Concentration 1: Theory and Algorithms

Course	Title	Credits
CSE 3502	Theory of Computation (Required)	3
CSE 3802	Numerical Methods	3
CSE 4500	Parallel Systems	3
CSE 4702	Intro to Cryptography	3
CSE 4704	Computational Geometry	3
CSE 5500	Advanced Algorithms	3
CSE 5820	Machine Learning	3

Concentration 2: Systems and Networks

Course	Title	Credits
CSE 3300	Networks (Required)	3
CSE 3400	Intro to Computer and Network Security	3
CSE 4300	Operating Systems	3
CSE 4302	Computer Organization and Architecture	3
CSE 4709	Networked Embedded Systems	3
CSE 5300	Advanced Networks	3

Concentration 3: Cybersecurity

Course	Title	Credits
CSE 3400	Intro to Computer and Network Security (Required)	3
CSE 4400	Computer Security	3
CSE 4402	Network Security	3
CSE 4702	Introduction to Modern Cryptography	3
CSE 5854	Modern Cryptography: Primitives and Protocols	3

Concentration 4: Bioinformatics

Course	Title	Credits
CSE 3800	Bioinformatics (Required)	3
CSE 3810	Computational Genomics	3
CSE 4502	Big Data Analytics	3
CSE 5810	Intro to Biomedical Informatics	3
CSE 5820	Machine Learning	3
CSE 5860	Computational Problems in Evolutionary Genomics	3

Concentration 5: Software Design and Development

Course	Title	Credits
CSE 2102	Software Engineering (Required)	3
CSE 3150	C++ Essentials	2
CSE 4102	Programming Languages	3
CSE 4701	Principles of Data Bases	3
CSE 5103	Software performance engineering	3
CSE 5104	Software reliability engineering	3

Concentration 6: Computational Data Analytics

Course	Title	Credits
CSE 4502	Big Data Analytics (Required)	3
CSE 4701 or OPIM 3221	Principles of Data Bases or Business Database Systems	3
CSE 4095 or OPIM 4895	Dynamic Data Visualization or Visual Analytics	3
CSE 4705	Intro to Artificial Intelligence	3
CSE 5713 or OPIM 3802	Data Mining or Data and Text Mining	3
CSE 5095 or OPIM 3803	Discrete Optimization or Spreadsheet modeling for Business Analytics	3

Concentration 7: Unspecialized

For the Unspecialized concentration, students must take 3 different required concentration courses, plus any other 2000+ level CSE course not used to fulfill another requirement

Course	Title	Credits
CSE 3502	Theory of Computation	3
CSE 3300	Networks	3
CSE 3400	Intro to Computer and Network Security	3
CSE 3800	Bioinformatics	3
CSE 2102	Software Engineering	3
CSE 4502	Big Data Analytics	3
CSE 2000+	CSE course not used to fulfill other requirement	3

Concentration 8: Individually Designed

Students may propose an individually-designed concentration to fit their academic or career interests. This will be a minimum of 12 credits at the 2000+ level, proposed by the student and approved by the student's advisor and the CSE Department Undergraduate Committee. The expectation is that such a concentration will have a strong unifying theme. This may include non-CSE courses, but the student will still be subject to the overall requirement of 43 CSE credits for CS students and 50 CSE credits for CSE students.