management.
- Confidence.

Skills for life and work (general skills) are developed through

- Managing time
- Presenting ideas and arguments in a structured manner - written and oral communication
- Problem solving
- Team work

Biotechnology Future carrier

The qualification opens many opportunities within and outside Biotechnology. Destinations of recent graduates include:

- Laboratory based work in Genetics and In-vitro Fertilization medical centres, research institutes, agriculture, industrial and pharmaceutical laboratories.
- Research and Development Consultant in Scientific and Medical Companies.
- Higher degrees in Biotechnology (MSc, PhD).
- Further study in other disciplines, e.g. MSc (e.g. IT; Business), MBA, Pharmacy.
- Training as a teacher.

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