



**Program Title:**

**Doctor of Philosophy in Pharmaceutical Microbiology**

**Program Code:** 0904800

**Duration:** A minimum of two years

**Aims of the program**

At the time of the completion of The Ph.D. programs in pharmaceutical microbiology the graduates will be able to meet the following objectives:

- Display a sound knowledge and understanding of principles and recent advances in theory and practice of pharmaceutical microbiology
- Developed research skills in microbiology by carrying out a project in this area.
- Developed the ability to undertake a substantial piece of independent research to publication standard, drawing upon their own knowledge and initiative to determine the direction and progress of the work.
- Illustrate the ability to analyze and interpret data, design and conduct research in their field of expertise.
- Effectively communicate scientific information both orally and in writing to scientists and nonscientists.
- Apply analytical and critical thinking in reviewing literature.
- Exhibit professionalism and the highest ethical standards.

**Program courses**

The modules which make up the program are listed below.

No.	Course title	Aim of the course	Credit hours	Code No.
1	<b>Seminar I</b>	The course aims to supply the students with skills of searching about new topics in the field of advanced pharmaceutical microbiology field in areas related to department-scientific plan, use up-to-date tools in retrieving information from proper sources of scientific information, know how to access relevant full articles and apprehend them, gain skills of preparing the first referenced scientific report, and finally for the first chance to present the information compiled in a clear and comprehensive way for an audience of the teaching staff in the department and answer their inquiries.	3	0904801



2	<b>Seminar II</b>	The course aims to supply the students with skills of searching about new topics in the field of advanced medical microbiology field in areas related to department-scientific plan, use up-to-date tools in retrieving information from proper sources of scientific information, know how to access relevant full articles and apprehend them, gain skills of preparing the second referenced scientific report, and finally for the second chance to present the information compiled in a clear and comprehensive way for an audience of the teaching staff in the department and answer their inquiries.	3	0904803
3	<b>Advanced immunology and immunopathology</b>	The course has for aims to generate an up-to-date understanding of the immunology and immunopathology fields, in addition to providing the Ph.D. student with specialized knowledge of the adaptive and innate mechanisms of immunity, as well as the evolutionary development of an efficient immune system. Besides, the course focuses on the ontogeny of the lymphoid system from molecular, cellular and biochemical aspects, as well as the activation of the lymphoid system in the course of an immune response. And last, the course discusses some of the pathological conditions related to the immune system.	3	0904802
4	<b>Advanced pathogenesis of infectious agents</b>	This course will provide the PhD candidate with profound knowledge of the pathogenesis of different infectious agents (bacteria, fungi, viruses and parasites). Updated and in-depth mechanistic information will be taught in this course.	3	0904804
5	<b>Elective Microbiological</b>	This course will provide the PhD candidate with profound knowledge of the microbiological quality control	3	0904805



	<b>quality control</b>	techniques and the instrumentations used in the pharmaceutical manufacturing process. Updated and in-depth aspects of quality assurance will be taught in this course with emphasis on immunological and biotechnology pharmaceutical products.		
	<b>Elective Clinical microbiology</b>	The course aims at providing the Ph.D. student with specialized knowledge of hospital acquired infections, in terms of the elicited immune responses, in addition to transmission control and population dynamics. The course also has for goals to generate a sound basis of the management of microbiological issues in the environment and the safe disposal of medical wastes to control nosocomial infections.		0904806
6	<b>Elective Microbial biotechnology</b>	The post graduate student should be well acquainted with industrially relevant microbiology, fermentation, downstream processing, application of biotechnology for production of pharmaceutically relevant products and recovery of microbial products.	3	0904807
	<b>Elective Environmental microbiology</b>	The post graduate student should learn the importance of microorganisms in environmental pollutant bioremediation and its relationship to natural processes of recycling. The course will cover conventional and new technological developments to eliminate selected environmental pollutants.		0904808
<b>Total credit hours</b>			18	