



Master in Biotechnology

Bethlehem University

Palestine Polytechnic University



Introduction

Biotechnology is a new field in the realm of applied sciences which combines different disciplines like genetics, molecular biology, biochemistry and cell biology. These life science disciplines are linked to technology disciplines like chemical engineering, information technology and biological systems engineering. Biotechnology has applications in four major areas, including health care (medical), agricultural production, non food (industrial) uses of crops and other products (e.g. biodegradable plastics, vegetable oil, biofuels), and environmental uses.



Due to the market demands in Palestine for highly qualified and trained personnel in this field, Bethlehem University and Palestine Polytechnic University have jointly developed a Master degree in Biotechnology with specializations in either Medical or Plant Biotechnology.

The master degree program is the first joint program of its kind in Palestine and represents a collaborative project that builds on the resources available at both institutions.



Program Paradigm

A Master degree student in the first year of study has to complete the required theoretical courses as well as state-of-the art of experimental work. These courses aim at having students acquire relevant knowledge, skills and lab experiences. In the second year, the Master degree student shall choose a specialization in one of two tracks: Medical or Plant Biotechnology.

The program consists of 36 credit hours distributed as follow:

- Required courses (18 credit hours) including theoretical and experimental laboratory work.
- Elective courses (12 credit hours) for either the Biomedical Sciences or Plant Technology tracks.

Required Courses	
CH	Course Name
3	Advanced Molecular Biology
3	Advanced Topics in Cell Biology
2	Research Methodology
1	Social and Ethical Aspects of Biotechnology
3	Biotechnology Instrumentations and Techniques
3	Bioinformatics
2	Experimental Design and Biostatistics
1	Business Aspects of Biotechnology
0	Seminar

Elective courses	
CH	Course Name
3	Molecular Diagnostics
3	Advanced Bioinformatics
3	Advanced Topics in Genomics
3	Advanced Topics in Biotechnology Applications
3	Plant Tissue Culture
3	Plant Molecular Taxonomy and Diversity
3	Molecular Phytopathology
3	Advanced Microbiology
3	Advanced Biochemistry

In addition to the required courses, a student must complete a 6-credit hour practical project (thesis) and submit a thesis at the end of the project. After completing all requirements, a student is conferred a Masters degree in Biotechnology indicating the major area of specialization (i.e. Biomedical Sciences or Plant Technology).



Faculty

Faculty members in this program are from Bethlehem University and Palestine Polytechnic University who are highly qualified in teaching and research. Many of the faculty members have supervised graduate work both regionally and internationally and are complementing each other in bringing to this program the forefront of their various specializations and research experiences.

Laboratories

The facilities at both universities include modern laboratories that are well equipped for research and training. These include the following laboratories:

- Medical Molecular Biology Laboratory
- Plant Tissue Culture Laboratory
- Human Cell Culture Laboratory
- Bioinformatics Laboratory
- DNA Sequencing Unit.
- Isotopes Services Unit.
- Human Heredity Research Laboratory.
- Plant Molecular Pathology Laboratory
- Biological Control Laboratory.

Both universities have access to international data bases and online library resources that provide students with access to all scientific periodicals and references. The libraries in both universities contain modern and specialized references in the field of Biotechnology and its applications.

Enrolment in the Program

Candidates for this program must have earned a Bachelor degree with an academic record of at least “good” in the following majors:

- Biology and Chemistry.
- Medical Technology.
- Agriculture with the subspecialties of plant production, animal production, or nutrition.
- Medicine and Dentistry.
- Pharmacy.



Attendance

The program offering is divided between Bethlehem University and Palestine Polytechnic University. That is, the Fall semester shall be hosted by Bethlehem University while Spring semester shall be hosted by Palestine Polytechnic University. On a few occasions during the academic year, students will commute between the two universities for a specific project or learning experience.



Career Opportunity

One of the main objectives of the program is to prepare highly qualified and trained personnel in the relevant applications of Biotechnology. Graduates shall pursue career opportunities in universities and research institutions; molecular diagnostics labs; public and private agriculture labs; forensic and fertility labs; pharmaceutical companies and vaccine production plants; food industry and environmental monitoring organizations; and in quality control labs.

Application for Admission

Registration process starts prior to the beginning of the first semester and after an advertisement in local newspapers. An application for admission is available for downloading at the websites of both Bethlehem University and Palestine Polytechnic University. A completed hard copy of the application form, along with one-time and non-refundable fees, are to be submitted to the Registration Office in either university.



A joint admission committee from the two universities shall evaluate each application on a competitive basis. Candidates shall be interviewed and a list of the accepted will officially announced.

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