

## Bioinformatics and Systems Biology Graduate Program

12-13 Projected Course Offerings

*Please note: Departments may change the quarter in which their courses are offered. Refer to the schedule of classes for an active listing. The next quarter's schedule is posted Friday of 5th week. As of Sep. 2012, the Fall classes are as listed on the Schedule of Classes, while the Winter and Spring classes are projected from previous years, but most are not confirmed.*

	Fall	Winter	Spring
<b>CORE COURSES</b>			
Bioinformatics I: Biological Data and Analysis Tools (PHAR 201)	X		
Bioinformatics II: Introduction for Bioinformatics Algorithms (BENG 202/CSE 282)		X	
Bioinformatics III: Genomic Analysis (BENG 203/CSE 283)			X
Bioinformatics IV: Statistical Methods in Bioinformatics (MATH 283)		X	
BNFO 281: Bioinformatics and Systems Biology Seminar	X	X	
Choose one: SOMI 226 or BIOM219			X
<b>Elective 1: Biochemistry</b>			
BENG 230A: Biochemistry	X		
CHEM 209: Macromolecular Recognition	X		
CHEM 213: Chemistry of Biological Macromolecules			X
CHEM 216: Chemistry of Enzyme Catalyzed Reactions	X		
<b>Elective 2: Molecular Genetics</b>			
BICD100: Genetics	X	X	X
BGGN 220: Graduate Molecular Biology	X		
BGGN 223: Graduate Genetics			X
<b>Elective 3: Cell Biology</b>			
BICD 110: Cell Biology	X	X	X
BICD 130: Embryos, Genes, and Development		X	
BGGN 222: Graduate Cell Biology		X	
BGGN 230/CHEM 221: Signal Transduction		X	
<b>Elective 4: Algorithms</b>			
CSE 101: Design and Analysis of Algorithms	X		
CSE 200: Computability and Complexity			X
CSE 202: Algorithm Design and Analysis	X	X	X
CSE 280A: Algorithms in Computational Biology		X	
MATH 261A: Probabilistic Combinatorics and Algorithms (not offered this year)	X		
<b>Elective 5: Machine Learning and Data Mining</b>			
CSE 250A: Artificial Intelligence: Search and Reasoning	X		
CSE 250B: Artificial Intelligence: Learning		X	
CSE 254: Statistical Learning		X	
<b>Elective 6: Bioinformatics and Systems Biology</b>			
BENG 211: Systems Biology and Bioengineering I: Biological Components	X		
BENG 212: Systems Biology and Bioengineering II: Network Reconstruction		X	
BENG 227: Biomedical Transport Phenomena		X	
<b>Elective 7: Mathematics and Statistics</b>			
MATH 274: Numerical Methods for Physical Modeling	X		
MATH 280A: Probability Theory	X		
MATH 281A: Mathematical Statistics	X		
MATH 281B: Mathematical Statistics		X	
PHYS 210A: Equilibrium Statistical Mechanics			X
PHYS 210B: Equilibrium Statistical Mechanics	X		
<b>Elective 8: Genetic Modeling</b>			
BENG 125: Modeling and Computation in Bioengineering			
BENG 213: Systems Biology and Bioengineering III: Building and Simulating Large-Scale in Silico Models			X
PHYS 276: Quantitative Molecular Biology		X	
CHEM 220: Regulatory Circuits in Cells			
<b>Elective 9: Medical Informatics</b>			
MED 263: Bioinformatics Applications to Human Disease			
MED 264: Principles of Biomedical Informatics	X		
MED 265: Healthcare Systems: A Quantitative Perspective			
MED 266: Machine Learning in Biomedicine			
MED 269: Clinical Decision Support Systems at the Point of Care			