

Computer Science - Computer Science Emphasis, B.S.

Requirements

Computer Science spans the range from theory through programming to cutting-edge development of computing solutions. Computer Scientists master the theory and practice of computing, and explore new and exciting ways to use computers. Systems like Google and Amazon are created by computer scientists.

Total Program Credits: 120

Matriculation Requirements:			
<ol style="list-style-type: none"> 1. Completion of CS 1400, CS 1410, CS 2300, and CS 2420 with a grade of C+ or better. 2. Completion of MATH 1210 and ENGL 1010 with a grade of C or better. 3. Each of CS 1400, CS 1410, CS 2300, CS 2420, MATH 1210, and (ENGL 1010 or ENGH 1005) cannot be taken more than twice to obtain the required grade. 4. Overall GPA of 2.5 or higher. 			
General Education Requirements:			36 Credits
	ENGL 1010	Introduction to Academic Writing	3
or	ENGH 1005	Literacies and Composition Across Contexts (5)	
	ENGL 2010	Intermediate Writing Academic Writing and Research	3
	MATH 1210	Calculus I ¹	5
American Institutions: Complete one of the following:			3
	HIST 2700	US History to 1877 (3)	
and	HIST 2710	US History since 1877 (3)	
	HIST 1700	American Civilization (3)	
	HIST 1740	US Economic History (3)	
	POLS 1000	American Heritage (3)	
	POLS 1100	American National Government (3)	
Complete the following:			
	PHIL 2050	Ethics and Values	3
	HLTH 1100	Personal Health and Wellness (2)	
or	PES 1097	Fitness for Life	2
Distribution Courses:			
	COMM 1020	Public Speaking ¹	2
and	COMM 1025	Public Speaking Lab ¹	1
	COMM 2110	Interpersonal Communication ¹	3
	Fine Arts Distribution (choose from list)		3
	Biology (choose from list)		3

	PHYS 2210	Physics for Scientists and Engineers I ¹	4
and	PHYS 2215	Physics for Scientists and Engineers I Lab ¹	1
Additional GE to be completed in the core.			
Discipline Core Requirements:			54 Credits
Complete one of the following additional GE course/lab combinations:			5
	BIOL 1610	College Biology I (4)	
and	BIOL 1615	College Biology I Laboratory (1)	
or	CHEM 1210	Principles of Chemistry I (4)	
and	CHEM 1215	Principles of Chemistry I Laboratory (1)	
or	PHYS 2020	College Physics II (4)	
and	PHYS 2025	College Physics II Lab (1)	
or	PHYS 2220	Physics for Scientists and Engineers II (4)	
and	PHYS 2225	Physics for Scientists and Engineers II Lab (1)	
or	GEO 1010	Introduction to Geology (3)	
and	GEO 1015	Introduction to Geology Laboratory (1)	
and	GEO 202R	Science Excursion (1)	
Minimum grade of C- required in these courses.			
	CS 1400	Fundamentals of Programming	3
	CS 1410	Object-Oriented Programming	3
	CS 2300	Discrete Mathematical Structures I	3
	CS 2370	C plus plus Programming WE	3
	CS 2420	Introduction to Algorithms and Data Structures	3
	CS 2550	Web Programming I	3
	CS 2600	Computer Networks I	3
	CS 2690	Computer Networks II	3

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	CS 2810	Computer Organization and Architecture	3
	CS 305G	Global Social and Ethical Issues in Computing	3
	CS 3060	Operating Systems Theory	3
	CS 3240	Discrete Mathematical Structures II	3
	CS 3100	Data Privacy and Security	3
	CS 3320	Numerical Software Development	3
	CS 3520	Database Theory	3
	CS 496R	Senior Seminar (1 credit required for graduation)	1
	ECE 3710	Applied Probability and Statistics for Engineers and Scientists	3
Emphasis Requirements:			24 Credits
Minimum grade of C- required in these courses.			
	CS 2450	Software Engineering	3
	CS 3250	Java Software Development	3
or	CS 3260	CsharpNET Software Development (3)	
or	CS 3270	Python Software Development (3)	
or	CS 3370	C Plus Plus Software Development (3)	
or	CS 3380	JavaScript Software Development (3)	
	CS 3310	Analysis of Algorithms	3
	CS 3450	Principles and Patterns of Software Design	3
	CS 4380	Advanced/High-Performance Computer Architecture	3
	CS 4450	Analysis of Programming Languages	3
	CS 4470	Artificial Intelligence	3
	CS 4490	Compiler Construction	3
Emphasis Elective Requirements:			6 Credits

Complete 6 credits from the following: any CS 3000 or 4000 level course not already required. (Minimum grade of C- required in these courses.):	6
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Graduation Requirements:

