Computer Science (BCSA Concentration)

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BCSA School of Computer Science Concentration

BCSA Computer Science Concentration

(11 courses, 117 units minimum)

Prerequisite

		Units
15-112	Fundamentals of Programming and Computer Science	12

Computer Science Core Requirements (5 courses, 60 units)

15-122	Principles of Imperative Computation	12
15-150	Principles of Functional Programming	12
15-210	Parallel and Sequential Data Structures and Algorithms	12
15-213	Introduction to Computer Systems	12
15-251	Great Ideas in Theoretical Computer Science	12

Concepts of Mathematics (1 course, 12 units)

21-127	Concepts of Mathematics (co-requisite for 15-122; prerequisite for 15-150)	12

Note: First-year BCSA students may opt for 15-151 if offered, in place of 21-127.

Applications Courses or CS Electives (5 courses, 45 units minimum)

Choose a minimum of five courses from SCS beyond the core requirements, 200-level or higher, not including 02-223, 02-261, 15-351, 16-223, 17-200 (or cross listed numbers), 17-333, 17-562. Listed below are suggested choices for these electives. Consult with the CS advisor if interested in courses not listed.

02-251	Great Ideas in Computational Biology	12
05-391	Designing Human Centered Software	12
05-318	Human AI Interaction	12
05-319	Data Visualization	12
05-320	Social Web	12
05-360	Interaction Design Fundamentals	12
05-418	Design Educational Games	12
07-280 or 10-301	Artificial Intelligence and Machine Learning I Introduction to Machine Learning	12
10-335	Art and Machine Learning	12
11-324	Human Language for Artificial Intelligence	12
11-344	Machine Learning in Practice	12
11-411	Natural Language Processing	12
15-322	Introduction to Computer Music	9
15-362	Computer Graphics	12
15-367	Algorithmic Textiles Design	12
15-388	Practical Data Science	9
15-415	Database Applications	12
15-451	Algorithm Design and Analysis	12
15-463	Computational Photography	12
15-464	Technical Animation	12
15-466	Computer Game Programming	12
15-482	Autonomous Agents	12
15-494	Cognitive Robotics: The Future of Robot Toys	12
16-220	Robot Building Practices	12
16-235	Fantastic Robots and How to Fold Them	9
16-250	Gadgetry	9
16-264	Humanoids	12
16-280	Intelligent Robot Systems	12
16-362	Mobile Robot Algorithms Laboratory	12
16-376	IDeATe: Kinetic Fabrics	10
16-385	Computer Vision	12
16-467	Introduction to Human Robot Interaction	12
16-480	IDeATe: Creative Soft Robotics	10
17-214	Principles of Software Construction: Objects, Design, and Concurrency	12
17-313	Foundations of Software Engineering	12
17-316	AI Tools for Software Development	12
17-356	Software Engineering for Startups	12
17-437	Web Application Development	12