

**INSTITUTE OF BIOSCIENCES AND TECHNOLOGY
HEALTH SCIENCE CENTER
GRADUATE PROGRAM
CORE CURRICULUM**

The IBT offers four general areas of study that coincide with the Institutes centers and research programs. These degree tracts are only guidelines and each student will have the opportunity to take classes in other areas if they desire with permission from their advisor. All courses will be offered through Baylor College of Medicine, The University of Texas at Houston Medical Center, IBT special courses, and Texas A&M University via TTVN.

96 credit hours are required for a Ph.D.

24-30 hours of total didactic instruction, including:

12-16 hours of required courses

12-18 hours of electives

Research credit hours will fulfill the remaining credit hour requirements. Consideration for previous course work will be decided on a case by case basis for students entering the Ph.D. program with a Masters degree.

ALL STUDENTS NEED TO CHECK WITH COURSE INSTRUCTORS TO DETERMINE AVAILABILITY OF COURSES. OTHER COURSES AVAILABLE THROUGH BAYLOR COM-ON A QUARTER SYSTEM-PLEASE CHECK WITH ADVISOR AND INSTRUCTOR

CELL & DEVELOPMENTAL BIOLOGY

Required courses

GSO40013	Cell Biology	3h	Fall
GSO40073	Developmental Biology	3h	Fall
GSO10014	Biomedical Statistics	4h	Summer
GSO040203	Experimental Genetics	3h	Fall
MSCI 689B	Special Topics: Seminars in Biomedical Research	1h	

Electives

GS210051	Ethical Dimensions of the Biomedical Sciences	1h	
TAMU	Cell Biology	3h	TTVN
IBT	Cell Signaling	3h	
GSO40031	Stem Cells in Biomedicine	1h	Fall
GSO40043	Molecular Principles of Virology	3h	Fall
MSCI 689	Special Topics in Genetic Epidemiology: Association Studies	2h	Spring

GSO40063	Cancer Biology	3h	Fall
GSO40111	Seminar in Cell Cycle, Apoptosis and Cell Signaling	1h	Spring
GSO40123	Eukaryotic Gene Expression	3h	Spring
GSO40133	Cancer Cell Signaling	4h	Spring
GSO40153	Human Gene Therapy: Basic Science to Clinical Trial	3h	Spring
GSO40731	Seminar in Developmental Biology	1h	Spring
GSO40751	Seminar in Regulatory Biology	1h	Fall
GSO40782	Topics in Extracellular Matrix	2h	Spring
GSO40791	Current Topics in Programmed Cell Death	1h	Spring
GSO40801	Current Topics in Genes and Development	1h	Fall & Spring
GSO60014	Immunology I	4h	Fall
GS120144	Introduction to Pathology	4h	Spring
GS120134	Introduction to Histology	4h	Fall
GS120162	Integrated Craniofacial Biology and Medicine	2h	Fall
GS120254	Cell and Systems Physiology	4h	Spring
GS210062	Professional Science Skills: Communications	2h	Fall
MSCI 689	Special Topics in Applied Birth Defect Research	2h	
MSCI 691	Research		
	Doctoral Seminars		

MICROBIOLOGY & IMMUNOLOGY

Required courses

GSO70014	Microbiology and Molecular Genetics I	4h	Fall
GSO60014	Immunology I	4h	Fall
GSO10014	Biomedical Statistics	4h	Summer
GSO040203	Experimental Genetics	3h	Fall
MSCI 689B	Special Topics: Seminars in Biomedical Research	1h	

Electives

GSO70024	Microbiology and Molecular Genetics II	4h	Spring
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GSO70082	Microbial Sensing and Signal Transduction	2h	Fall
GSO70092	Molecular Basis of Microbial Pathogenesis	2h	Spring
GSO70751	Microbiology and Molecular Genetics Seminar Series	1h	Fall & Spring
GSO40043	Molecular Principles of Virology	3h	Fall
GS120144	Introduction to Pathology	4h	Spring
GS120134	Introduction to Histology	4h	Fall
GS120254	Cell and Systems Physiology	4h	Spring
GS210062	Professional Science Skills: Communications	2h	Fall
GS210051	Ethical Dimensions of the Biomedical Sciences	1h	
MSCI 691	Research		
	Doctoral Seminars		

