Sample Curricula by Major

Note that each of the following sample curricula would satisfy the requirement that at least two courses be outside the student's home department. As examples, we give curricula that would provide *specialization* in specific areas of Computational Medicine. Alternative electives are available that allow students to personalize their minor. In all cases, both core courses (Introduction to Computational Medicine I and II), as well as the seminar series are required.

NOTE: * *indicates a prerequisite course that a student in that Major would be taking for their Major (and therefore not an additional course burden)*

Computer Science Major (interest in Computational Healthcare)
Prerequisites:

Freshman Fall	*Python Scripting	EN.600.111
	*Calculus I	AS.110.108
Freshman Spring	*Calculus II	AS.110.109
Sophomore Fall	*Linear Algebra and Differential Equations	EN.550.291
	Molecules and Cells	EN.580.221
Sophomore Spring	*Probability and Statistics	EN.550.310

Core Courses, six seminars & four electives:

Junior Fall	Introduction to Computational Medicine I	EN.580.431
	Introduction to Statistics	EN.550.430
Junior Spring	Introduction to Stochastic Processes	EN.550.426
	Machine Learning: Data to Models	EN.600.476
Senior Fall	Research for Credit	EN.5xx.5xx
	Distinguished Seminar Series in CM	EN.580.736
Senior Spring	Introduction to Computational Medicine II	EN.580.432
	Distinguished Seminar Series in CM	EN.580.736

Applied Mathematics & Statistics (interest in Computational Anatomical Medicine)
Prerequisites:

Freshman Fall	*Introduction to Programming for Scientists…	EN.600.112
	*Calculus I	AS.110.108
Freshman Spring	*Calculus II	AS.110.109
Sophomore Fall	*Differential Equations with Applications	AS.110.302
	Molecular Biology	AS.020.380
Sophomore Spring	*Probability and Statistics	EN.550.310

Core Courses, six seminars & four electives:

Junior Fall	Introduction to Computational Medicine I	EN.580.431
	Medical Imaging Systems	EN.520.432
Junior Spring	Introduction to Computational Medicine II	EN.580.432
	Distinguished Seminar Series in CM	EN.580.736
Senior Fall	Introduction to Linear Systems Theory	EN.520.601
	Computer Vision	EN.600.461
Senior Spring	Statistical Connectomics	EN.580.694
	Distinguished Seminar Series in CM	EN.580.736

Biomedical Engineering (interest in Computational Physiological Medicine)
Prerequisites:

Freshman Fall	*Computing for Engineers and Scientists	EN.500.200
	*Calculus I	AS.110.108
Freshman Spring	*Calculus II	AS.110.109
Sophomore Fall	*Linear Algebra	EN.550.201
	*Molecules and Cells	EN.580.221

Sophomore Spring	*Probability and Statistics	EN.550.310

Core Courses, six seminars & four electives:

Junior Fall	Introduction to Computational Medicine I	EN.580.431
	Dynamical Systems	EN.550.391
Junior Spring	Systems Pharmacology and Personalized …	EN.580.430
	Introduction to Computational Medicine II	EN.580.432
Senior Fall	Introduction to Probability	EN.550.420
	Research for Credit	EN.5xx.5xx
	Distinguished Seminar Series in CM	EN.580.736
Senior Spring	Distinguished Seminar Series in CM	EN.580.736

Biology (interest in Computational Molecular Medicine)

Prerequisites:

Freshman Fall	Python Scripting	EN.600.111
	*Calculus I	AS.110.106
Freshman Spring	*Calculus II	AS.110.107
Sophomore Fall	Linear Algebra	EN.550.201
	*Cellular and Molecular Physiology	AS.250.345
Sophomore Spring	Probability and Statistics	EN.550.310

Core Courses, six seminars & four electives:

Junior Fall	Introduction to Computational Medicine I	EN.580.431
	Foundations of Computational Biology and...	EN.550.391
Junior Spring	Dynamical Systems	EN.550.391
	Introduction to Computational Medicine II	EN.580.432
Senior Fall	Computational Personal Genomics	EN.550.689
	Research for Credit	EN.5xx.5xx
	Distinguished Seminar Series in CM	EN.580.736
Senior Spring	Distinguished Seminar Series in CM	EN.580.736