Carnegie Mellon University
School of Computer Science

SPRING 2016

UNDERGRADUATE CONSTRAINED ELECTIVES

ALGORITHMS AND COMPLEXITY

15355*	Modern Computer Algebra
15453*	Formal Languages, Automata and Computability
21301	Combinatorics
21484	Graph Theory

LOGICS AND LANGUAGES

15312*	Foundations of Programming Languages
15424*	Foundations of Cyber-Physical Systems
80311	Undecidability and Incompleteness

SYSTEMS

15410*	Operating System Design and Implementation
15418*	Parallel Computer Architecture and Programming
15440*	Distributed Systems

APPLICATIONS

02510*	Computational Genomics
05391*	Designing Human Centered Software
10401*	Introduction to Machine Learning (or 10-601)
11411*	Natural Language Processing
15322*	Introduction to Computer Music
15323*	Computer Music Systems and Information Processing
15462*	Computer Graphics
16385*	Computer Vision

UNDERGRADUATE SCS ELECTIVES

in addition to SCS courses marked * above

02317	Algorithms in Nature
02518	Computational Medicine
05413	Human Factors
05418	Design Educational Games
05434/11344	Machine Learning in Practice
05499	Special Topics in HCI
08534	Usable Privacy Security
08540	Green Computing
11423	ConLanging: Learning Linguistics and Language Tech. via Constructed Artificial Lang.
11441	Machine Learning for Text Mining
11442	Search Engines
15214	Principles of Software Construction: Objects, Design and Concurrency
15292	Special Topic: History of Computing (Mini-3; 5 units)**
15294	Special Topic: Rapid Prototyping Technologies (Mini-3 and Mini-4; 5 units)**
15295	Competition Programming and Problem Solving (5 units)**
15296	Special Topic: Images of Computing (Mini-4; 5 units)**
15302	ST: Innovating for Underserved Communities: Field Research Basics (Mini-3; 6 units)**
15303	ST: Seminar on Innovating for Underserved Communities (Mini-4; 6 units)**
15319	Cloud Computing
15322	Introduction to Computer Music
15323	Computer Music Systems and Information Processing
15400	Research Practicum in Computer Science
15413	Software Engineering Practicum
15437	Web Application Development
15463	Computational Photography
15465	Animation Art and Technology
15467	Special Topic: Simulation Methods for Animation and Fabrication
15483	Special Topic: Truth, Justice and Algorithms
15491	Special Topic: CMRoboBits: AI and Intelligent Robots for Real-World Daily-Life Problems
15494	Special Topic: Cognitive Robotics
15503	Special Topic: Introduction to Theoretical Cryptography
16264	Humanoids
16299	Introduction to Feedback Control Systems
16311	Introduction to Robotics
16455	Human-Machine Virtuosity
16467	Human Robot Interaction

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