BCSA-Computer Science

Bachelor of Computer Science and Arts (BCSA)

School of Computer Science (SCS) Concentration   117 units (minimum)

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Prerequisite

15-112	Fundamentals of Programming and Computer Science	12

Computer Science Core Requirements   60 units

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

Concepts of Mathematics   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   45 units minimum

Choose a minimum of five courses from SCS beyond the core requirements, 200-level or higher, not including 02-201, 02-223, 02-250, 02-261, 15-351, 16-223, 17-200, 17-333, 17-562. Listed below are suggested choices for these electives. Consult with the CS advisor if interested in courses not listed.

05-391	Designing Human Centered Software	12
05-418	Design Educational Games	12
10-335	Art and Machine Learning	12
11-291	Applied Computational Intelligence Lab	9
11-344	Machine Learning in Practice	12
11-411	Natural Language Processing	12
15-281	AI: Representation and Problem Solving	12
15-322	Introduction to Computer Music	9
15-323	Computer Music Systems and Information Processing	9
15-365	Experimental Animation	12
15-388	Practical Data Science	9
15-415	Database Applications	12
15-451	Algorithm Design and Analysis	12
15-458	Discrete Differential Geometry	12
15-462	Computer Graphics	12
15-463	Computational Photography	12
15-464	Technical Animation	12
15-465	Animation Art and Technology	12
15-466	Computer Game Programming	12
15-494	Cognitive Robotics: The Future of Robot Toys	12
16-264	Humanoids	12
16-362	Mobile Robot Algorithms Laboratory	12
16-374	IDeATe: Art of Robotic Special Effects	12
16-384	Robot Kinematics and Dynamics	12
16-385	Computer Vision	12
16-423	Designing Computer Vision Apps	12
16-455	IDeATe: Human-Machine Virtuosity	12
16-465	Game Engine Programming	10
16-467	Human Robot Interaction	12
17-214	Principles of Software Systems Construction:	
	Objects, Design, and Concurrency	12
17-313	Foundations of Software Engineering	12
17-356	Software Engineering for Startups	12
17-437	Web Application Development	12

BCSA Free Electives

Take any Carnegie Mellon course. A maximum of 9 units of physical education and/or military science may be counted toward this requirement.