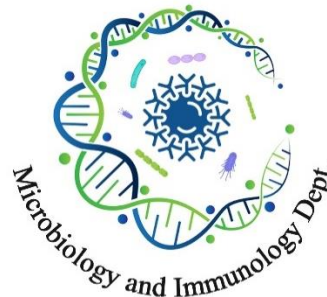




Mansoura University
Faculty of Pharmacy
Quality Assurance Unit
**Academic Reference Standards for
Postgraduate Programs**



Academic Reference Standards (ARS)
for
PhD in Pharmaceutical Sciences
(Microbiology and Immunology)
Microbiology and Immunology Dept.



ARS

Academic Year: 2021/2022

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Academic Reference Standards (ARS) **PhD in Microbiology and Immunology**

Approved by the department Council on December 8th 2021

The Academic Reference Standards (ARS) for PhD in (Microbiology and Immunology) regarding attributes and capabilities of the graduates were based essentially on the General Academic Reference Standards of graduate studies published by the National Authority for Quality Assurance and Accreditation of Education (NAQAAE, 2009).

Attributes of the graduate:

The graduates of the PhD degree of pharmaceutical science (Microbiology and Immunology) should be capable of:

- Mastering the basics and methodologies of scientific research in the fields of Microbiology
- Introducing novel concepts, methods and techniques in the field of Microbiology and Immunology
- Adopting the critical and analytical thinking approaches in subjects relevant to Microbiology.
- Integrating the knowledge in the field of Microbiology with other relevant subjects.
- Generating and disseminating new knowledge that contributes to prevention and treatment of diseases.
- Showing considerable awareness regarding the current problems and the recent theories and trends in the field of Microbiology.
- Identifying challenging professional problems and finding innovative solutions.
- Providing the ability to critically analyze the impact and outcomes of research results.
- Mastering of all new techniques used in the field of Microbiology
- Training in ethical and legal aspects of scientific inquiry.
- Mastering of advanced knowledge base, professional research skills, attitudes and values.
- Making the appropriate professional and scientific decision in light of the available information.
- Utilizing effectively available professional and scientific resources of Microbiology.
- Showing awareness about the role of the graduate in community development.
- Communicating effectively and leading team professionally.
- Demonstrating commitment to the transfer knowledge to others.
- Showing commitment for self development and life-long learning.

1. Knowledge and Understanding

Upon completion of The Ph.D. program (Microbiology)

- 1.1 Explain the basic theories and principles of Microbiology and their relevant subjects.
- 1.2 Identify recent advances in the fields of advanced Microbiology.



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Academic Reference Standards for
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- 1.3 State the legal and ethical principles for practicing research in Microbiology and implementing guideline of experiments.
- 1.4 Recognize the effect of his/her professional practice on the environment and methods of environmental development and maintenance.
- 1.5 Define the basic and advanced research concepts in the field of Microbiology

2. Intellectual Skills

Upon completion of this program the graduate should be able to:

- 2.1 Develop deductions and conclusions based on provided information in the fields of Microbiology.
- 2.2 Solve problems related to infection and pathogenesis of microbial infection.
- 2.3 Demonstrate the knowledge of drugs used in disease treatment.
- 2.4 Frame professionally a scientific paper in the fields of Microbiology.
- 2.5 Evaluate professional and scientific risks in practicing laboratory experiments.
- 2.6 Plan for performance development in the fields of Microbiology.
- 2.7 Take professional decisions and create scientific innovation in the field of Microbiology
- 2.8 Direct proofs and evidence based scientific and professional dialogues and discussions.

3. Professional and Practical Skills

Upon completion of this program the graduate should be able to:

- 3.1 Master a wide range of the basic and recent professional skills in the fields of Microbiology
- 3.2 Write professional reports in the field of Microbiology.
- 3.3 Evaluate available methodologies and materials in microbiological techniques.
- 3.4 Deduce new methods in microbiological and immunological techniques based on available data.
- 3.5 Evaluate the information in the field of Microbiology for better understanding of diseases and drugs used for treatment.
- 3.6 Operate advanced technological research tools and equipments in professional practice relevant to Microbiology and Immunology.
- 3.7 Assess professional and scientific risks in practicing laboratory experiments.
- 3.8 Handle safely the material used in research regarding their physical and chemical properties, including any specific hazards associated with their use.
- 3.9 Perform scientific research.

4. General and Transferable Skills:

Upon completion of this program the graduate should be able to:

- 4.1 Communicate effectively with research team members.
- 4.2 Utilize effectively information technology in professional development.
- 4.3 Manipulate computer programs, software, online database and other resources to get information and analyze the obtained research data
- 4.4 Transfer knowledge and experience to others and evaluate their performance.



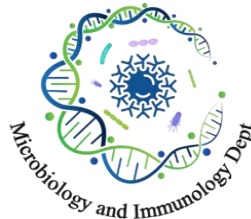
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- 4.5 Criticize scientific lectures and relevant workshops.
- 4.6 Anticipate needs and risks in scientific research.
- 4.7 Interpret data available from scientific research.
- 4.8 Perform self-assessment and continuous learning skills.
- 4.9 Manage the time properly.
- 4.10 Develop presentation skills, give seminars and defend thesis in public.



Program: PhD in Pharmaceutical Sciences
(Microbiology and Immunology)



Microbiology and Immunology Dept.

Program Specification

Academic Year: 2021/2022

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A-Basic Information

1	Faculty	Pharmacy
2	Program Title:	PhD in Pharmaceutical Sciences (Microbiology and Immunology)
3	Program Type:	Single
4	Department (s):	Department of Microbiology and Immunology
5	Final award:	Ph D degree in Microbiology and Immunology
6	Coordinator:	Prof. Dr. EL-Sayed E Habib
7	External Evaluator(s):	--
8	Date of Program Specification Approval:	Department council: 8/12/2021

B-Professional Information

1-Program Aims

Upon successful completion of the program, graduates should demonstrate comprehensive knowledge, clear understanding and outstanding skills in pharmaceutical sciences and Microbiology and Immunology and should be capable of:

- 1.1 -Mastering the basics and methodologies of scientific research in the fields of Microbiology and immunology
- 1.2 - Recognizing novel concepts, methods and/or techniques in the field of Microbiology and immunology
- 1.3 -Adopting the critical and analytical thinking approaches in Microbiology, Immunology, and Biotechnology.
- 1.4 -Integrating the knowledge in the field of advanced trends of Microbiology, Immunology and Biotechnology with other relevant subjects.
- 1.5 -Generating and disseminating new knowledge that contributes to advanced Microbiological techniques
- 1.6 -Showing considerable awareness regarding the current problems and the recent theories and trends in the field of Microbiology, Immunology and Biotechnology.
- 1.7 -Identifying challenging professional problems and finding innovative solutions.
- 1.8 -Providing the ability to critically analyze the impact and outcomes of research results.
- 1.9 -Mastering of all new techniques used in the fields of Microbiology and Immunology
- 1.10 -Training in ethical and legal aspects of scientific inquiry.
- 1.11 -Mastering of advanced knowledge base, professional research skills, attitudes and values.
- 1.12-Making the appropriate professional and scientific decision in light of the available information.
- 1.13- Utilizing effectively available professional and scientific resources in the field of Microbiology, Immunology and Biotechnology



- 1.14 -Showing awareness about the role of the graduate in community development.
1.15 -Attaining communication skills, research ethics, time management, decision-making, and team-working.
1.16 –Demonstrating commitment to the transfer knowledge to others.
1.17 -Showing commitment for self-development and life-long learning.

