University of Colorado
Colorado Springs

COMPUTER SCIENCE MAJOR SHEET

This guide is provided for student use only. It does not represent an official documentation of a student's progress towards completion of their degree program. The CS program requires a minimum of 128 credit hours to complete. Students must have a minimum 2.0 GPA in all CS course work taken, and a minimum 2.0 GPA in all course work taken in order to graduate. Students must also complete an Exit Interview with the C S Department during their final semester to graduate.

COMPUTER SCIENCE CORE COURSES – All courses in this section must be completed.

☑	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	C S 1150 Principles of Computer Science	3	HS Algebra, familiarity with computer concepts including file operations and text editing
	C S 1450 Data Structures & Algorithms	3	CS1150
	C S 2060 Programming in C	3	CS1150
	C S 2080 Programming with UNIX	2	CS1450
	C S 2160 Computer Org. & Assembly Language	3	CS1450, CS2060
	C S 3060 Object Oriented Programming in C++ **OR** C S 3020 Adv Object Tech Using C#/.NET.C#	3	CS2060, CS2080 CS1450
	C S 3160 Concepts of Programming Languages	3	CS2060, CS2160, CS3020 or CS3060
	C S 3300 Software Engineering	3	CS2080, CS3160, CS3020 or CS3060
	C S 4100 Compiler Design	3	CS2160, CS3160, CS4700
	C S 4200 Computer Architecture I	3	CS2160
	C S 4500 Operating Systems I	3	CS2060, CS2080, CS4200
	C S 4700 Computability, Automata & Formal Lang.	3	MATH2150, MATH3130
	C S 4720 Design & Analysis of Algorithms	3	CS1450, MATH2150
	TOTAL	**38**	

COMPUTER SCIENCE ELECTIVES – Complete 9 credit hours of CS courses numbered between 4000-5999 that are not being used for the CS Core.

☑	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	TOTAL	**9**	

TECHNICAL ELECTIVES – Complete 9 hours of Technical Electives. Technical Electives should be chosen from the following areas: CS courses 3000+ not being used for CS Core or CS Electives; GDD courses 3000+; ECE courses 2000+; MATH courses 3100+, except MATH4650; Additional courses from the Basic Science list or additional courses with prerequisites from the Basic Science list; Any course from the College of Business 3000+, except BUAD 3010, 3020 or 3030.

☑	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	TOTAL	**9**	

MATHEMATICS – All courses in this section must be completed.

☑	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	MATH 1350 Calculus I (or Math 1310 and Math 1320)	4	MATH1050
	MATH 1360 Calculus II	4	MATH1350
	MATH 2150 Discrete Mathematics	3	MATH1350
	MATH 2350 Calculus III	4	MATH1360
	CS 1300 Computational Linear Algebra (or MATH 3130 Intro. to Linear Algebra)	3	MATH 90 (or MATH2350)
	MATH 3810 Intro. to Probability & Statistics	3	MATH2350
	TOTAL	**21**	

BASIC SCIENCE – PES 1110, 1120 and 1160 must be completed. Five additional hours of Basic Science are also required and may be chosen from the following courses (credit hours for each class are listed after the course number): CHEM1030-5, CHEM1060-5, GEOL1010-4, GEOL1020-4, BIOL1200-4, BIOL1210-4 or any other PES course that has a prerequisite of PES1110.

☑	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	PES 1110 General Physics I	4	Coreq. MATH1350
	PES 1120 General Physics II	4	PES1110, Coreq. MATH1360
	PES 1160 General Physics Lab I	1	Coreq. PES 1110
	5 hours of additional Science courses from list	5	Check Bulletin for specific course prerequisites
	TOTAL	**14**	

WRITING SKILLS – All courses in this section must be completed. Please note that ENGL 1410 can replace ENGL 1310 if the student desires a more challenging writing course. Students may take both ENGL 1300 and ENGL 1305 to receive credit for ENGL 1310.

