

UNDERGRADUATE CONSTRAINED ELECTIVES

ALGORITHMS AND COMPLEXITY

15455*	Undergraduate Complexity Theory
21301	Combinatorics

LOGICS AND LANGUAGES

15317*	Constructive Logic
15414*	Bug Catching: Automated Program Verification and Testing
21300	Basic Logic
80310	Formal Logic

SYSTEMS

15410*	Operating System Design and Implementation
15411*	Compiler Design
15418*	Parallel Computer Architecture and Programming
15440*	Distributed Systems
15441*	Computer Networks

APPLICATIONS

05391*	Designing Human Centered Software
10601*	Machine Learning
11411*	Natural Language Processing
15313*	Foundations of Software Engineering
15322*	Introduction to Computer Music
15381*	Artificial Intelligence: Representation and Problem Solving
15415*	Database Applications
15462*	Computer Graphics
16384*	Robot Kinematics and Dynamics

PROBABILITY

15359	Probability and Computing
21325	Probability
36217	Probability Theory and Random Processes
36225	Introduction to Probability Theory

UNDERGRADUATE SCS ELECTIVES

in addition to SCS courses marked * above

02450	Automation of Biological Research
02512	Computational Methods for Biological Modeling and Simulation
02530	Cell and Systems Modeling
05435	Advanced Fabrication Techniques for HCI
05497	Special Topics in HCI (Mini-2; 6 units)**
05499	Special Topics in HCI
11344/05434	Machine Learning in Practice
11421	Grammars and Lexicons
11441	Machine Learning for Text Mining
11442	Search Engines
11492	Speech Processing
15214	Principles of Software Construction: Objects, Design and Concurrency
15291	Special Topic: Applied Computational Intelligence Lab
15294	Special Topic: Rapid Prototyping Technologies (Mini-1 and Mini-2; 5 units)**
15295	Competition Programming and Problem Solving (5 units)**
15319	Cloud Computing
15387	Computational Perception
15388	Practical Data Science
15390	Entrepreneurship for Computer Science
15412	Operating Systems Practicum
15421	Information Security and Privacy
15437	Web Application Development
15463	Computational Photography
15487	Introduction to Computer & Network Security & Applied Cryptography
16362	Mobile Robot Programming Laboratory

**NOTE: Courses less than 9 units should be paired together to form a full SCS elective of at least 9 units.