2-Intended Learning Outcomes (ILOs)

A. Knowledge and Understanding:

By the end of this program the graduate should be able to:

A1	Explain the theories and fundamentals of Microbiology and Immunology
A2	Identify the basic principles of Biotechnology.
A3	Describe different techniques used in isolation and identification of microorganisms.
A4	List the methods of sample preparation and the laboratory techniques.
A5	Define the principle and new data in the field of advanced trends in Microbiology, Immunology and Biotechnology.
A6	Define the validation parameters in Microbiology.
A7	Describe the pathogenesis of microorganisms and immune response in health and diseases.
A8	State the legal and ethical principles for practicing research in Microbiology and implementing guidelines of experiments.
A9	Estimate the importance of professional practice in Microbiology research on the environmental development and maintenance.

B. Intellectual Skills

By the end of this program the graduate should be able to:

B1	Analyse clinical and laboratory problems effectively, and correctly interpret and explain results simply and effectively.
B2	Demonstrate important mechanisms of microbial pathogenesis, basic concepts of molecular immunology, immunity to infection, biotechnology and outcomes of infections
B3	Compare and contrast the common symptoms of infectious diseases and drug used for treatment
B4	Analyze the applications of DNA preparations, such as DNA extraction, cloning, transformation and PCR
B5	Plan an independent research proposal to a high professional and ethical standard
B6	Interpret the microbiology/immunology research results and discuss them with other researchers.
B7	Select the proper experimental methods and evaluate the scientific risks in practicing laboratory experiments.
B8	Analyze statistically the obtained results.



B9	Frame professionally a scientific paper in the fields of Microbiology and Immunology
B10	Present research results in peer-reviewed publications and in a dissertation.

C. Professional and Practical Skills

By the end of this program the graduate should be able to:

C1	Plan and execute laboratory experiments with an awareness of good laboratory practice assessment
C2	Prepare standard operating procedures
C3	Perform diagnostic laboratory tests in medical bacteriology, virology, mycology and immunology to offer basic advice on relevant investigations, interpretation of results and infection control procedures
C4	Prepare laboratory reports
C5	Analyse and interpret laboratory data relevant to the cases of medical microbiology and immunology, Identify the pathogen by its specific growth characteristics if any, distinguishing biochemical tests, its morphological and/or staining characteristics, immunological or nucleic acid-based tests
C6	Demonstrate bioinformatics software applications
C7	Develop an understanding of the biological characteristics of pathogenic microorganisms, the course of their infections, the functions of the immune system and the actions of antibiotics against these pathogens.
C8	Utilize the information in the field of advanced trends in Microbiology in better understanding of the biological activity of drugs used in treatment of selected diseases.
C9	Summarize data in publication form.
C10	Assess professional and scientific risks in practicing laboratory experiments in the fields of Microbiology, Immunology and Biotechnology
C11	Select suitable and safe techniques for handling of research materials
C12	Carry out scientific research and write professional reports and contribute to the knowledge in the field of Microbiology.
C13	Collect research data and prepare them for statistical processing and write thesis in scientific and precise way.

D. General and Transferable Skills

By the end of this program the graduate should be able to:

D1	Direct and work effectively in a team.
D2	Manage the time properly.
D3	Transfer knowledge and experience to others and evaluate their performance.
D4	Develop written and oral communication skills.
D5	Organize and manage research schedule.



D6	Communicate research results effectively through oral presentations at scientific seminars, conferences, and other venues.
D7	Perform self and continuous education skills.
D8	Deal with obstacles and problems, and finding the proper solution.
D9	Prepare lucid reports on their own research, as well as the research of others.
D10	Utilize effectively computer programs, online database and different information resources relevant to microbiological techniques
D11	Analyze data and facts available for scientific research.

3-Academic Reference Standards (ARS):

Approved by both the Department and Faculty Councils

Department council Approval Date: 8/12/2021,

Faculty council Approval Date:

3a- Academic References Standards:

3b-Comparison of provision to External References

Achievement of academic reference standards via program Intended Learning Outcomes.

ILOs	ARS	Program
1. Knowledge and Understanding	1.1	A1, A2, A3, A5
	1.2	A4, A6, A7
	1.3	A8
	1.4	A9
	1.5	A5
2. Intellectual Skills	2.1	B1
	2.2	B2, B4
	2.3	B3
	2.4	B9
	2.5	B7
	2.6	B5, B8
	2.7	B7
	2.8	B6, B9, B10
3. Professional and Practical Skills	3.1	C1, C2, C3, C4, C5, C7
	3.2	C6, C10
	3.3	C3, C4, C8, C9, C11
	3.4	C3, C4, C9, C12
	3.5	C7
	3.6	C1, C2, C3, C5, C12
	3.7	C8
	3.8	C9
	3.9	C10, C11, C13
	4.1	D1, D3



4. General and Transferable Skills	4.2	D4, D6, D10
	4.3	D7, D8, D9, D10
	4.4	D3
	4.5	D6
	4.6	D8
	4.7	D11
	4.8	D7
	4.9	D2, D5
	4.10	D4

4-Curriculum Structure and Contents

4A. Program duration: 2-5 years.

4B. Program structure:

- a- The program consists of 50 credit hours of study (8 credit hours of courses and 42 credit hours for thesis).
- b- Courses include 6 credit hours of obligatory courses, in addition to 2 credit hours for an elective course., All courses possess the code number [300], According to Faculty By-Law..
- c- A scientific research thesis of 42 credit hours represent a main component of the program. It is achieved in a subject assigned by the supervision committee, endorsed by the Department Council, the committee of graduate studies & research and the Faculty Council.
- d- The student should publish at least one scientific research paper in high impact international scientific journals before the public defense of the Thesis..

