Cooperative Education Program

Georgia State University – College of Arts & Sciences

CSc Co-op information

Undergraduate student pursuing a BS in Computer Science (CSc)

Prior to starting their first co-op session on site, Computer Science students will be able to analyze computational systems and prove computational theorems, as well as design, implement, debug and test small programs.

The first 5 topics are covered before employment begins.

CSc 2010	**Principles of Computer Science:** An introduction to the discipline of computer science. Computer programming is the primary focus of the course, with secondary focus on a breadth of computer science topics. These topics include algorithmic foundations, hardware concepts, virtual machine concepts, software systems, applications, and social issues.
CSc 2310	**Principles of Computer Programming**: Fundamental principles of computer programming. Expressions, procedures, variable types, data, input/output. Emphasis on structure and clarity as well as correctness.
CSc 2510	**Theoretical Foundations of Computer Science**: This course covers the basic theoretical foundations required to study various sub-disciplines in computer science. Topics include: propositional and predicate logic with applications to logic programming, database querying, and program verification; induction and its application in proving correctness and termination of programs; recurrence relations, combinatorics, and graph theory with applications to analysis of algorithms; sets, relations, and functions and their applications in databases, functional programming, and automata.
CSc 3320	**System-Level Programming**: An introduction to programming at the level of the operating system. Topics include editors, system calls, programming tools, files, processes, interprocess communication, and shells.
CSc 3410	**Data Structures**: Basic concepts and analysis of data representation and associated algorithms, including linearly-linked lists, multi-linked structures, trees, searching, and sorting.

Prior to starting the second Co-op session on site, students will be able to apply algorithm and design techniques to solve problems and translate a specification into a design and then realize that design practically.

The following 3 topics are covered before the second session on site with the employer. Students will also have taken a few Computer Science electives as well.

CSc 3210	**Computer Organization and Programming**: Computer structure and machine language, addressing techniques, macros, file I/O, program segmentation, and linkage.
CSc 4350	**Software Engineering:** Techniques used in large scale scientific or technical software development, including requirements analysis, specification, systems design, implementation, testing, validation, verification, and maintenance.
CSc 4520	**Design and Analysis of Algorithms:** Techniques for designing efficient algorithms; analysis of algorithms; lower bound arguments; algorithms for sorting, selection, graphs, and string matching.

Cooperative Education Program

Computer Science (CSc) 4-Year Co-op Plan

YEAR	FALL		SPRING		MAYMESTER		SUMMER	
	Course	Hours	Course	Hours	Course	Hours	Course	Hours
1	Engl 1101	3	Engl 1102	3	Area B elective	2	Area F elective	3
	Math 2211	4	Math 2212	4	Area E elective	3	CSc 3410	3
	Area B elective	2	Area C elective	3				
	Area C elective	3	CSc 2310	3				
	CSc 2010	3	CSc 2510	3				
	Total Hours	**15**	**Total Hours**	**16**	**Total Hours**	**5**	**Total Hours**	**6**
2	Area E elective	3	First Co-op Session				Area H elective	3
	Phys 2211K	4					CSc 3210	3
	Math 3030	3						
	CSc 3320	3						
	CSc 4xxxx concentration elective	4						
	Total Hours	**17**					**Total Hours**	**6**
3	Area E elective	3	Second Co-op Session				CSc 4210	4
	CSc 4350	4					Phys 2212K	4
	CSc 4520	4						
	CSc 4xxx concentration elective	4						
	Total Hours	**15**					**Total Hours**	**8**
4	Area E elective	3	Area F Elective	3				
	Area F elective	3	CSc 4xxx elective	4				
	CSc 4330	4	CSc 4xxx concentration elective	4				
	CSc 4xxx elective	4	Area H elective	3				
	Area H elective	3	Area H elective	3				
	Total Hours	**17**	**Total Hours**	**17**				

Georgia State University | UNIVERSITY CAREER SERVICES
DIVISION OF STUDENT AFFAIRS