Cellular & Molecular Biology Track Curriculum

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Course #	Course Name	Credit Hours	Graded Hours
MSCI 601**	Principles of Basic Medical Sciences I	5	5
MPHY 601	Methods in Cell Physiology	4	4
or	or	or	or
BICH 605	Methods in Biochemical Analysis	3	3
or	or	or	or
SBTM 616	Computational Systems Biology I	3	3
MSCI 689**	Ethics in Biomedical Research	1	1
MSCI 685	Lab Rotation I & II		
	Semester Hours	9-10	9-10
	Cumulative Hours	9-10	9-10
** Required			

SPRING YEAR 1

Course #	Course Name	Credit Hours	Graded Hours
MSCI 610**	Pathogenesis of Human Disease	4	4
	Core Course / Elective	3-4	3-4
MSCI 685	Lab Rotation III & IV	1-2	1-2
	Semester Hours	9	8-10
	Cumulative Hours	18-19	17-20

SUMMER YEAR 1

Course #	Course Name	<u>Credit Hours</u>	Graded Hours
STAT 651	Statistics in Research	3	3
or	or		
Elective	Directed Study	3	3
MSCI 691	Research	3	0
	Semester Hours	6	3
	Cumulative Hours	24-25	20-22

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Course #	Course Name	Credit Hours	Graded Hours
BICH/GENE 631	Biochemical Genetics	3	6-9
	or	or	or
	Elective	3	3
MSCI 691	Research	0-3	0-3
	Semester Hours	9	6-8
	Cumulative Hours	33-34	26-30

SPRING YEAR 2

Course #	Course Name	Credit Hours	Graded Hours
MSCI 681	Seminar	1	0
MCMD 689	Human Genes in Disease	3	3
	Elective	3	3
MSCI 691	Research	2	0
	Semester Hours	9	6
	Cumulative Hours	42-43	32-36

SUMMER YEAR 2

Course #	<u>Course Name</u>	<u>Credit Hours</u>	Graded Hours
MSCI 691	Research	6	0
	Semester Hours	6	0
	Cumulative Hours	48-49	32-36

FALL YEAR 3

Course #	Course Name	<u>Credit Hours</u>	Graded Hours
MSCI 691	Research	9	0
	Semester Hours	9	0
	Cumulative Hours	57-58	32-36

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Course #	Course Name	Credit Hours	Graded Hours
MSCI 691	Research	9	0
	Semester Hours	9	0
	Cumulative Hours	66-67	32-36

SUMMER YEAR 3

Course #	Course Name	<u>Credit Hours</u>	Graded Hours
MSCI 691	Research	6	0
	Semester Hours	6	0
	Cumulative Hours	72-73	32-36

FALL YEAR 4

Course #	<u>Course Name</u>	<u>Credit Hours</u>	Graded Hours
MSCI 691	Research	9	0
	Semester Hours	9	0
	Cumulative Hours	81-82	32-36

SPRING YEAR 4

Course #	Course Name	Credit Hours	Graded Hours
MSCI 691	Research	9	0
	Semester Hours	9	0
	Cumulative Hours	90-91	32-36

SUMMER YEAR 4 Course # Course No

Course #	<u>Course Name</u>	<u>Credit Hours</u>	Graded Hours
MSCI 691	Research	5	0
MSCI 681	Seminar	1	
	Semester Hours	6	0
	Cumulative Hours	96-97	32-36

*CORE COURSES - *Must be Completed by the End of YEAR 2

Course # MSCI 601	Course Name Principles of Basic Medical Sciences I	Credit/Graded Hours 5
MSCI 689	Ethics and Issues in Biomedical Research	1
MCMD 689 or	Human Genes in Disease or	3
BICH / GENE 631	Biochemical Genetics	3
STAT 651 or	Statistics in Research I	3
SBTM 616	Computational Systems Biology I	3
MSCI 610	Pathogenesis of Human Disease	4