4c. Program Components

1- Courses according to the By-law

Code number	Name of the course	Type	Credit Hours	Semester
PMP-301	Advanced Biotechnology I	Compulsory	2	Fall
PMP-302	Advanced Immunology and Immunopathology	Compulsory	2	Fall
PMP-303	Clinical Microbiology	Compulsory	2	Spring
PM-304	Microbiological quality control	elective	2	Spring
PMP-305	Advanced Biotechnology II	elective	2	Spring
Total (Courses)			8	
	Thesis		42	
Total			50	



5- Program Courses

1- Achievement of Program Intended Learning Outcomes via the courses

Course Name	C.H/ week	Program ILOs (by No.)			
		K.U*	IS**	P.P.S***	G.T.S****
<i>Special Courses (8C.H.)</i>					
First Semester					
Advanced Biotechnology I (PMP-301)	2	A1, A2, A4, A5, A7	B1, B2, B4	C3, C6, C10	D1, D2, D3, D7, D10
Advanced Immunology and Immunopathology (PMP-302)	2	A1, A5, A7, A8	B1, B2, B6	C3, C5, C7, C10	D1, D2, D3, d7
Second Semester					
Clinical Microbiology (PM-303)	2	A1, A3, A4, A7	B1, B2, B3, B7	C3, C5, C7, c10	D1, D2, D3, D7
Microbiological quality control (PM-304)	2(E)	A1, A6, A9	B1, B7	C1, C2, C8, C10	D1, D2, D3, D7
Advanced Biotechnology II (PMP-305)	2(E)	A1, A2, A4, A5, A7	B1, B2, B4	C3, C6, C10	D1, D2, D3, D7, D10
Total	8				
Thesis	42	A4, A5, A6, A8, A9	B5, B6, b7, B8, B9, B10	C1, C2, C4, C5, C9, C10, C11, C12, C13	D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11
Total	50				

- * Knowledge and Understanding
** Intellectual Skills
*** Professional and Practical Skills
**** General and Transferable Skills



Mansoura University
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Quality Assurance Unit
Ph. D Program Specification
2021/2022
Postgraduate Studies



Code	Course title	K.U*									IS**									
		A1	A2	A3	A4	A5	A6	A7	A8	A9	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
(PMP-301)	Advanced Biotechnology I	√	√		√	√		√			√	√		√						
(PMP-302)	Advanced Immunology and Immunopathology	√				√		√	√		√	√				√				
(PMP-303)	Clinical Microbiology	√		√	√			√			√	√	√				√			
(PMP-304)	Microbiological quality control (E)	√					√			√	√						√			
(PMP-305)	Advanced Biotechnology II(E)	√	√		√	√		√			√	√		√						
	Thesis				√	√	√		√	√					√	√	√	√	√	√

- * *Knowledge and Understanding*
- ** *Intellectual Skills*
- *** *Professional and Practical Skills*
- **** *General and Transferable Skills*
- E** *Elective course*



Code	Course title	P.P.S***												
		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
(PMP-301)	Advanced Biotechnology I			√			√				√			
(PMP-302)	Advanced Immunology and Immunopathology			√		√		√			√			
(PMP-303)	Clinical Microbiology			√		√		√			√			
(PMP-304)	Microbiological quality control (E)	√				√			√		√			
(PMP-305)	Advanced Biotechnology II(E)			√			√				√			
	Thesis	√	√		√	√				√	√	√	√	√

- * *Knowledge and Understanding*
- ** *Intellectual Skills*
- *** *Professional and Practical Skills*
- **** *General and Transferable Skills*
- E** *Elective course*



Code	Course title	G.T.S****										
		D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11
(PMP-301)	Advanced Biotechnology I	√	√	√				√			√	
(PMP-302)	Advanced Immunology and Immunopathology	√	√	√				√				
(PMP-303)	Clinical Microbiology	√	√	√				√				
(PMP-304)	Microbiological quality control (E)	√	√	√				√				
(PMP-305)	Advanced Biotechnology II (E)	√	√	√				√			√	
	Thesis	√	√	√	√	√	√	√	√	√	√	√

- * *Knowledge and Understanding*
** *Intellectual Skills*
*** *Professional and Practical Skills*
**** *General and Transferable Skills*
E *Elective course*



6- Student Assessment Methods

6.1- Written exam (special courses).	To assess Knowledge and Understanding and Intellectual Skills
6.2- Oral exam (special courses).	To assess Knowledge and Understanding, Intellectual Skills and General and transferable Skills
6.3- Scientific seminar for thesis registration	To assess Knowledge and Understanding, Intellectual Skills and General and transferable Skills
6.4- Published scientific research paper.	Knowledge and Understanding, Intellectual Skills, Professional and practical Skills
6.5- Thesis writing	Knowledge and Understanding, Intellectual Skills, Professional and practical Skills & General and Transferable Skills
6.5- Public presentation and discussion of the thesis.	Knowledge and Understanding, Intellectual Skills, Professional and practical Skills & General and Transferable Skills

7- Program Admission Requirements

- 7.1- The candidate should hold a Master degree in pharmaceutical sciences in the same specialization from any faculty of pharmacy from Egypt or Arabian countries or foreign universities recognized by the Supreme Council of Universities.
- 7.2- The candidate should be available for study at least two days per week throughout the duration of study.
- 7.3- The candidate should follow postgraduate rules of by-law (2014) and its modified by-law (2017) of Faculty of Pharmacy-Mansoura University.

8-Regulations for progression and program completion

- 8.1- The minimum duration of time to gain the PhD degree is two years from the approval date of university council of graduate studies and research on the registration of the PhD thesis.
- 8.2- The maximum duration of time to gain the PhD degree is 5 years from the date of registration, putting in consideration the periods of enrollment suspension. It is possible to extend this period up to two years (one year at a time) based on a request from the candidate's major supervisor, a suggestion from the department council and the committee of graduate studies & research and the approval of the faculty council. The final decision should be endorsed by the university council of graduate studies & research.
- 8.3- The student has to pass the assigned courses, and to practically do a scientific research thesis for complete fulfillment of the PhD degree.



8.4- An annual progress report is presented by the supervisors of Thesis to the Dept Council by December.

8.5- The candidate should follow postgraduate rules of by-law (2014) and its modified by-law (2017) of Faculty of Pharmacy-Mansoura University.

9. Facilities Required for Search:

9.1- Computers.

8.2- Library and digital library supplied by recent scientific books and journals.

8.3- Laboratories with enough chemicals, apparatus and advanced instruments.

8.4- Access to research engines for scientific periodicals in the field of Microbiology and Immunology.

10- Thesis

A thesis should be prepared by the student for complete fulfilment of the PhD degree.

11- Evaluation of program

Evaluator	Method	Sample
Internal evaluator	Program evaluation Courses evaluation	Program report Courses report
External evaluator	Program evaluation Courses evaluation	Program report Courses report
Stakeholders	Questionnaires	To be Attached
Postgraduates	Questionnaires	To be Attached
Self-evaluation	Matrices	To be Attached
Supervisors of Thesis	Reports	Reports of staff members of committee to evaluate the thesis

Program Coordinator: Prof. Dr.El-sayed El sherbeny Habeb

Head of Department: Prof. Dr.El-sayed El sherbeny Habeb

Signature:

Annex 1

Attach courses and thesis specifications.



Mansoura University
Faculty of Pharmacy
Quality Assurance Unit
PhD Thesis Specification
2021/2022
Postgraduate Studies



Program: PhD in Pharmaceutical Sciences
(Microbiology and Immunology)

Microbiology and Immunology Dept.



