

M.Sc. degree in Biomedical Sciences Program Admission Requirements

A total of 40 credits is required for the M.Sc. degree in Biomedical Sciences Program. This includes 5 hours of university requirements courses, 17 credit hours of research lab work, and 18 credit hours of program and concentration specific coursework. Students should consult their advisor on a regular basis to ensure that the prerequisites for their university requirements, and program requirements are fulfilled.

University Requirements (Cr)	Research Requirements (Cr)	Program Requirements (Cr)	Total (Cr)
5	17	18	40
12.5%	42.5%	45.0%	100%

1. University Requirements

The aim of university requirements is to provide UST students with scientific English writing skills and scientific communication and discussion skills.

University Requirements (5 Cr)					
Course Code	Course Title	Cr	L	P	Prerequisite
BMS 691	Graduate Seminar 1	1	1	0	
BMS 692	Graduate Seminar 2	1	1	0	
ENG 601	Scientific English Writing	3	3	0	

2. Research Requirements

Research Requirements (17 Cr)					
Course Code	Course Title	Cr	L	P	Prerequisite
BMS 694	M.Sc. Thesis 1	2	0	6	
BMS 695	M.Sc. Thesis 2	3	0	9	
BMS 696	M.Sc. Thesis 3	3	0	9	
BMS 697	M.Sc. Thesis 4	3	0	9	
BMS 698	M.Sc. Thesis 5	3	0	9	
BMS 699	M.Sc. Thesis 6	3	0	9	

3. Program Requirements

The aim of program requirements is to provide M.Sc. students of biomedical sciences programs in UST with skills and knowledge essential to lead academic, research, and professional career in the field of Biomedical Sciences. Program requirements include courses of basic knowledge essential to all graduate students of biomedical sciences programs such as cell and molecular biology, Biology of Human Diseases and biostatistics.

Program Requirements (18 Cr)					
Course Code	Course Title	Cr	L	P	Prerequisite
BMS 601	Molecular and Cellular Biology	3	3	0	
BMS 602	Biology of Human Disease	3	3	0	
BMS 605	Biostatistics	3	3	0	
BMS 640	Structural and Functional Biology and Therapy	3	3	0	
600-Level BMS Concentration Specific Electives		3	3	0	
600-Level or 700-Level BMS Concentration Specific Electives		3	3	0	

1. Concentration Specific Electives

The program offers a specialty in one of seven concentrations, which requires successful completion of 6 credit hours of concentration specific electives.

Cancer Biology Concentration

The student must select 2 courses from the following list (Min 6 Cr)

Course Code	Course Title	Cr	L	P	Prerequisite
BMS 621	Cancer Treatment	3	3	0	
BMS 622	Cancer Metabolism	3	3	0	
BMS 623	Advanced Topics in Cancer Research	3	3	0	
BMS 631	Advanced Cancer Biology	3	3	0	
BMS 700 Level electives selected with the supervisor		3	-	-	

Chemical Biology and Drug Design Concentration

The student must select 2 courses from the following list (Min 6 Cr)

Course Code	Course Title	Cr	L	P	Prerequisite
BMS 626	Modern Synthetic Protocols	3	3	0	
BMS 641	Chemical Biology	3	3	0	
BMS 643	Molecular Thermodynamics	3	3	0	
BMS 646	Applied molecular modelling	3	3	0	
BMS 700 Level electives selected with the supervisor		3	-	-	

Computational Biology Concentration

**The student must select 2 courses from the following list (Min 6 Cr)
At least one of them must be a BMS course**

Course Code	Course Title	Cr	L	P	Prerequisite
BMS 628	Applied Machine Learning	3	3	0	
BMS 629	Computational Biology for Biomedical Applications	3	3	0	
BMS 630	Selected Topics in Bioinformatics	3	3	0	
BMS 700 Level electives selected with the supervisor		3	-	-	
AIE 503	Deep Learning Techniques	3	2	3	Machine Learning
AIE 606	Medical Image Processing	3	2	3	AIE 503

Medical Genetics and Genomics Concentration

The student must select 2 courses from the following list (Min 6 Cr)

Course Code	Course Title	Cr	L	P	Prerequisite
BMS 619	DNA repair and Genome instability	3	3	0	
BMS 625	Genomic and proteomic techniques in research and diagnostics	3	3	0	
BMS 637	Advanced human genome and disease	3	3	0	
BMS 638	Genetics and Genomics of Prokaryotes	3	3	0	
BMS 700 Level electives selected with the supervisor		3	-	-	

Microbiology and Immunology Concentration

The student must select 2 courses from the following list (Min 6 Cr)

Course Code	Course Title	Cr	L	P	Prerequisite
BMS 612	Advanced topics in Microbiology	3	3	0	
BMS 613	Microbiology of Human Pathogens	3	3	0	
BMS 614	Bacteriophage Biology	3	3	0	
BMS 615	Cellular and Molecular Immunology	3	3	0	
BMS 700 Level electives selected with the supervisor		3	-	-	

Molecular and Cell Biology Concentration

The student must select 2 courses from the following list (Min 6 Cr)

Course Code	Course Title	Cr	L	P	Prerequisite
BMS 616	Molecular Virology and viral pathogenesis	3	3	0	
BMS 617	Selected Topics in Molecular and cellular Biology	3	3	0	
BMS 618	Methods in Molecular Biology	3	3	0	
BMS 620	Neurobiology of Disease	3	3	0	
BMS 700 Level electives selected with the supervisor		3	-	-	

Stem Cells and Regenerative Medicine Concentration

The student must select 2 courses from the following list (Min 6 Cr)

Course Code	Course Title	Cr	L	P	Prerequisite
BMS 642	Regenerative Medicine and Stem Cell Biology	3	3	0	
BMS 644	Translational Medical Sciences 3	3	3	0	
BMS 645	Selected Topics in Regenerative Medicine	3	3	0	
BMS 647	Human Embryology and Developmental Biology	3	3	0	
BMS 700 Level electives selected with the supervisor		3	-	-	