ELECTIVES

ANSC / VTPP 654 Molecular Endocrinology BICH 601 Fundamentals of Biochemistry I 3 BICH 608 Critical Analysis of the Biochemical Literature 3 BICH 672 Biological Membranes 1 BICH 624 Enzymes, Proteins, and Nucleic Acids 3 BIOL 611 Molecular Biology of Differentiation and Development 3 BIOL 613 Cell Biology 1-5 BIOL 614 Signaling and Development 3 BIOL 651 Bioinformatics 3 BIOL 670 The Cell Cycle 1 BIOL 674 Cellular & Molecular Aspects of Development 3 MBCH 625 Nucleic Acid / Protein Interactions 1 MBCH 671 Macromolecular Folding / Design 3 MICR 620 Mechanisms of Transcription Initiation 3 MMIM 601 Microbial Pathogenesis 3 MSCI 612 Current Topics in Cell Signaling 3 SBTM 615 Pathobiology and Therapeutics 4 STAT 652 Statistics in Research II 3 VAPH 640 Neurobiology 1-5 VTMI 649 Immunology 3 VTPP 677 Fluorescence Detection: Steady State, Time Resolved and Imaging VTPP 676 Genetic & Molecular Toxicology 3 ZOOL 601 Biological Clocks	Course #	Course Name C	redit/Graded Hours
BICH 608 Critical Analysis of the Biochemical Literature 3 BICH 672 Biological Membranes 1 BICH 624 Enzymes, Proteins, and Nucleic Acids 3 BIOL 611 Molecular Biology of Differentiation and Development 3 BIOL 613 Cell Biology 1-5 BIOL 614 Signaling and Development 3 BIOL 651 Bioinformatics 3 BIOL 670 The Cell Cycle 1 BIOL 674 Cellular & Molecular Aspects of Development 3 MBCH 625 Nucleic Acid / Protein Interactions 1 MBCH 671 Macromolecular Folding / Design 3 MICR 620 Mechanisms of Transcription Initiation 3 MSCI 612 Current Topics in Cell Signaling 3 MSCI 612 Current Topics in Cell Signaling 3 SBTM 615 Pathobiology and Therapeutics 4 STAT 652 Statistics in Research II 3 VAPH 640 Neurobiology 1-5 VIBS 617 Cell Biology 1-5 VIMI 649 Immunology 3 VTPP 677 Fluorescence Detection: Steady State, Time Resolved and Imaging 3 VTPP 676 Genetic & Molecular Toxicology 3	ANSC / VTPP 654	Molecular Endocrinology	3
BICH 672 Biological Membranes 1 BICH 624 Enzymes, Proteins, and Nucleic Acids 3 BIOL 611 Molecular Biology of Differentiation and Development 3 BIOL 613 Cell Biology 1-5 BIOL 614 Signaling and Development 3 BIOL 651 Bioinformatics 3 BIOL 670 The Cell Cycle 1 BIOL 674 Cellular & Molecular Aspects of Development 3 MBCH 625 Nucleic Acid / Protein Interactions 1 MBCH 671 Macromolecular Folding / Design 3 MICR 620 Mechanisms of Transcription Initiation 3 MMIM 601 Microbial Pathogenesis 3 MSCI 612 Current Topics in Cell Signaling 3 SBTM 615 Pathobiology and Therapeutics 4 STAT 652 Statistics in Research II 3 VAPH 640 Neurobiology 1-5 VIBS 617 Cell Biology 1-5 VTMI 649 Immunology 3 VTMI/MMIM 663 Molecular Virology 3 VTPP 677 Fluorescence Detection: Steady State, Time Resolved and Imaging 3 VTPP 676 Genetic & Molecular Toxicology 3	BICH 601	Fundamentals of Biochemistry I	3
BICH 624 Enzymes, Proteins, and Nucleic Acids BIOL 611 Molecular Biology of Differentiation and Development 3 BIOL 613 Cell Biology 1-5 BIOL 614 Signaling and Development 3 BIOL 651 Bioinformatics 3 BIOL 670 The Cell Cycle 1 BIOL 674 Cellular & Molecular Aspects of Development 3 MBCH 625 Nucleic Acid / Protein Interactions 1 MBCH 671 Macromolecular Folding / Design 3 MICR 620 Mechanisms of Transcription Initiation 3 MMIM 601 Microbial Pathogenesis 3 MSCI 612 Current Topics in Cell Signaling 3 SBTM 615 Pathobiology and Therapeutics 4 STAT 652 Statistics in Research II 3 VAPH 640 Neurobiology 1-5 VIBS 617 Cell Biology 1-5 VIMI 649 Immunology 3 VTMI/MMIM 663 Molecular Virology 3 VTPP 677 Fluorescence Detection: Steady State, Time Resolved and Imaging 3 VTPP 676 Genetic & Molecular Toxicology 3	BICH 608	Critical Analysis of the Biochemical Literature	3