PhD Thesis Specification

Academic Year: 2021/2022

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A-Basic Information

1	Faculty	Pharmacy
2	Program Title:	PhD in Pharmaceutical Sciences (Microbiology and Immunology)
3	Program Type:	Single
4	Department (s):	Microbiology and Immunology
	Total credits of the Thesis	42 C. H.
	Total credits of the Program	50 C.H.
5	Final award of the Program:	PhD degree of Pharmaceutical Sciences (Microbiology and Immunology)
6	Coordinator:	Prof. Dr. EL-Sayed E Habib
7	External Evaluator(s):	
8	Date of Program Specification Approval:	<i>Department council: 8/12//2021,</i>

B-Professional Information

1-Aims

The overall aims of the thesis:

- 1.1 - Preparing researchers in the area of microbiology, with emphasis on the acquisition of critical thinking
- 1.2 - Integrating the knowledge for acquisition of the technical and intellectual skills
- 1.3 - Carry out advanced research projects.
- 1.4 - Identifying challenging professional problems and finding innovative solutions.
- 1.5 - Providing the ability to critically analyze the impact and outcomes of research results.
- 1.6 - Mastering of all new techniques used in the fields of Microbiology and Immunology
- 1.7 -Training in ethical and legal aspects of scientific inquiry.
- 1.8 -Mastering of advanced knowledge base, professional research skills, attitudes and values.
- 1.9 -Making the appropriate professional and scientific decision in light of the available information.



1.10- Utilizing effectively available professional and scientific resources in the field of Microbiology, Immunology and Biotechnology

2-Intended Learning Outcomes (ILOs)

a- Knowledge and Understanding:

Upon successful completion of the thesis, the graduate should be able to efficiently demonstrate the essential knowledge and understanding of:

A4	a1	-List the methods of sample preparation and the laboratory techniques.
A5	a2	-Define the principle and new data in the field of advanced trends in Microbiology, Immunology and Biotechnology.
A6	a3	-Define the validation parameters in Microbiology.
A8	a4	-State the legal and ethical principles for practicing research in Microbiology and implementing guidelines of experiments.
A9	a5	-Estimate the importance of professional practice in Microbiology research on the environmental development and maintenance.

b- Intellectual Skills

By the end of this thesis, the graduate should be able to:

B5	b1	-- Plan an independent research proposal to a high professional and ethical standard
B6	b2	-- Interpret the research results and discuss them with other researchers.
B7	b3	-- Select the proper experimental methods and evaluate the scientific risks in practicing laboratory experiments.
B8	b4	-- Analyze statistically the obtained results.
B9	b5	Frame professionally a scientific paper in the fields of Microbiology
B10	b6	Present research results in peer-reviewed publications and in a dissertation.

c- Professional and Practical Skills

By the end of this thesis, the graduate should be able to:

C1	c1	- Plan and execute laboratory experiments with an awareness of good laboratory practice assessment
C2	c2	- Prepare standard operating procedures
C4	c3	- Prepare laboratory reports
C5	c4	- Identify the pathogen by its specific growth characteristics if any, distinguishing biochemical tests, its morphological and/or staining characteristics, immunological or nucleic acid-based tests



C9	c5	-Summarize data in publication form.
C10	c6	- Assess professional and scientific risks in practicing laboratory experiments
C11	c7	- Select suitable and safe techniques for handling of research materials
C12	c8	-Carry out scientific research and write professional reports and contribute to the knowledge in the field of Microbiology.
C13	c9	- Collect research data and prepare them for statistical processing and write thesis in scientific and precise way.

d. General and Transferable Skills

By the end of this thesis, the graduate should be able to:

D1	d1	Direct and work effectively in a team.
D2	d2	Manage the time properly.
D3	d3	Transfer knowledge and experience to others and evaluate their performance.
D4	d4	Develop written and oral communication skills.
D5	d5	Organize and manage research schedule.
D6	d6	Communicate research results effectively through oral presentations at scientific seminars, conferences, and other venues.
D7	d7	Perform self and continuous education skills.
D8	d8	Deal with obstacles and problems, and finding the proper solution.
D9	d9	Prepare lucid reports on their own research, as well as the research of others.
D10	d10	Utilize effectively computer programs, online database and different information resources relevant to microbiological techniques
D11	d11	Analyze data and facts available for scientific research.

3- Thesis Contents:

Part	Topics
1	Abstract (Arabic and English)
2	Introduction
3	Aims, Objectives and Rational of the work
4	Results and Discussion, covering all fields
5	Methodology and Experimental Work of all fields
6	Conclusion
7	References



4- Matrix of knowledge and skills of the Thesis:

Part	Topics	Course ILOs			
		K.U*	IS**	P.P.S***	G.T.S****
2	Introduction	a1, a2, a3, a4, a5			d7, d4
3	Objectives/Rational		b1	c1	d3, d5
4	Results and Discussion		b1, b2, b3, b4, b5, b6	c3, c5, c6, c8, c9	d6, d8, d9, d10
5	Experimental Work		b3	c2, c4, c7, c8	d1, d2
6	Conclusion		b4		d11

* Knowledge and Understanding **Intellectual Skills ***Professional and Practical Skills ****General and Transferable Skills

5. Student Assessment:

A written Thesis	To assess Knowledge and Understanding, Intellectual Skills, Professional and practical Skills & General and Transferable Skills
Published Research Paper(s)	To assess Knowledge and Understanding, Intellectual Skills, Professional and practical Skills & General and Transferable Skills
Public Defense	To assess Knowledge and Understanding, Intellectual Skills and General and transferable Skills
Committee-in-Charge Report	Assess and evaluate thesis
Dept Council Approval	To approve thesis

Guidelines of the Thesis (according to By-Law).

- 1- The minimum period for obtaining a PhD is two years from the date of approval of the University's Graduate Studies Council for registration.
- 2- The maximum limit for obtaining a doctoral degree is five years from the date of registration, taking into account cases of suspension of registration, and registration may be extended upon the request of supervisors and the approval of the relevant department council, the Graduate Studies and Research Committee, and the College Board for an academic year with a maximum of two years.
- 3- The student must pass the English Language Examination with the minimum score specified by the University Studies Board to approve the PhD defense date.
- 4- The total number of credit hours for obtaining a doctoral degree is 50 credit hours (8 course hours, 42 credit hours per thesis).
- 5- The student conducts a research on a topic determined by the supervisory committee and approved by the relevant department council and the college, graduate studies and research councils.



Mansoura University
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Quality Assurance Unit
PhD Thesis Specification
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Postgraduate Studies



6- The researcher submits, before registering for the academic degree, the research plan in a public discussion in the department to discuss the topic of the thesis, determine the objectives of the research, the extent of its application, potential problems and how to overcome them.

7- After the approval of the Graduate Studies and Research Committee and the College Board, the scientific departments develop specialized courses from code (300) whose number of credit hours does not exceed 8 hours, and their average points are not less than 2.00, and these hours are calculated within the hours prescribed for the program.

8- The scientific thesis is the responsibility of the relevant department council and is accomplished scientifically and technically under the responsibility of the supervisory committee. Scientific, technical and administrative support must be provided to the researcher for its completion, and the supervision committee is formed as follows:

9- The College Council, upon the proposal of the relevant Department Council, appoints a professor who supervises the thesis (principal supervisor). The council may entrust the supervision of the thesis to one of the assistant professors.

10- It is permissible for the supervisors to be many professors or assistant professors, and teachers may participate with a maximum of one in the same specialty.