ENVIRONMENTAL & MOLECULAR GENETICS

Required courses

GSO40013	Cell Biology	3h	Fall
GSO10014	Biomedical Statistics	4h	Summer
GSO040203	Experimental Genetics	3h	Fall
GS110013	Genetics and Human Disease	3h	Fall
MSCI 689B	Special Topics: Seminars in Biomedical Research	1h	

Electives

GS110023	Molecular and Cellular Approaches to Human Genetics	3h	Spring
GS110032	Introduction to Genomics and Bioinformatics	2h	Fall
GS110033	Methods in Genetic Epidemiology Linkage	3h	Spring
GS110043	Population Genetics	2h	Spring
GSO40123	Eukaryotic Gene Expression	3h	Spring
GS110072	Statistical Genetics	2h	Fall
MSCI 689	Special Topics in Genetic Epidemiology: Association Studies	2h	Spring
GS110622	Topics in Medical Genetics I	2h	Fall
GS110062	Human DNA Variation	2h	Spring
GS110631	Current Topics in Human and Molecular Genetics	1h	Fall & Spring

GS110642	Topics in Medical Genetics II	2h	Spring
GS110711	Seminar in Genetics and Population Biology	1h	Fall & Spring
GS120144	Introduction to Pathology	4h	Spring
GS120134	Introduction to Histology	4h	Fall
GSO60014	Immunology I	4h	Fall
GS120162	Integrated Craniofacial Biology and Medicine	2h	Fall
GS120254	Cell and Systems Physiology	4h	Spring
GS130063	Toxicology I: Principles of Toxicology	3h	Fall
GS130073	Mutagenesis and Carcinogenesis	3h	Spring
GS130083	Toxicology II: Toxic Agents	3h	Spring
GS130093	Cellular and Molecular Toxicology	3h	Spring
GS210062	Professional Science Skills: Communications	2h	Fall
GS210051	Ethical Dimensions of the Biomedical Sciences	1h	
MSCI 689	Special Topics in Applied Birth Defect Research	2h	
MSCI 691	Research		
	Doctoral Seminars		

BIOCHEMISTRY & MOLECULAR BIOLOGY

Required courses

GS030090	Introductory Biochemistry	4h	Fall
GS030102	Current Methods in Molecular Research	2h	Fall & Spring
GSO10014	Biomedical Statistics	4h	Summer
GS030024	Topics in Biochemistry and Molecular Biology	4h	Spring
MSCI 689B	Special Topics: Seminars in Biomedical Research	1h	

Electives

GSO40123	Eukaryotic Gene Expression	3h	Spring
GS120144	Introduction to Pathology	4h	Spring
GS120134	Introduction to Histology	4h	Fall
GSO60014	Immunology I	4h	Fall
GS120162	Integrated Craniofacial Biology and Medicine	2h	Fall
GS120254	Cell and Systems Physiology	4h	Spring
GS130063	Toxicology I: Principles of Toxicology	3h	Fall

GS130073	Mutagenesis and Carcinogenesis	3h	Spring
GS130083	Toxicology II: Toxic Agents	3h	Spring
GS130093	Cellular and Molecular Toxicology	3h	Spring
GS210062	Professional Science Skills: Communications	2h	Fall
GS210051	Ethical Dimensions of the Biomedical Sciences	1h	
TAMU	Cell Biology	3h	TTVN
IBT	Cell Signaling	3h	
GSO40031	Stem Cells in Biomedicine	1h	Fall
GSO40043	Molecular Principles of Virology	3h	Fall
GS030014	Metabolic Biochemistry	4h	Fall
GSO40013	Cell Biology	3h	Fall
GSO40073	Developmental Biology	3h	Fall
GSO40063	Cancer Biology	3h	Fall
GSO40111	Seminar in Cell Cycle, Apoptosis and Cell Signaling	1h	Spring
GSO40731	Seminar in Developmental Biology	1h	Spring
GSO40751	Seminar in Regulatory Biology	1h	Fall
GSO40782	Topics in Extracellular Matrix	2h	Spring
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