# UNDERGRADUATE CONSTRAINED ELECTIVES

## ALGORITHMS AND COMPLEXITY
- 15455* Undergraduate Complexity Theory
- 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
- 15323* Computer Music Systems and Information Processing
- 15462* Computer Graphics
- 16385* Computer Vision

## UNDERGRADUATE SCS ELECTIVES

In addition to SCS courses marked * above
- 02319 Genomics and Epigenetics of the Brain
- 02518 Computational Medicine
- 05320 Social Web
- 05418 Design Educational Games
- 05432 Personalized Online Learning
- 05434/11344 Machine Learning in Practice
- 05436/08534 Usable Privacy and Security
- 05438 The Role of Technology in Learning in the 21st Century
- 05499 Special Topics in HCI
- 08303 Special Topic: Cryptocurrencies, Blockchains and Applications
- 08421 Building User-Focused Sensing Systems
- 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)**
- 15295 Competition Programming and Problem Solving (5 units)**
- 15296 Special Topic: Images of Computing (Mini-4; 5 units)**
- 15316 Software Foundations of Security and Privacy
- 15319 Cloud Computing
- 15365 Experimental Animation
- 15386 Neural Computation
- 15394 Intermediate Rapid Prototyping (Mini-3 and Mini-4; 5 units)**
- 15400 Research Practicum in Computer Science
- 15413 Software Engineering Practicum
- 15417 HOT Compilation
- 15437 Web Application Development
- 15464 Technical Animation
- 15494 Cognitive Robotics: The Future of Robot Toys
- 15503 Special Topic: Introduction to Theoretical Cryptography
- 16264 Humanoids
- 16299 Introduction to Feedback Control Systems
- 16311 Introduction to Robotics
- 16350 Planning Techniques for Robotics
- 16423 Designing Computer Vision Apps
- 16455 Human-Machine Virtuosity
- 17355 Program Analysis

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