11- A member from abroad who has experience in the specialty to which the dissertation belongs may be joined to the supervision committee.

12- The student should meet his main supervisor at least once monthly and a semi-annual report must be provided by the supervisor(s) on the progress of student to the department council and the Graduate Studies Committee and the graduate should be given a copy of the report. The annual report must be submitted to the college council in October each year.

13- A postgraduate student registered to obtain a master's degree or a doctorate degree, after completing the thesis preparation, holds a public discussion session on the thesis summary and the results he reached, during which the supervisors determine the extent to which the student fulfills the research point before submitting the thesis to the department council.

14- The principal supervisor submits an application that includes a proposal to form a discussion committee and judge the thesis after preparing it and preparing it for discussion in preparation for presentation to the Postgraduate Studies and Research Committee and then the College Board for approval and is supported by the following:

15- The report on the validity of the dissertation for discussion, signed by the majority of the members of the supervisory committee, one of whom is the main supervisor.

16- A copy of the thesis prepared according to the instructions for writing scientific theses in the faculty.

17- At least one research published in a scientific refereed journal.

18- The committee for discussion and judgment on the dissertation is formed of three members based on the proposal of the relevant department council, the graduate studies and research committee, and the approval of the college council, one of whom is the main supervisor or two members with one vote. And two other members from among the professors or assistant professors, and at least one of them is from outside the university for doctoral theses (the two are from outside the college) according to the text of Article 153 of the Universities Organization Law.

19- The department council approves the individual reports, the group report, and what indicates that the student has made the proposed amendments from the discussion and judgment committee and



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submitted them to the Graduate Studies and Research Committee and the College Board in preparation for presentation to the University Council.

20- The date of awarding the academic degree is the date on which the University Council approved the College Board's recommendation for grants.

21- The college council, based on the proposal of the discussion and judgment committee, may return the message to the student to correct the errors and complete what the committee deems short of or submit another message in case the thesis is rejected.

6 – Facilities Required:

Laboratory	Laboratories with enough chemicals, apparatus and advanced instruments.
Library	Library and digital library supplied by recent scientific books and journals.
Others	Computers and internet

Thesis Coordinator	Head of Department	Date
Prof. Dr. EL-Sayed E Habib	Prof. Dr. EL-Sayed E Habib	8/12 / 2021

* Date of Dept. Council Approval



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Microbiology and Immunology PhD Program
Advanced Biotechnology II Course Specification



Dept. of Microbiology and Immunology	Course Specification	Microbiology and Immunology PhD
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Microbiology and Immunology PhD

Course Specification

Academic year: 2021/2022



البرنامج
دكتوراة الميكروبيولوجى والمناعة

توصيف مقرر
التقنية الحيوية المتقدمة 2
Advanced Biotechnology II

رئيس القسم
أ.د. السيد الشربيني حبيب

منسق المقرر
أ.د. السيد الشربيني حبيب



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Microbiology and Immunology PhD Program
Advanced Biotechnology II Course Specification



General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Microbiology and Immunology
Department supervising the course	Microbiology and Immunology
Program on which the course is given	Microbiology and Immunology PhD Program
Academic Level	Postgraduate
Academic year	2021/2022 - second semester
Date of course specification approval	8/12/2021

A. Basic Information : Course data :

Course Title	Advanced Biotechnology II
Course Code	PMP-305
Prerequisite	-----
Teaching Hours: Lecture	2
Practical:	--
Total Credit Hours	2

B. Professional Information

1- Overall Aims of Course:

By the end of this course, the students should have known modern techniques in biotechnology including preparation of Monoclonal antibody, production of antibodies by phage display techniques and recombinant antibody technology in addition to gene therapy. This course will introduce new topics for our students in the field of industrial biotechnology such as use and production of aptamers in modern medicine. The students will also understand the concept of using transgenic mice in medical research and how transgenic mice are engineered.

2- Intended Learning Outcomes (ILOs)

a. Knowledge and Understanding

After completion of the course, graduates will be able to

(A1)	a1	Explain the theories and fundamentals of Microbiology and Immunology
(A2)	a2	Identify the basic principles of Biotechnology.
(A4)	a3	List the methods of sample preparation and the laboratory techniques in molecular biology.



Mansoura University
Faculty of Pharmacy
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Microbiology and Immunology PhD Program
Advanced Biotechnology II Course Specification



(A5)	a4	Define the principle and new data in the field of advanced trends in Biotechnology
(A7)	a5	Illustrate immune response in health and diseases.

b. Intellectual Skills

After completion of the course, graduates will be able to

(B2)	b1	Analyze clinical and laboratory problems effectively, and correctly interpret and explain results simply and effectively.
(B2)	b2	Demonstrate important mechanisms of biotechnology.
(B4)	b3	Analyze the applications of DNA preparations, such as DNA extraction, cloning, transformation and PCR

c. Professional and Practical Skills

After completion of the course, graduates will be able to

(C3)	c1	Perform diagnostic laboratory tests in immunology to offer basic advice on relevant investigations and interpretation of results.
(C6)	c2	Demonstrate bioinformatics software applications
(C10)	c3	Assess professional and scientific risks in practicing laboratory experiments in the fields Biotechnology

d. General and Transferable Skills

After completion of the course, graduates will be able to

(D1)	d1	Direct and work effectively in a team.
(D2)	d2	Manage the time properly.
(D3)	d3	Transfer knowledge and experience to others and evaluate their performance.
(D7)	d4	Perform self and continuous education skills.
(D10)	d5	Utilize effectively computer programs, online database and different information resources relevant to microbiological techniques



3. Course Contents

Week No.	Lecture Topics	Hours
1	Biotechnology in industry	2
2	Modern techniques used for Antibodies production including recombinant antibodies and antibodies produced by phage display library	2
3	Application of monoclonal antibodies in treatment.	2
4	Modified DNA and its application	2
5	Modified nucleic acids and its application	2
6	Modified peptides and its application	2
7	Transgenic mice (impact and use in research)	2
8	phage display technique	2
9	Bioinformatics	2
10	Application of Bioinformatics	2
Total: 10 weeks		20

4- Matrix of knowledge and skills of the course (contents versus ILOs of the course)

Week	Topics	Course ILOs			
		K.U*	IS**	P.P.S** *	G.T.S*** *
1	Biotechnology in industry	a1, a4	b2		d1,d2
2	Modern techniques used for Antibodies production including recombinant antibodies and antibodies produced by phage display library	a2, a3, a4, a5	b1,b2, b3,	c1, c3	d1,d3
3	Application of monoclonal antibodies in treatment.	a2, a3, a4, a5	b2, b3,	c1, c3	d1,d3



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Advanced Biotechnology II Course Specification



