

Computer Science Graduate Program Breadth Requirement

Graduate Students in Computer Science must demonstrate sufficient breadth of knowledge of Computer Science by satisfying a Breadth Requirement. A Master's student (MS and MCS) may satisfy the breadth requirement by taking 3 core courses, one from each of the 3 different areas from the following list. Master's students must take only CS courses. PhD students must take 6 courses, two from each of the three areas. All breadth courses must be listed on the student's Degree Program. These courses carry graduate credit and will count toward the minimum number of Computer Science credits required. Students must maintain an overall GPA of 3.0 (for MCS candidates), 3.25 (for MS candidates) and 3.45 (for Ph.D. candidates) for all courses on their degree program, as well as those used to satisfy the breadth requirement. All courses must be taken for graduate credit and on the A-F grading basis.

A student with an MS degree from another University can petition to transfer up to 3 breadth courses towards a PhD degree. Courses used to obtain the MS in our CS or CE programs can be reused for the PhD.

For students entering the Ph.D. program with a substantial number of requisite Breadth courses from their previous programs, there would be a provision to substitute advanced courses (including 8K level) in place of the Breadth courses listed below. This would be decided on a case-by-case basis by the DGS in consultation with the appropriate faculty. The student would be required to file a petition to make such substitutions.

Theory:

5302	Analysis of Numerical Algorithms
5304	Computational Aspects of Matrix Theory
5403	Computational Complexity
5421	Advanced Algorithms and Data Structures
5451	Intro to Parallel Computing: Architecture, Algorithms & Programming
5471	Modern Cryptography
5525	Machine Learning

No more than one of the following Mathematics courses (PhD students only):

MATH 5165	Mathematical Logic
MATH 5707	Graph Theory and Non-enumerative Combinatorics
MATH 5711	Linear Programming and Combinatorial Optimization
EE 5531	Probability and Stochastic Processes

Systems:

5103	Operating Systems
5104	System Modeling and Performance Evaluation
5105	Foundations of Modern Operating Systems
5106	Programming Languages
5131	<i>Advanced</i> Internet Programming (Beginning Fall 2002)
5143	Real-Time and Embedded Systems
5161	Introduction to Compilers
5204	Advanced Computer Architecture
5211	Data Communications and Computer Networks
5271	Introduction to Computer Security
5708	Architecture and Implementation of Database Management Systems

No more than one of the following EE courses (PhD students only):

EE 5323	VLSI Design I
EE 5371	Computer Systems Performance Measurement and Evaluation
EE 5381	Telecommunications Networks (This cannot be counted with CSci 5211)

Applications:

5107/5108	Fundamentals of Computer Graphics I OR II
5109	Visualization
5115/5116	User Interface Design: Implementation and Evaluation OR GUI Tools
5283	Computer Aided Design I
5481	Computational Techniques for Genomics
5511/5512/5519	Artificial Intelligence I OR Artificial Intelligence II
5521	Pattern Recognition
5523	Introduction to Data Mining
5541	Natural Language Processing
5551	Intro to Intelligent Robotic Systems
5552	Sensing and Estimation in Robotics
5561	Computer Vision
5707	Principles of Database Systems
5801/5802	Software Engineering I OR Software Engineering II

No more than one of the following EE courses (PhD students only):

EE 5329	VLSI Digital Signal Processing Systems
EE 5301	VLSI Design Automation I (This cannot be counted with CSci 5283)