

**In the Name of God
Islamic Republic of Iran
Ministry of Health and Medical Education
Deputy for Education**

**Pharmacology
Degree: PhD**

Total Course Credits

- Core: 18
- Noncore: 6
- Dissertation: 18
- Total: 42

Program Description

Medical Pharmacology is defined as the science of substances used to prevent, diagnose, and treat diseases. The Ph.D. program in Medical Pharmacology is a collection of theoretical and practical training packages to provide students with a solid knowledge foundation and research skills for a professional career. Armed with the skill of integrating knowledge of pharmacology with other disciplines, such as physiology and pathophysiology, graduates will find the ability to teach underlying basis of therapeutics, drugs pharmacokinetics and pharmacodynamics and conduct research in basic and clinical pharmacology with the ultimate aim of improving health of the community.

Admission Requirements

- Meeting the general requirements for admission to Pharmacology PhD program, introduced by Iran's Ministry of Health and Medical Education
- Having a master of science in pharmacology or a doctoral degree in medicine, pharmacy, dentistry or medical laboratory sciences.
- Passing an exam on the following topics:
 - Pharmacology, Clinical Biochemistry, Physiology, and Talent Search Examination
- Taking part in an interview after achieving the pass mark
- Having the admission criteria based on the regulations of universities
- Being eligible for entering the program

Expected Competencies at the End of the Program

General Competencies

General competencies expected of the graduates:

- Communication Skills
- Education and scientific presentation
- Research and scientific writing
- Rigorous scientific thinking and problem solving skills
- Professionalism

Specific Competencies and Skills

At the end of the program, learners will be competent in the following skills:

- Teaching basic and clinical pharmacology and therapeutics to students of medical sciences at all educational levels
- Effectively designing, implementing and managing applied, basic and clinical research in all fields for:
 - better understanding of the pathophysiology of diseases
 - introducing new preventive or therapeutic targets and approaches
 - improving the knowledge of currently approved drugs
 - detecting drug interactions
 - recognizing adverse drug reaction
 - investigating drug repurposing/repositioning
- Using specialized experimental and clinical equipment, instruments and techniques
- Demonstrating strong ability of data interpretation

Educational Strategies, Methods and Techniques*

Student Assessment (Methods and Types)

- Formative (Quizzes and Midterm Exam)
- Summative (Final Exam)
- Comprehensive exam

Ethical Issues*

*The related document(s) can be found at <http://hcmep.behdasht.gov.ir/>

Tables of the Courses

Table 1. Compensatory Courses*

Code of the Course	Course Title	Credits			Teaching hours			Prerequisite or Co-requisite Course
		Total	Theoretical	Practical	Total	Theoretical	Practical	
01	Medical Information System**	1	0.5	0.5	9	17	26	-
02	Cardiovascular Pathophysiology	1	1	-	17	17	-	-
03	Endocrine Pathophysiology	1	1	-	17	17	-	-
04	Renal Pathophysiology	1	1	-	17	17	-	-
05	Respiratory Pathophysiology	1	1	-	17	17	-	-
06	Blood Pathophysiology	1	1	-	17	17	-	-
07	Gastrointestinal Pathophysiology	1	1	-	17	17	-	-
08	Principles of Natural Products Research	1	1	-	17	17	-	-
09	Medicinal Chemistry	1	1	-	17	17	-	-
10	Biopharmacy	2	2	-	34	34	-	-
Total		11						

*Passing these courses (all or some of them) is subject to the decision made by the university post graduate council

** Passing this course is obligatory for those who have not completed it before.

Table 2. Core Courses

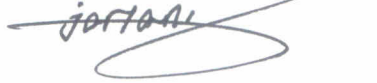
Code of the Course	Course Title	Credits			Teaching hours			Prerequisite or Co-requisite Course
		Total	Theoretical	Practical	Total	Theoretical	Practical	
11	Advanced Pharmacokinetics	2	2	-	34	34	-	Biopharmacy Code 10
12	Pharmacodynamics	2	2	-	34	34	-	Biopharmacy Code 10 and Medicinal Chemistry code 09
13	Clinical Pharmacology	1	1	-	17	17	-	-
14	Neuropharmacology	3	2.5	0.5	60	43	17	-
15	Cardiovascular Pharmacology	2	1.5	0.5	43	26	17	-
16	Gastrointestinal, Respiratory and Endocrine Pharmacology	2	1.5	0.5	43	26	17	-
17	Chemotherapy	2	2	-	34	34	-	-
18	Principles of Experimental Study Design	1	1	-	17	17	-	-
19	Research Methods	2	0.5	1.5	60	9	51	-
20	Seminars	1	1	-	17	17	-	-
Total		18						

Table 3. Non-Core Courses*

Code of the Course	Course Title	Credits			Teaching hours			Prerequisite or Co-requisite Course
		Total	Theoretical	Practical	Total	Theoretical	Practical	
21	Advanced Biostatistics	2	1.5	0.5	42	26	17	-
22	Molecular Neuroscience	2	2	-	34	34	-	-
23	Immunopharmacology	2	2	-	34	34	-	-
24	Molecular Biology	2	2	-	34	34	-	-
25	Cell Therapy	1	1	-	17	17	-	-
26	Bioethics	1	1	-	17	17	-	-
27	Graphical and Statistical Software	1	0.5	0.5	26	9	17	-
28	Scientific Writing	1	0.5	0.5	26	9	17	-
29	Gene Therapy	2	2	-	34	34	-	-
30	Addiction	2	2	-	34	34	-	-
Total		16						

*Passing six credits of these courses is necessary depending on thesis subject, supervisor recommendation and approval of the university post-graduate council.

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