☑	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	ENGL 1310 Rhetoric & Writing I	3	Score of 19+ on ACT Engl or 450+ on SAT Verb
	ENGL 2090 Technical Writing and Presentation	3	ENGL1310
	Writing Competency Portfolio	N/A	Complete 1 year prior to expected graduation
	TOTAL	**6**	

HUMANITIES/SOCIAL SCIENCE ELECTIVES – Complete 24 hours of Humanities/Social Science Electives. Courses in this section must include CS 305 Computing Ethics and an additional 23 credit hours from the following departments: ANTH (except 1030, 2300, 3000, 3200, 3210, 3240, 3320, 3340, 3370, 3410, 4200, 4300), AH, COMM, ECON, ENGL (only courses 1500+, except 2080, 3010 and 3070- 3160), FILM, FCS, Languages, HIST, HUM, ID 1010 (Freshman Seminar) MUS (except 1310, 1500 & 2250), PHIL, PSC, PSY (except 2100, 2110, 3100, 3110, 4110), SOC, and WEST. Students may also petition to include selected other courses in ID, Theater, or other departments. ID -1010 Freshman Seminar may also be taken for credit.

☑	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	C S 3050 Ethical Implications of Computing	1	CS2080
	TOTAL	**24**	

FREE ELECTIVES – Students need to complete 7 hours of Free Electives. The chosen course(s) can be selected from any discipline but may not include MATH1040, MATH1050, MATH1110, and MATH1120. Only 3 credit hours of CS course work numbered below CS 1150 may count towards the Free Electives.

☑	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	TOTAL	**7**	

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COMPUTER SCIENCE SAMPLE PROGRAM

The following document is intended for student use only. It represents the suggested order and semesters in which students should take courses to graduate within 4 years. Since each student starts at a different level of mathematical ability this listing should only be considered a guide. *Please refer to the Computer Science Major Sheet for elective options and course prerequisites and co-requisites.*

Courses marked with an * are often available in the summer. Please note that CS students may want to offload some of the heavier semesters, making up the hours by taking courses during the summer semester, and still graduate in 4 years.

FRESHMAN YEAR

FALL SEMESTER (16 credit hours)	SPRING SEMESTER (17 credit hours)
*CS 1150 Principles of Computer Science – 3	*CS 1450 Data Structures & Algorithms – 3
*ENGL 1310 Rhetoric & Writing I – 3	*CS 2060 Programming in C – 3
*MATH 1350 Calculus I – 4	*MATH 1360 Calculus II – 4
ID 1010 Freshman Sem **OR** *Hum/Social Science Elective – 3	*PES 1110 General Physics I – 4
*Free elective or CS 1100 Intro to Game Development – 3	*Humanities/Social Science Elective - 3

SOPHOMORE YEAR

FALL SEMESTER (17 credit hours)	SPRING SEMESTER (16 credit hours)
CS 2080 Programming with UNIX – 2	CS 3060 Object-Oriented Programming in C++ - 3
CS 2160 Computer Org. & Assembly Language – 3	**OR** CS 3020 Adv Object Tech Using C#/.NET.C# - 3
*ENGL 2090 Technical Writing & Presentation – 3	*MATH 2150 Discrete Mathematics – 3
*MATH 2350 Calculus III – 4	*Basic Science course (CHEM 1030 recommended) – 5
*PES 1120 General Physics II – 4	*Humanities/Social Science Elective – 3
*PES 1160 General Physics Lab I – 1	*Free Elective - 2

JUNIOR YEAR

FALL SEMESTER (16 credit hours)	SPRING SEMESTER (16 credit hours)
CS 3160 Concepts of Programming Languages – 3	CS 3050 Ethical Implications of Computing – 1
CS 4720 Design & Analysis of Algorithms – 3	CS 3300 Software Engineering – 3
CS 1300 Computational Linear Algebra - 3	CS 4200 Computer Architecture I - 3
OR *MATH 3130 Intro. to Linear Algebra – 3	Math 3810 Intro. to Probability and Statistics – 3
*Technical Elective Course – 3	*CS Elective (CS 4000-5999) – 3
*Humanities/Social Science Electives – 4	*Humanities/Social Science Elective – 3

SENIOR YEAR

FALL SEMESTER (15 credit hours)	SPRING SEMESTER (15 credit hours)
CS 4500 Operating Systems I – 3	CS 4100 Compiler Design – 3
CS 4700 Computability, Automata & Formal Lang. – 3	*CS Elective (CS 4000-5999) – 3
*CS Elective (CS 4000-5999) – 3	*Technical Elective Course – 3
*Humanities/Social Science Elective – 3	*Humanities/Social Science Elective – 4
*Technical Elective Course – 3	*Free Elective – 2