

In the Name of God

Islamic Republic of Iran Ministry of Health and Medical Education Deputy Ministry for Education

Medical Genetics

Degree: Doctor of Philosophy (PhD)

Total Course Credits

- Core: 27
- Non-core (Electives): 3
- Dissertation: 20

Program Description

The field of Medical Genetics is one of the main branches of medical sciences. The PhD graduates in this field are expected to be able to solve their clients' problems by identifying, preventing, consulting, and curing their genetic disorders. As a fundamental science, the medical genetics knowledge can serve as an important base to promote national economy, social health, patient treatment and public welfare.

The PhD program in Medical Genetics offers both taught courses and research courses which seek to achieve an advanced understanding of professional skills and practice, often within the context of national policies and developments. The program combines modules of the advanced subject knowledge, general research methods, and treatment management issues.

The main objective of the program is to develop students' skills in appreciating and applying molecular techniques to successfully tackle problems in medical education and research fields by establishing a strong link between basic and medical genetics sciences. The graduates will be able to provide consultation for laboratory specialists or supervisors in order to improve the application of Medical Genetics in universities and research centers.

The main mission of this course is providing the student with the necessary disciplines as follow:

- Training committed, knowledgeable and competent people for educational purposes in Medical Genetics and presenting scientific ideas, together with basic and fundamental genetic research targets to serve diagnostic and prevention purposes,
- Producing the capacity to improve basic possibilities in prevention, consultation, and detection of genetic disorders according to the aim of the PhD course,
- Improving the necessary interaction between basic genetic sciences and medical equipments,
- Strengthening analytical and presentational skills, and developing the growth of personality, while providing the graduates with necessary social and professional skills.

Admission Requirements

- Having a master's degree in one of the fields of Genetics, Human Genetics, Clinical Biochemistry, Medical Biotechnology, Medical Immunology, Biology Cellular and Molecular Sciences, Genetics, and Biochemistry branches); or a general doctorate in one of the fields of Medicine, Dentistry, Pharmacy, Veterinary medicine; or a specialty in any of the medical fields, or a professional doctorate in the Laboratory Sciences (approved by the Medical Branch of the Supreme Council of Planning) awarded by one of the home or foreign universities, and approved by the Ministry of Health, Treatment and Medical Education.
- Being eligible for entering to the course according to the PhD educational rules and regulations.

*Important note: These general conditions do not necessarily exclude specific conditions of each institute or university.

Expected Competencies at the End of the Program

General Competencies*

Specific Competencies and Skills

At the end of the program learners will be competent in the following skills, in addition to the competencies and skills that they already obtained during their master's education.

- Being competent in student seminars, lectures, and lecture handouts
- Having good knowledge and skills of laboratory practicals
- Developing team-working skills
- Evaluating the data generated, and interpreting the related data,
- Producing laboratory reports, and interpreting the test results,
- Keeping the physical and psychological environment as well as the workplace well organized and healthy
- Using the specialized equipment
- Working in professional environments
- Having sufficient skill in handling with animals

Educational Strategies, Methods and Techniques*

Student Assessment (Methods and Types)

a) Methods of assessment

- Written, verbal, and practical assessment

b) Types of the assessment

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

Ethical Considerations*

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

Tables of the Courses

Table 1. Compensatory Courses *

Code of the course	Title of the course	Credits			Hours			Prerequisite or concurrent courses
		Theoretical	Practical	Total	Theoretical	Practical	Total	
01	Human Genetics	2	-	2	34	-	34	-
02	Molecular Genetics	2	-	2	34	-	34	-
03	Cytogenetics	2	-	2	34	-	34	-
04	Genetic Engineering	2	-	2	34	-	34	-
05	Immunogenetics	2	-	2	34	-	34	-
06	Cancer Genetics	2	-	2	34	-	34	-
07	Population Genetics	2	-	2	34	-	34	-
08	Behavioral Genetics	2	-	2	34	-	34	-
Total		16						

*Students should earn all or some of compensatory course credits (Table 1) as specified by the Department of Education and approved by the Postgraduate Education Council.

Table 2. Core Courses

Code of the course	Title of the course	Credits				Hours			Prerequisite or concurrent courses
		Theoretical	Practical	Training	Total	Theoretical	Practical	Total	
09	Advanced Medical Genetics	2	-	-	2	34	-	34	14
10	Genetic Counseling*	1	1	-	2	17	34	51	-
11	Advanced Genetic Engineering and Molecular Biotechnology	2	1	-	3	34	34	68	-
12	Advanced Cytogenetics	2	1	-	3	34	34	68	-
13	Advanced Molecular Cytogenetics	2	-	-	2	34	-	34	14
14	Advanced Molecular Genetics	2	1	-	3	34	34	68	12
15	Advanced Cancer Genetics	2	-	-	2	34	-	34	12, 14, 16
16	Advanced Immunogenetics	2	-	-	2	34	-	34	12, 14
17	Special Hospital Training*	-	-	544	8	-	-	-	12, 17
18	Thesis	-	-	-	20	-	-	-	-
Total						47			

*Genetic Counselling and Special Hospital Training courses will be given to students in a semester after passing all of the above mentioned courses in Table 2.

Table 3. Non- Core Courses (Electives)*

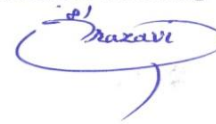
Code of the course	Title of the course	Credits			Hours			Prerequisite or concurrent courses
		Theoretical	Practical	Total	Theoretical	Practical	Total	
19	Genetics of Microorganisms	2	-	2	34	-	34	-
20	Human Biochemical Genetics	2	-	2	34	-	34	-
21	Ethics and Bioimmunology	2	-	2	34	-	34	-
22	Cytoplasm and Somatic Genetics	1	-	1	17	-	17	-
23	Knowledge of Disorders Symptoms	1	-	1	17	-	17	-

*Students should choose 3 credits as specified by their affiliate department.

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