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BIOL 613 Cell Biology 1-5 BIOL 614 Signaling and Development 3 BIOL 651 Bioinformatics 3 BIOL 670 The Cell Cycle 1 BIOL 674 Cellular & Molecular Aspects of Development 3 MBCH 625 Nucleic Acid / Protein Interactions 1 MBCH 671 Macromolecular Folding / Design 3 MICR 620 Mechanisms of Transcription Initiation 3 MMIM 601 Microbial Pathogenesis 3 MSCI 612 Current Topics in Cell Signaling 3 SBTM 615 Pathobiology and Therapeutics 4 STAT 652 Statistics in Research II 3 VAPH 640 Neurobiology 1-5 VIBS 617 Cell Biology 1-5 VTMI 649 Immunology 3 VTMI/MMIM 663 Molecular Virology 3 VTPP 677 Fluorescence Detection: Steady State, Time Resolved and Imaging 3 VTPP 676 Genetic & Molecular Toxicology 3	BICH 624	Enzymes, Proteins, and Nucleic Acids	3
BIOL 614 Signaling and Development 3 BIOL 651 Bioinformatics 3 BIOL 670 The Cell Cycle 1 BIOL 674 Cellular & Molecular Aspects of Development 3 MBCH 625 Nucleic Acid / Protein Interactions 1 MBCH 671 Macromolecular Folding / Design 3 MICR 620 Mechanisms of Transcription Initiation 3 MMIM 601 Microbial Pathogenesis 3 MSCI 612 Current Topics in Cell Signaling 3 SBTM 615 Pathobiology and Therapeutics 4 STAT 652 Statistics in Research II 3 VAPH 640 Neurobiology 1-5 VIBS 617 Cell Biology 1-5 VTMI 649 Immunology 3 VTMI/MMIM 663 Molecular Virology 3 VTPP 677 Fluorescence Detection: Steady State, Time Resolved and Imaging 3 VTPP 676 Genetic & Molecular Toxicology 3	BIOL 611	Molecular Biology of Differentiation and Development	3
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BIOL 670 The Cell Cycle BIOL 674 Cellular & Molecular Aspects of Development 3 MBCH 625 Nucleic Acid / Protein Interactions 1 MBCH 671 Macromolecular Folding / Design 3 MICR 620 Mechanisms of Transcription Initiation 3 MMIM 601 Microbial Pathogenesis 3 MSCI 612 Current Topics in Cell Signaling 3 SBTM 615 Pathobiology and Therapeutics 4 STAT 652 Statistics in Research II 3 VAPH 640 Neurobiology 1-5 VIBS 617 Cell Biology 1-5 VTMI 649 Immunology 3 VTMI/MMIM 663 Molecular Virology 3 VTPP 677 Fluorescence Detection: Steady State, Time Resolved and Imaging 3 VTPP 676 Genetic & Molecular Toxicology 3	BIOL 614	Signaling and Development	3
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VAPH 640Neurobiology1-5VIBS 617Cell Biology1-5VTMI 649Immunology3VTMI/MMIM 663Molecular Virology3VTPP 677Fluorescence Detection: Steady State, Time Resolved and Imaging3VTPP 676Genetic & Molecular Toxicology3	SBTM 615	Pathobiology and Therapeutics	4
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VTPP 676 Genetic & Molecular Toxicology 3	VTMI/MMIM 663	Molecular Virology	3
	VTPP 677	Fluorescence Detection: Steady State, Time Resolved and	Imaging 3
ZOOL 601 Biological Clocks 3	VTPP 676	Genetic & Molecular Toxicology	3
	ZOOL 601	Biological Clocks	3