4	Modified DNA and its application	a2, a3, a4, a5	b1,b2, b3	c1, c3	d1,d4
5	Modified nucleic acids and its application	a2, a3, a4, a5	b1,b2, b3	c1, c3	d2, d4
6	phage display technique	a2, a3, a4, a5	b1,b2, b3	c1, c3	d2, d4
7	Application of phage display	a2, a3, a4, a5	b1,b2, b3	c1, c3	d2, d4
8	Transgenic mice (impact and use in research)	a2, a3, a4, a5	b1,b2,	c1, c3	d2, d3
9	Bioinformatics	a2, a4, a5	b1,b2,	c1,c2, c3	d1,d3,d5
10	Application of Bioinformatics	a2, a4, a5	b3	c1,c2, c3	d1,d3,d5

* Knowledge and Understanding

Intellectual Skills*Professional and Practical Skills

****General and Transferable Skills

5- Teaching and Learning Methods:

5.1	Lectures using Power Point (PPT) presentations
5.2	Video-recorded lectures, uploaded to the University Portal for Online learning
5.3	Activities and tasks required to develop students' self-learning skills.
5.4	Tutorial, Class Activity and Group Discussion to explain what has not been understood
5.5	Interactive Sessions using Microsoft Teams
5.6	Internet search and Research Assignments to design Formative Assignments

6- Student Assessment:

	Assessment Methods		Assessment Schedule	Weighing of Assessments
Assessment 1	Written Exam (Final)	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills	Week 13	90 %
Assessment 2	Oral Exam	To assess understanding, intellectual skills, General and Transferable skills	Week 13	10 %
				100 %



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Advanced Biotechnology II Course Specification



7- List of References

	Reference	Type
1.	Advanced Biotechnology	Essential Book (Text Books)
2.	www.biotechnologyonline.com	websites
3.	Lectures handout prepared by the course members	periodical

8- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Library	Library and digital library supplied by recent scientific books and journals.

9. Signature

Course Coordinator	Head of Department	Date
Prof. Dr. .El-sayed El sherbeny Habeb	Prof Dr. .El-sayed El sherbeny Habeb	8/12/2021

* Date of Dept. Council Approval 8/12/2021



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Microbiology and Immunology PhD Program
Advanced Biotechnology I Course Specification



Dept. of Microbiology and Immunology	Course Specification	Advanced Biotechnology I
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Advanced Biotechnology I
Course Specification
Academic year: 2021/2022

البرنامج
درجة دكتور الفلسفة (الميكروبيولوجيا
والمناعة)

توصيف مقرر
التكنولوجيا الحيوية المتقدمة 1
Advanced Biotechnology I

رئيس القسم
أ.د. السيد الشربيني حبيب

منسق المقرر
أ.د. رمضان حسن ابراهيم



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Microbiology and Immunology PhD Program
Advanced Biotechnology I Course Specification



General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Microbiology and Immunology
Department supervising the course	Microbiology and Immunology
Program on which the course is given	Microbiology and Immunology PhD program
Academic Level	Postgraduate
Academic year	2021/2022 - First
Date of course specification approval	10/11/2021

A. Basic Information : Course data :

Course Title	Advanced Biotechnology I
Course Code	PMP -301
Prerequisite	-----
Teaching Hours: Lecture	2 عدد الساعات الزمنية
Practical:	-
Total Credit Hours	2

B. Professional Information

1- Overall Aims of Course:

- 1.1 Mastering the basics and methodologies of scientific research in the fields of Microbiology
- 1.2 Recognizing novel concepts, methods and/or techniques in the field of Microbiology Biotechnology
- 1.3 Adopting the critical and analytical thinking approaches in Biotechnology
- 1.4 Integrating the knowledge in the field of biotechnology with other relevant subjects.
- 1.5 Generating and disseminating new knowledge that contributes to the advancement biotechnology techniques.
- 1.6 Showing considerable awareness regarding the current problems as well as the recent theories and trends in the field of biotechnology.
- 1.7 Identifying challenging professional problems in biotechnology and finding innovative solutions.

2- Intended Learning Outcomes (ILOs)

a. Knowledge and Understanding

After completion of the course, graduates will be able to

a1	Identify the basic principles of Biotechnology.
a2	List the methods of sample preparation and the laboratory techniques.
a3	Define the principle and new data in the field of advanced trends in and Biotechnology.



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Postgraduate Studies
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Advanced Biotechnology I Course Specification



a4	Define the basic and advanced research concepts in Biotechnology
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b. Intellectual Skills

After completion of the course, graduates will be able to

b1	Analyse the applications of DNA preparations, such as DNA extraction, cloning, transformation PCR and Sequencing
b2	Select the proper experimental methods and evaluate the scientific problems in practicing laboratory experiments.
b3	Utilize the available professional and scientific resources and research skills to solve problems related to biotechnology.
b4	Participate in scientific and professional discussions and communications based on scientific evidence and proofs

c. Professional and Practical Skills

After completion of the course, graduates will be able to

c1	Develop different research methodologies in molecular biology
c2	Demonstrate bioinformatics software applications
c3	Assess professional and scientific risks in practicing laboratory experiments in the fields of biotechnology
c4	Select suitable and safe techniques for handling of research materials in biotechnology.

d. General and Transferable Skills

After completion of the course, graduates will be able to

d1	Transfer knowledge and experience to others and evaluate their performance
d2	Communicate research results effectively through oral presentations at scientific seminars, conferences, and other venues.
d3	Promote critical thinking, problem-solving and decision-making capabilities.



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Microbiology and Immunology PhD Program
Advanced Biotechnology I Course Specification



3. Course Contents

Week No.	Topics	Lecture Hours	Practical / Tutorial hr.
1	Introduction, structure, and function of macromolecules.	2	0
2	Biosynthesis and function of macromolecules (DNA, RNA and proteins).	2	0
3	Isolation of DNA and RNA.	2	0
4	Electrophoresis of nucleic acids. Hybridization of nucleic acids.	2	0
5	Polymerase chain reaction. DNA sequencing	2	0
6	Use of enzymes in the modification of nucleic acids.	2	0
7	Cloning procedures.	2	0
8	Cloning vectors	2	0
9	Expression of recombinant protein.	2	0
10	Sequencing technology	2	0
11	Microscopic techniques. Laser applications	2	0
Total: 11 weeks		22	22

4- Matrix of knowledge and skills of the course (contents versus ILOs of the course)

Week	Topics	Course ILOs			
		K.U*	IS**	P.P.S****	G.T.S*****
1	Structure and function of macromolecules. Biosynthesis and function of macromolecules (DNA, RNA and proteins). Use of enzymes in the modification of nucleic acids.	a1	b2	c1, c2, c3	d1, d2, d3
2	Isolation of DNA and RNA. Chromatography and electrophoresis of nucleic acids. Hybridization of nucleic acids.	a1, a2	b2	c1, c2, c3	d1, d2, d3
3	Polymerase chain reaction. DNA sequencing.	a3	b1	c1, c2, c3	d1, d2, d3
4	Cloning procedures. Expression of recombinant protein.	a1, a3, a4	b1, b2, b3, b4	c1, c2, c3, c4	d1, d2, d3
5	Microscopic techniques. Laser applications.	a4	b2, b3	c3,c4	d1, d2, d3



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Postgraduate Studies
Microbiology and Immunology PhD Program
Advanced Biotechnology I Course Specification



* Knowledge and Understanding	**Intellectual Skills	***Professional and Practical Skills	
****General and Transferable Skills			

