

Area 1 - Biomedical Informatics Foundations and Applications - 12 hours			
Research Foundations - Choose 1			
3	CLEM	HLTH 8210	Health Research 1: Design and Measurement
Biomedical Informatics Foundations - Both			
3	MJSC	BDSI 8010	Intro to Biomedical Informatics
3	MJSC	BDSI 8020	Biomedical Data Standards and Terminologies
Track Specific Course - Choose 1			
3	MJSC	BDSI 8110	Precision Medicine Informatics
3	MJSC	BDSI 8120	Clinical and Translational Informatics
3	CLEM	HLTH 8900	Population Health Informatics

Area 2 - Computing, Math, Stats, and Engineering - 12 hours				
Systems and Data Base Management - Choose 1				
3	CLEM	CPSC 6620	Database Management System	Data Management
3	CLEM	CPSC 8620	Database Management System Design	Tools and Technology
3	CLEM	CPSC 8470	Introduction to Information Retrieval	
3	CLEM	CPSC 6550	Computational Science: Methods & Software Systems	Computing Environments
3	CLEM	ECE 6780	General Purpose Computation on GPUs	
3	CLEM	ECE 8780	High-Performance Computing with GPUs	
3	CLEM	CPSC 8200	Parallel Architectures	
3	CLEM	ECE 6790	Introduction to Parallel Systems	
3	CLEM	CPSC 8490	Principles of Scientific Computing	
3	CLEM	CPSC 6140	Human and Computer Interaction	Human Factors/HCI/Usability
3	CLEM	HCC 8310	Fundamentals of Human-Centered Computing	
3	CLEM	IE 6880	Human Factors Engineering	
3	CLEM	IE 8000	Human Factors Engineering	
3	CLEM	CPSC 8710	Foundations of Software Engineering	Applied Software Engineering
3	CLEM	CPSC 8700	Software Design	Engineering

Area 2 (continued) - Computing, Math, Stats, and Engineering - 12 hours				
Math - Choose 1				
3	CLEM	MATH 8050	Data Analysis	
3	CLEM	STAT 8010	Statistical Methods	
Machine Learning/Data Science - Choose 1				
3	CLEM	CPSC 6420	Artificial Intelligence	
3	CLEM	CPSC 6430	Machine Learning: Implementation and Evaluation	
3	CLEM	CPSC 8420	Advanced Machine Learning	
3	CLEM	CPSC 6300	Applied Data Science	
Other - Choose 1				
3	CLEM	STAT 8190	Biostatistics	Biostatistics
3	CLEM	HLTH 8310	Quantitative Analysis in Health Research I	
3	CLEM	STAT 6020	Introduction to Statistical Computing	
3	CLEM	CPSC 8650	Data Mining	Data Mining
3	CLEM	ECE 8560	Pattern Recognition	
3	CLEM	CPSC 8480	Network Science	
3	CLEM	MATH 8070	Applied Multivariate Statistical Analysis	
3	CLEM	CPSC 6030	Data Visualization	Visualization and Exploratory Data Analysis
3	CLEM	CPSC 8030	Scientific Visualization	
3	CLEM	CPSC 8430	Deep Learning	
3	CLEM	ECE 6310	Introduction to Computer Vision	Image and Signal Processing
3	CLEM	ECE 6670	Introduction to Digital Signal Processing	
3	CLEM	ECE 8470	Digital Image Processing	
3	CLEM	BIOE 6310/711	Medical Imaging	
3	CLEM	MATH 6410	Introduction to Stochastic Models	Decision Analysis/ Knowledge Integration/ Modeling
3	CLEM	ECE 6420	Knowledge Engineering	
3	CLEM	IE 8030	Engineering Optimization and Applications	
3	CLEM	PADM 8420	GIS for Public Administrators	Geospatial Analysis
3	CLEM	CPSC 8400	Design & Analysis of Algorithms	Algorithms and Data Structures
3	CLEM	CPSC 8380	Advanced Data Structure	

Area 3 - Population Health, Health Systems, and Policy - 5-6 hours				
Choose 2				
3	CLEM	HLTH 8110	Health Care Delivery Systems	Health Systems
3	CLEM	HLTH 8020	Health Economics	
3	CLEM	HLTH 8100	Health Policy	Health Policy
2	CLEM	HLTH 8140	Health Systems Quality Improvement	Quality and Safety
2	CLEM	HLTH 8130	Population Health and Research	Population Health
3	CLEM	HLTH 8090	Epidemiology	

Area 4 - Domain Biology/Medicine - 3-4 hours				
Choose 1				
3	CLEM	PHYS 8190	Computational Biophysics	Foundations of Biomedical Science
3	CLEM	MICRO 8130	Practical Bioinformatics for Microbiologists	
3	CLEM	BIOL 8010	Concepts in Molecular, Cellular and Dev. Bio	
3	CLEM	BIOL 8000	Concepts in Evolution, Ecology and Organismal Bio.	Biochemistry and Pathology
3	CLEM	GEN 6400	Bioinformatics	
3	CLEM	BIOE 8460	Biomedical Basis for Engineered Replacement	
3	CLEM	BCHM 6360	Molecular Biology: Genes to Proteins	Genetics
3	CLEM	BCHM 6430	Molecular Basis for Disease	
3	CLEM	BCHM 8140	Advanced Biochemistry	
3	CLEM	GEN 6700	Human Genetics	Genomics
3	CLEM	MATH 9810	Statistical Genetics	
3	CLEM	GEN 8900	Introduction to Quantitative Genetics	
3	CLEM	GEN 8140	Advanced Genetics	
3	CLEM	GEN 6200	Molecular Genetics and Gene Regulation	
3	CLEM	GEN 6100	Population & Quantitative Genetics	
3	CLEM	GEN 6050	Molecular Genetics of Eukaryotes	
3	CLEM	BIOE 6030	Introduction to Applied Genomics	
3	CLEM	HCC 9150	Principles of Pharmacogenomics	
3	CLEM	CHB 8450	Systems Biology and Pharmacology	
3	CLEM	GEN 8450	Advanced Medical Bioinformatics	
3	CLEM	GEN 8200	Genomics and Proteomics	
3	CLEM	GEN 8060	Molecular Diagnostics and Pathogen Genomics	
3	CLEM	GEN 8900	Regulatory Genomics	

Area 5 - Seminars			
Recommended for MS students			
1		BDSI 8000	Seminar
1		BDSI 8000	Seminar
1		BDSI 8000	Seminar
1		BDSI 8000	Seminar

last revised: October 11, 2023