Carnegie Mellon University
School of Computer Science

FALL 2018

UNDERGRADUATE ELECTIVES FOR CS MAJORS - PITTSBURGH

PROBABILITY

21325	Probability
36217	Probability Theory and Random Processes (for CS students entering CMU prior to 2017)
36218	Probability Theory for Computer Scientists (for CS students entering CMU in 2017 or later)
36225	Introduction to Probability Theory (+ 36226 for prob. category credit for students entering 2017 or later)

ALGORITHMS AND COMPLEXITY

15354*	Computational Discrete Mathematics
15455*	Undergraduate Complexity Theory
21301	Combinatorics

LOGIC & LANGUAGES

15312*	Foundations of Programming Languages
15317*	Constructive Logic
15414*	Bug Catching: Automated Program Verification
15424*	Foundations of Cyber-Physical Systems
21300	Basic Logic (for CS students entering CMU prior to 2017)
80310	Formal Logic (for CS students entering CMU prior to 2017)

SYSTEMS

15410*	Operating System Design and Implementation
15411*	Compiler Design
15418*	Parallel Computer Architecture and Programming
15440*	Distributed Systems
15445*	Database Systems (NEW)

APPLICATIONS/DOMAINS

02510*	Computational Genomics (for students entering CMU prior to 2017)
	(for students entering CMU in 2017 or later, 02510 counts as an SCS elective only)
05391*	Designing Human Centered Software
10601*	Introduction to Machine Learning (Master's) (for students entering CMU prior to 2017)
	(for students entering CMU in 2017 or later, they should take 10-401 when it is offered in Spring 2019)
11411*	Natural Language Processing
15322*	Introduction to Computer Music
15381*	Artificial Intelligence: Representation and Problem Solving
15415*	Database Applications
15462*	Computer Graphics
16384*	Robot Kinematics and Dynamics
17313*	Foundations of Software Engineering

SCS UNDERGRADUATE ELECTIVES (in addition to SCS courses marked * above)

02319	Genomics and Epigenetics of the Brain
02512	Computational Methods for Biological Modeling and Simulation
02518	Computational Medicine
05392	Interaction Design Overview
05410	User-Centered Research and Evaluation
05413	Human Factors
05430	Programming Usable Interfaces
05432	Personalized Online Learning
05452	Service Design
05499	Special Topics in HCI
	(Human AI Interaction, Document Design, Transformational Game Design Studio, Persuasive Design, Computing For Good)
11344/05434	Machine Learning in Practice
11421	Grammars and Lexicons
11441	Machine Learning for Text Mining
11442	Search Engines
11492	Speech Processing
15294	Rapid Prototyping Technologies [IDEATE Course] [Mini-1: 5 units]**
15295	Competition Programming and Problem Solving [5 units]**
15319	Cloud Computing
15394	Intermediate Rapid Prototyping [IDEATE Course] [Mini-2: 5 units]**
15412	Operating System Practicum
15463	Computational Photography
15466	Computer Game Programming
15483	Truth, Justice and Algorithms
15487	Introduction to Computer Security (NEW NUMBER COMING)
15503	Introduction to Cryptography
15539	Independent Study in Computer Science Pedagogy
16311	Introduction to Robotics
16362	Mobile Robot Algorithms Laboratory
16375	Robotics for Creative Practice [IDEATE Course]
16425	Medical Image Analysis
16455	Human-Machine Virtuosity
17214	Principles of Software Construction: Objects, Design & Concurrency
17224	Influence, Persuasion, and Manipulation Online
17331	Information Security, Privacy and Policy
17356	Startup Engineering
17428	Machine Learning and Sensing
17437	Web Application Development

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