5- Teaching and Learning Methods:

5.1	Lectures using Power Point (PPT) presentations
5.2	Video-recorded lectures , uploaded to the University Portal for Online learning
5.3	Activities and tasks required to develop students' self-learning skills.
5.3	Interactive Sessions using Microsoft Teams

6- Student Assessment:

	Assessment Methods		Assessment Schedule	Weighing of Assessments
Assessment 1	Written Exam (Final)	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills	Week no 13	90%
Assessment 2	Oral Exam	To assess understanding, intellectual skills, General and Transferable skills	Week no 13	10%
				100 %

7- List of References

	Reference	Type
1.	Molecular Cloning A laboratory Manual, by Michael R. Green and Joseph Sambrook, 2012, Cold Spring Harbor Laboratory Press ISBN-13: 978-0198749691.	Essential Book (Text Books)
2.	Molecular Biology Techniques 4th Edition (2019) Sue Carson Heather Miller Melissa Srougi D. Scott Witherow	Essential Book (Text Books)
3.	http:// www.pubmed.com www.ncbi.nlm.nih.gov/blast/	websites



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Faculty of Pharmacy
Postgraduate Studies
Microbiology and Immunology PhD Program
Advanced Biotechnology I Course Specification



8- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Laboratory facilities	Microscopes, equipment, PCR, RT-PCR, centrifuge
- Library	supplied by recent scientific books and journals and free access to science web

9. Signature

Course Coordinator	Head of Department	Date
Prof. Dr. Ramadan Hassan Ibrahim	Prof Dr. El-Sayed El-Sherbeny Habib	10/11/2021

* Date of Dept. Council Approval



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Microbiology and Immunology PhD Program
Clinical Microbiology Course Specification



Dept. of Microbiology and Immunology.	Course Specification	Microbiology and Immunology PhD
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Microbiology and Immunology PhD

Course Specification

Academic year: 2021/2022

البرنامج
دكتوراة الميكروبيولوجي والمناعة

توصيف مقرر
الميكروبيولوجيا السريرية
Clinical Microbiology

رئيس القسم
أ.د. السيد الشربيني حبيب

منسق المقرر
أ.د. رشا فتحي بروه



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Microbiology and Immunology PhD Program
Clinical Microbiology Course Specification



General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Microbiology and Immunology
Department supervising the course	Microbiology and Immunology
Program on which the course is given	Microbiology and Immunology PhD Program
Academic Level	Postgraduate
Academic year	2021/2022 - second semester
Date of course specification approval	8/12/2021

A. Basic Information : Course data :

Course Title	Clinical Microbiology
Course Code	PMP-303
Prerequisite	-----
Teaching Hours: Lecture	2
Practical:	--
Total Credit Hours	2

B. Professional Information

1- Overall Aims of Course:

On completion of the course, the student will be able to describe the common microbial pathogens and the mechanisms of pathogenesis, describe the clinical manifestation of disease and diagnose disease based on clinical laboratory data, describe the epidemiology of infectious diseases and control measures and discuss the treatment of disease.

2- Intended Learning Outcomes (ILOs)

a. Knowledge and Understanding

After completion of the course, graduates will be able to

(A1)	a1	Explain the infection process of pathogenic microorganisms
(A3)	a2	Describe different techniques used in isolation and identification of pathogenic microbes.
(A4)	a3	List the methods of different laboratory techniques.
(A7)	a4	Illustrate the pathogenesis of microorganisms
	a5	List various virulence factors of pathogenic microorganisms



b. Intellectual Skills

After completion of the course, graduates will be able to

(B2)	b1	Analyse clinical and laboratory problems effectively, and correctly interpret and explain results simply and effectively.
(B2)	b2	Demonstrate important mechanisms of microbial pathogenesis and outcomes of infections
(B3)	b3	Compare between the common symptoms of infectious diseases and drugs used for treatment
(B7)	b4	Select the proper laboratory methods for confirmation of infections

c. Professional and Practical Skills

After completion of the course, graduates will be able to

(C3)	c1	Perform diagnostic laboratory tests in medical microbiology to offer basic advice on relevant investigations, interpretation of results and infection control procedures
(C5)	c2	Analyse and interpret laboratory data relevant to the cases of medical microbiology
(C7)	c3	Develop an understanding of the biological characteristics of pathogenic microorganisms, the course of their infections, and the actions of antibiotics against these pathogens.
	c4	Develop an understanding of the actions of antibiotics against pathogens.
(C10)	c5	Assess professional and scientific risks in practicing laboratory experiments in the fields of microbiology

d. General and Transferable Skills

After completion of the course, graduates will be able to

(D1)	d1	Direct and work effectively in a team.
(D2)	d2	Manage the time properly.
(D3)	d3	Transfer knowledge and experience to others and evaluate their performance.
(D7)	d4	Perform self and continuous education skills.

3. Course Contents

Week No.	Lecture Topics	Hours
1	Introduction to clinical Microbiology	2
2	Gram negative bacilli: Enterobacteriaceae	2



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Faculty of Pharmacy
Postgraduate Studies
Microbiology and Immunology PhD Program
Clinical Microbiology Course Specification



3	<i>Pseudomonas, Vibrio and Helicobacter.</i>	2
4	Gram Positive -Sporulating Bacilli	2
5	-Gram Positive Non Sporulating - Bacilli Fastidious bacteria	2
6	Acid-Fast Bacilli	2
7	- <i>Rickettsia, Chlamydia & Mycoplasma</i> -Spirochaetes	2
8	Pyogenic Cocci and <i>Neisseria</i>	2
9	Fungal diseases	2
10	Viral diseases	2
Total: 10 weeks		20

4- Matrix of knowledge and skills of the course (contents versus ILOs of the course)

Week	Topics	Course ILOs			
		K.U*	IS**	P.P.S***	G.T.S****
1	Introduction to clinical Microbiology	a1, a4	b2		
2	Enterobacteriaceae	a2, a3, a4, a5	b1,b2, b3, b4	c1, c2, c3, c4, c5	d1,d3
3	<i>Pseudomonas, Vibrio and Helicobacter.</i>	a2, a3, a4, a5	b1,b2, b3, b4	c1, c2, c3, c4, c5	d1,d3
4	Gram Positive -Sporulating Bacilli	a2, a3, a4, a5	b1,b2, b3, b4	c1, c2, c3, c4, c5	d1,d4
5	-Gram Positive Non Sporulating Bacilli Fastidious bacteria	a2, a3, a4, a5	b1,b2, b3, b4	c1, c2, c3, c4, c5	d2, d4
6	Acid-Fast Bacilli	a2, a3, a4, a5	b1,b2, b3, b4	c1, c2, c3, c4, c5	d2, d4
7	- <i>Rickettsia, chlamydia & Mycoplasma</i> -Spirochaetes	a2, a3, a4, a5	b1,b2, b3, b4	c1, c2, c3, c4, c5	d2, d4
8	Pyogenic Cocci and <i>Neisseria</i>	a2, a3, a4, a5	b1,b2, b3, b4	c1, c2, c3, c4, c5	d2, d3



