

Tehran University of Medical Sciences

School of Advanced Medical Technologies Department of Medical Biotechnology

Curriculum for M.Sc. Students of Medical Biotechnology

Course Duration:

An M.Sc. period in Iran usually takes 12-18 months which includes three semesters of theoretical courses and one semester of final project (Lab Course)

No.	Course Title	Number of Units			Hours/Semester			Type of Course
		T	P	Total	T	P	Total	
1	Animal Cell Culture	1	1	2	17	34	51	Core
2	Molecular Biology & Biochemistry	2	-	2	34	-	34	Core
3	Bioinformatics	1	1	2	17	34	51	Core
4	Research Methods	0.5	0.5	1	9	17	26	Core
5	Genetic Engineering	2	2	4	34	34	51	Core
6	Seminar	1	-	1	17	-	17	Core
7	Methods of Working with Lab Animals	1	1	2	17	34	51	Optional
8	Standardization & Biosafety	2	-	2	34	-	34	Optional
9	Immunochemistry & Analytical Methods	1	1	2	17	34	51	Optional
10	Project	-	6	6	-	-	-	
Total				22				

T: Theoretical; P: Practical

Each student should pass at least 4 units of optional courses.

M.Sc. Course Program –Semester based Semester 1

No.	Course Title	Number of Units		
		T	P	Total
1	Research Methods	0.5	0.5	1
2	Animal Cell Culture	1	1	2
3	Molecular Biology & Biochemistry	2	-	2
4	Standardization & Biosafety *	2	-	2
5	Methods of Working with Lab Animals*	1	1	2
6	Immunochemistry & Analytical Methods*	1	1	2
7	Bioinformatics	1	1	2
Total				11

* Optional

Semester 2

No.	Course Title	Number of Units		
		T	P	Total
1	Seminar	1	-	1
2	Genetic Engineering	2	2	4
3	Project	-	6	6
Total		4	9	11

The equivalent of 4-6 months of full time effort on proposal preparation, research execution and project reporting and defense.

Curriculum for Ph.D. Student of Medical Biotechnology

Course Duration:

A Ph.D. period in Iran usually takes 3-4 years which includes 1 year (2 semesters) of theoretical courses and 2-3 years of final project (Lab Course). The final project may start earlier according to the ability of students provided that they pass the theoretical courses as soon as possible.

Students can apply for the following Ph.D. programs in the Department of Medical Biotechnology:

- Medical Biotechnology
- Medical Biotechnology (Nano-Biotechnology)
- Medical Biotechnology (Genetic Engineering)
- Medical Biotechnology (Regenerative Medicine)

Core Courses

No.	Course Title	Number of Units			Hours/Semester		
		T	P	Total	T	P	Total
1	Research Methods	0.5	0.5	1	9	17	26
2	Report Writing	-	1	1	-	34	34
3	Bioinformatics	0.5	0.5	1	9	17	26
4	Genetic Engineering	1	1	2	17	34	51
5	Cell & Tissue Culture	0.5	0.5	1	9	17	26
Total		3	3	6	44	119	163

Optional Courses

No.	Course Title	Number of Units			Hours/Semester		
		T	P	Total	T	P	Total
1	Advanced Molecular Biology	2	-	2	34	-	34
2	Immunochemistry	0.5	0.5	1	9	17	26
3	Nano-Biotechnology	2	-	2	34	-	34
4	Bioprocess Engineering Principles	1	1	2	17	34	51
5	Molecular Diagnosis in Biotechnology	1	1	2	17	34	51
6	Protein Engineering	2	-	2	34	-	34
7	Advances in Biotechnology	2	-	2	34	-	34
8	Bioethics	1	-	1	17	-	17
9	Regenerative Medicine	2	-	2	34	-	34
10	Stem Cell Therapy	2	-	2	34	-	34
Total*				6			

* Students should pass at least 6 units of optional courses following the decision of the Educational Group