1. Completion of a minimum of 120 semester credits, with a minimum of 40 upper-division credits.
2. Overall grade point average of 2.0 or above. Must have a minimum grade of C- with a combined GPA of 2.5 or higher in all discipline core and emphasis requirements and the General Education requirements marked with a footnote..
3. Residency hours -- minimum of 30 credit hours through course attendance at UVU. 10 of these hours must be within the last 45 hours earned. At least 12 of the credit hours earned in residence must be in approved CSE Department courses.
4. All transfer credit must be approved in writing by UVU.
5. No more than 80 semester hours and no more than 20 hours in CS type courses of transfer credit from a two-year college.
6. No more than 30 semester hours may be earned through independent study and/or extension classes.
7. Successful completion of at least one Global/Intercultural course.

Footnote

¹ Minimum grade required (see Graduation Requirements)

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Graduation Plan

This graduation plan is a sample plan and is intended to be a guide. Your specific plan may differ based on your Math and English placement and/or transfer credits applied. You are encouraged to meet with an advisor and set up an individualized graduation plan in Wolverine Track.

Milestone courses (pre-requisites for a course in one of the subsequent semesters) are marked in red and italicized.

Semester 1	Course Title	Credit Hours
<i>CS 1400</i>	Fundamentals of Programming	3
<i>ENGL 1010</i>	Introduction to Writing	3
<i>MATH 1210</i>	Calculus I	5
GE	Choose from American Institutions distribution list	3
	Semester total:	14
Semester 2	Course Title	Credit Hours
<i>CS 1410</i>	Object-Oriented Programming	3
<i>CS 2810</i>	Computer Organization and Architecture	3
<i>ENGL 2010</i>	Intermediate Writing	3
ECE 3710	Applied Probability & Statistics for Engineers & Scientists	3
GE	Choose from Biology Distribution list	3
	Semester total:	15
Semester 3	Course Title	Credit Hours
<i>CS 2300</i>	Discrete Mathematical Structures I	3
<i>CS 2420</i>	Introduction to Algorithms and Data Structures	3
<i>CS 2370</i>	C plus plus Programming WE	3
PHYS 2210	Physics for Scientists and Engineers I	4
PHYS 2215	Physics for Scientists and Engineers I Lab	1
	Semester total:	14
Notes: Matriculation based on minimum grade of C+ in CS 1400, CS 1410, CS 2420, and CS 2300; C in Math 1210, ENGL 1010		
Semester 4	Course Title	Credit Hours
CS 2450	Software Engineering	3
<i>CS 2600</i>	Computer Networks I	3
CS 2550	Web Programming I	3
GE	Choose from HLTH 1100 or PES 1097	2
GE	Third Science	5
	Semester total:	16
Notes: Third Science: Complete one of the following course/lab combinations:		

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BIOL 1610 & 1615 College Biology I & Lab (5)		
CHEM 1210 & 1215 Principles of Chemistry I & Lab (5)		
GEO 1010 & 1015 & 202R Introduction to Geology & Lab & Science Excursion (5)		
PHYS 2020 & 2025 College Physics II & Lab (5)		PHYS 2220 & 2225
Physics for Scientists & Engineers II & Lab (5)		
Semester 5	Course Title	Credit Hours
CS 2690	Computer Networks II	3
CS 3100	Data Security and Privacy	3
CS 3310	Analysis of Algorithms	3
CS 3240	Discrete Mathematical Structures II	3
CS 3520	Database Theory	3
	Semester total:	15
Semester 6	Course Title	Credit Hours
CS 3060	Operating Systems Theory	3
CS 3250	Java Software Development	3
or CS 3260	or C#.NET Software Development	
or CS 3270	or Python Software Development	
or CS 3370	or C Plus Plus Software Development	
or CS 3380	JavaScript Software Development	
CS 3320	Numerical Software Development	3
CS 3450	Principles and Patterns of Software Design	3
GE	Choose from Fine Arts Distribution list	3
	Semester total:	15
Semester 7	Course Title	Credit Hours
ECE 3710	Probability & Statistics for Engineers & Scientists	3
CS 4380	Advanced High Performance Computer Architecture	3
CS 4450	Analysis of Programming Languages	3
CS 4470*	Artificial Intelligence	3
CS 496R	Senior Seminar	1
PHIL 2050	Ethics and Values	3
	Semester total:	16
Semester 8	Course Title	Credit Hours
CS 4490	Compiler Construction	3
CS 305G	Global Social & Ethical Issues in Computing	3
COMM 1020	Public Speaking	2
and COMM 1025	Public Speaking Lab	1

COMM 2110	Interpersonal Communication	3
CS Elective	Choose from any CS 3000 or 4000 level class not already required	3
	Semester total:	15
Note: Complete CS Exit Survey		
	Degree total:	120