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9	Fungal diseases	a2, a4, a5	b1,b2, b3, b4	c1, c2, c3, c4	d1,d3
10	Viral diseases	a2, a4, a5	b1,b2, b3, b4	c1, c2, c3, c4	d1,d3

* Knowledge and Understanding

**Intellectual Skills

***Professional and Practical Skills

****General and Transferable Skills

5- Teaching and Learning Methods:

5.1	Lectures using Power Point (PPT) presentations
5.2	Video-recorded lectures, uploaded to the University Portal for Online learning
5.3	Activities and tasks required to develop students' self-learning skills.
5.4	Tutorial, Class Activity and Group Discussion to explain what has not been understood
5.5	Interactive Sessions using Microsoft Teams
5.6	Internet search and Research Assignments to design Formative Assignments
5.7	Case study

6- Student Assessment:

	Assessment Methods		Assessment Schedule	Weighing of Assessments
Assessment 1	Written Exam (Final)	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills	Week 13	90 %
Assessment 2	Oral Exam	To assess understanding, intellectual skills, General and Transferable skills	Week 13	10 %
				100 %

7- List of References

	Reference	Type
1.	Bacterial pathogenesis : a molecular approach / Brenda A. Wilson ... [et al.].— 3rd ed. ISBN-13: 978-0198749691. ISBN-10: 9780198749691 2011	Essential Book (Text Books)
2.	Bailey & Scott's diagnostic microbiology 12th ed. Betty A. Forbes, Daniel F. Sahm, Alice S. Weissfeld ; Published 2007	
3.	https://www.cdc.gov/disasters/disease/infectious.html	websites



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Postgraduate Studies
Microbiology and Immunology PhD Program
Clinical Microbiology Course Specification



8- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Library	Library and digital library supplied by recent scientific books and journals.

9. Signature

Course Coordinator	Head of Department	Date
Prof. Dr. Rasha F. Barwa	Prof Dr. Prof. Dr.El-sayed El sherbeny Habeb	8/12/2021



Dept. of Microbiology and immunology	Course Specification	Microbiology and Immunology PhD
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Microbiology and Immunology PhD

Course Specification

Academic year: 2021/2022

البرنامج
درجة دكتور الفلسفة (الميكروبيولوجيا
والمناعة)

توصيف مقرر
المناعة والمناعة الباثولوجية المتقدمة
Advanced Immunology and
Immunopathology

رئيس القسم
أ.د. السيد الشربيني حبيب

منسق المقرر
أ.د. السيد الشربيني حبيب



General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Microbiology and Immunology
Department supervising the course	----
Program on which the course is given	Microbiology and Immunology PhD
Academic Level	Postgraduate
Academic year	2021/2022 - First semester
Date of course specification approval	10/11/2021

A. Basic Information : Course data :

Course Title	Advanced Immunology and Immunopathology
Course Code	PMP-302
Prerequisite	-----
Teaching Hours: Lecture	2
Practical:	0
Total Credit Hours	0

B. Professional Information

1- Overall Aims of Course:

At the completion of the course, students should have an understanding of the components of the immune system and their interactions as well as the major defense mechanisms of the body against different types of infection. Other specialized areas of immunology, including Immunomodulation, immunotherapy and transplantation immunology will be considered.

2- Intended Learning Outcomes (ILOs)

a. Knowledge and Understanding

After completion of the course, graduates will be able to

A1	a1	Explain the theories and fundamentals of Immunology
A5	a2	Define the principle and new data in the field of advanced trends in Immunology and immunopathology
A7	a3	Describe the immune response in health and diseases



b. Intellectual Skills

After completion of the course, graduates will be able to

B2	b1	Demonstrate basic concepts of molecular immunology and immunity to infection
B9	b2	Frame professionally a scientific paper in the fields of Immunology

c. Professional and Practical Skills

After completion of the course, graduates will be able to

C3	C1	Perform diagnostic laboratory tests in immunology
C5	C2	Analyze and interpret laboratory data relevant to the cases of immunology
C10	C3	Assess professional and scientific risks in practicing laboratory experiments in the fields of Immunology

d. General and Transferable Skills

After completion of the course, graduates will be able to

D1	d1	Direct and work effectively in a team.
D3	d2	Transfer knowledge and experience to others and evaluate their performance
D4	d3	Develop written and oral communication skills.
D7	d4	Perform self and continuous education skills.

3. Course Contents

Week No.	Topics	Lecture Hours	Practical / Tutorial hr.
1	The innate immune system; Cells and organs of the immune system	2	---
2	Complement system	2	---
3	Diseases associated with complement deficiency	2	---
4	Overview on the adaptive immune system	2	---
5	Diseases associated with adaptive immunity disorders	2	---
6	Transplantation immunology	2	---
7	Immunomodulation part 1	2	---



8	Immunomodulation part 2	2	---
9	Immunopathology	2	---
10	Immune therapy	2	---
Total: 10 weeks		20	0

4- Matrix of knowledge and skills of the course (contents versus ILOs of the course)

Week	Topics	Course ILOs			
		K.U*	IS**	P.P.S***	G.T.S****
1	The innate immune system; Cells and organs of the immune system	a1, a3	b1		d1
2	Complement system	a1, a3	b1		
3	Diseases associated with complement deficiency	a1, a3	b1	c2	
4	Overview on the adaptive immune system	a1, a3	b1	c1,c3	d1
5	Diseases associated with adaptive immunity disorders	a1, a3	b1	c2	
6	Transplantation immunology	a2	b2	c2	d2,d4
7	Immunomodulation part 1	a2	b2		d2,d4
8	Immunomodulation part 2	a2	b2		
9	Immunopathology	a2	b2		d2,d4
10	Immune therapy	a2	b2		d3

* Knowledge and Understanding

**Intellectual Skills

***Professional and Practical Skills

****General and Transferable Skills



5- Teaching and Learning Methods:

5.1	Computer aided learning: Lectures using Data show, PowerPoint presentations
5.2	Self-learning
5.3	Research assignments
5.4	Class Activity: Group discussion

6- Student Assessment:

	Assessment Methods		Assessment Schedule	Weighing of Assessments
Assessment 1	Written Exam (Final)	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills	Week no 13	90%
Assessment 2	Oral Exam	To assess understanding, intellectual skills, General and Transferable skills	Week no 13	10%
				100 %

7- List of References

	Reference	Type
1.	Principles of immunology	Text Book
2.	Medical Immunology, 7th Edition - Routledge	Text Book
3.	www.immunologyonline.com	websites
	https://www.ekb.eg	
	http://www.sciencedirect.com	
	Videos	... etc

8- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Library	supplied by recent scientific books and journals



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Faculty of Pharmacy
Postgraduate Studies
Microbiology and Immunology PhD Program
Advanced Immunology and Immunopathology Course Specification



9. Signature

Course Coordinator	Head of Department	Date
Prof. Dr. El-Sayed El-Sherbiny Habib	Prof Dr. El-Sayed El-Sherbiny Habib	10/11./2021

* Date of Dept. Council Approval