

In the Name of God

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

Applied Cell Sciences Degree: Doctor of Philosophy (PhD)

Total Course Credits

- Core: 18
- Non-core (Electives): 6
- Dissertation (PhD): 20

Program Description

Applied cell sciences department seeks a leadership role in applied cell sciences, in stem cell therapy and regenerative medicine, through developing innovative, multidisciplinary collaborative approaches. It is an emerging field that aims at the regeneration of natural tissues using biological cells, biomaterials, biotechnology, and clinical medicine.

Training future leaders for education, research and clinical studies using cells specially stem cells is our main goal. Our mission is to accelerate the promise of regenerative medicine by exploring the body's natural ability to heal itself, which does not seem a very far-fetched idea and we presume a leading role for ourselves in the region in the coming decades.

Admission Requirements

MSc degree in one of the following fields awarded by one of the home or foreign universities approved by Iranian Ministry of Health, Treatment and Medical Education: cellular and molecular biology, biology, medical biotechnology, medical microbiology, microbiology, medical virology, biotechnology, toxicology, developmental biology, medical immunology, physiology, pharmacology, clinical biochemistry, human genetics, laboratory hematology and blood bank, medical nanotechnology or medical degree in medicine, dentistry, pharmacy and veterinary.

Expected Competencies at the End of the Program

General Competencies*

Specific Competencies and Skills

Graduates of this course will be able to take educational responsibilities, conduct research and provide expert consulting services related to the applied cell sciences.

In education, contribution to teaching applied cell sciences to students of various fields according to the universities needs.

In research, designing, implementing and evaluating basic and applied researches in various related areas.

In providing expert services for the laboratory diagnosis of applied cell sciences, using high technology.

Educational Strategies, Methods and Techniques*

Student Assessment (Methods and Types)

- Formative (quizzes and Midterm Exam)
- Summative (Final Exam)
- Comprehensive
- oral and written exams, observation,
- OSLE,
- and monitoring the progress and completion of the dissertation.

Ethical Considerations*

*Note: 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	Title of the Course	Credits					Teaching Hours					Prerequisite or Simultaneous Course
		Theoretical	Practical	Clinical Training	Clinical Practice	Total	Theoretical	Practical	Clinical Training	Clinical Practice	Total	
١٠	Medical Information Systems*	0.5	0.5	-	-	1	9	17	-	-	26	-
١٢	General Anatomy	1	0.5	-	-	1.5	17	17	-	-	34	-
١٣	Histology	1	0.5	-	-	1.5	17	17	-	-	34	-
١٤	General Pathology	1	-	1	17	-	17	-	51	-	68	-
١٥	Fundamentals of Pharmacology	2	-	-	-	2	34	-	-	-	34	-
١٦	Fundamentals of Immunology	1	-	-	-	١	17	-	-	-	17	-
١٧	Cellular and Molecular Biology	2	-	-	-	2	34	-	-	-	34	-
١٨	Biostatistics and Research methodology	1	1	-	-	2	17	34	-	-	51	-
١٩	Genetics	2	-	-	-	2	34	-	-	-	34	-
٢٠	Embryology	2	-	-	-	2	34	-	-	-	34	-
٢١	Hematology	1	1	-	-	2	17	34	-	-	51	-
٢٢	Biochemistry	2	-	-	-	2	34	-	-	-	34	-
٢٣	Laboratory and Transgenic Animals	1	1	-	-	2	17	34	-	-	51	-
٢٤	Bioethics	2	-	-	-	2	34	-	-	-	34	-
Total		19.5										

*This course is compulsory to take for all students who had not taken the course previously.

- Based on the department schedule and approval of the post graduate council students should take 16 credit courses from Table 1.

Table 2. Core Courses




Code of the Course	Title of the Course	Credits					Teaching Hours					Prerequisite or Simultaneous Course
		Theoretical	Practical	Clinical Training	Clinical Practice	Total	Theoretical	Practical	Clinical Training	Clinical Practice	Total	
15	Advanced Cellular and Molecular Biology	2	-		2	34	-	-	-	34	7	
16	Principles of Stem Cells	1	1	-	-	2	17	34	-	-	51	02, 03, 04, 05, 06
17	Advanced Cell Signaling	2	1	-	-	3	34	34	-	-	68	-
18	Application of Cell Therapy and Cell Banking	0.5	1.5	-	-	2	9	51	-	-	60	16
19	Transplantation Immunology	2	-	-	-	2	34	-	-	-	34	06
20	Advanced Cellular and Molecular Techniques	1	2	-	-	3	17	68	-	-	85	07
21	Principles of Biological Products, Standardization and Biosafety	2	-	-	-	2	34	-	-	-	34	-
22	Bioinformatics, Research Methodology, Clinical Trial Methods	1	1	-	-	2	17	34	-	-	51	07, 08
23	Dissertation	20										
Total		38					417					

Table 3. Non-core courses

Code of the Course	Title of the Course	Credits					Teaching Hours					Prerequisite or Simultaneous Course
		Theoretical	Practical	Clinical Training	Clinical Practice	Total	Theoretical	Practical	Clinical Training	Clinical Practice	Total	
24	Nursing Ethics and Professional Relationships	2	1	-	-	3	34	34	-	-	68	-
25	Nursing Theories and Models in Community Health and their Applications	3	-	-	-	3	-	0	-	-	51	-
26	Planning and	2	1	-	-	3	34	34	-	-	68	-

	Evaluating Nursing Care for Community Health											
27	Educational Methods for Individuals, Families and Communities	3	-	-	-	3	51	-	-	-	51	03
Total												12

Seeking the consent of supervising professors and the approval of post-graduate education council, students are due to take 6 credit courses related to their dissertation from table 3.

<p>Jamshid Hajati PhD Secretariat of the Council for Education of Health and Basic Medical Sciences (Undergraduate and Postgraduate)</p> 	<p>Seyed Mansour Razavi MD Secretary of the Supreme Council for Medical Sciences Planning</p> 
<p> Bagher Larijani MD Deputy for Education Ministry of Health and Medical Education</p>	