MAJOR: COMPUTER SCIENCE, B.S.

DEPARTMENT OF COMPUTER SCIENCE

The B.S. in computer science is an accredited, four-year program that provides a solid foundation in mathematics and statistics, computational problem solving, software design and analysis, programming languages, algorithms, data structures, and computer organization and architecture. Goals of the learning process include highly developed programming skills, an understanding of the context in which computing activities occur, and an ability to communicate effectively. The program provides the necessary foundational studies for students preparing for graduate school as well as those seeking careers in industry. The program is accredited by the Computing Accreditation Commission of the Accreditation Board for Engineering and Technology.

TYPICAL PROGRAM OF STUDY			
FIRST YEAR			
FALL SEMESTER		SPRING SEMESTER	
WRIT 1120 College Writing	3 cr	CS 1521 Computer Science II	5 cr
CS 1511 Computer Science I		MATH 1297 Calculus II[1]	5 cr
or CS 1581 Honors: Computer Science I	5 cr	COMM 1112 Public Speaking	3 cr
MATH 1296 Calculus I^[1]	5 cr		Total: 13 cr
	Total: 13 cr		
SECOND YEAR			
CS 2511 Software Analysis and Design	4 cr	CS 2521 Computer Organization & Architecture	4 cr
ECE 1315 Digital System Design	4 cr	CS 3512 Computer Science Theory	4 cr
STAT 3611 Introduction to Probability & Statistics	4 cr	MATH 2326 Intro to Linear Alg. & Math Reasoning	3 cr
Lab science I[2A]	4-5cr	Lab science II[2A]	4-5cr
	Total: 16-17 cr		Total: 15-16 cr
THIRD YEAR			
WRIT 3130 Advanced Writing: Engineering		CS 5621 Computer Architecture	
or WRIT 3150 Advanced Writing: Science	3 cr	or CS 5651 Computer Networks	4 cr
CS 3111 Computer Ethics	4 cr	CS breadth course[3]	4 cr
CS 5631 Operating Systems	4 cr	Liberal education[4] or minor field courses[5]	8 cr
Liberal education[4] or minor field courses[5]	6 cr		Total: 16 cr
	Total: 17 cr		
FOURTH YEAR			
CS elective[3]	4 cr	CS elective[3]	4 cr
Additional science course[2B]	4-5 cr	Liberal education[4] or minor field courses[5]	11 cr
Liberal education[4] or minor field courses[5]	6-7 cr		Total: 15 cr
	Total: 14-16cr		

^First math course is determined by math placement exam. This schedule presupposes placement into Math 1296.

[1] MATH 1596 Honors Calculus I and MATH 1597 Honors Calculus II may be taken in place of MATH 1296 and 1297.

[2] Students must complete **one science sequence**[A] and **one additional 4 credit science course**[B] to equal a minimum of 12 science credits. The science *sequence*[A] should be selected from the following sequence options: BIOL 1011 & 1012 or CHEM 1151 & 1152 or GEOL 1110, 2311, & 2312 or PHYS 2011 & 2012.

The *additional science course*[B] must be chosen from liberal education category 4 or require a category 4 course as a prerequisite.

[3] Students must complete three CS breadth/elective courses. At least one course must be chosen from the following breadth courses: CS 4511, 4521, 4531, 4611, 5541, 5551, 5621*, 5641, 5651*. (*Course may be used to fulfill only one CS major requirement.) Additional CS electives may be chosen from: CS 4821, 5721, 5741, 5751, 5761, 5831.

[4] CS majors must take a minimum 21 credits in the humanities, social sciences, and arts.

[5] CS majors may NOT minor in mathematics or computer information systems.

FOR ADDITIONAL INFORMATION:

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Department of Computer Science
320 Heller Hall
218-726-7607
cs@d.umn.edu
http://www.d.umn.edu/cs

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COMPUTER SCIENCE, B.S.

MAJOR COURSE REQUIREMENTS	CREDITS	PREREQUISITES	SEMESTER TO BE COMPLETED	GRADE
FIRST YEAR				
WRIT 1120 College Writing	3			
CS 1511 Computer Science I[1]		3.5 years HS math		
or CS 1581 Honors: Computer Science I	5	Placement and 3.5 years HS math		
CS 1521 Computer Science II	5	CS 1511 or 1581		
MATH 1296 Calculus I^	5	Math placement or Math 1250 with 'C-' or better		
MATH 1297 Calculus II	5	Math 1290, 1296 or 1596 with 'C-' or better		
COMM 1112 Public Speaking	3			
SECOND YEAR				
CS 2511 Software Analysis and Design	4	CS 1521		
CS 2521 Computer Organization & Architecture	4	CS 1521, ECE 1315, MATH 1296		
CS 3512 Computer Science Theory	4	MATH 1296 or 1596, CS 2511		
ECE 1315 Digital System Design	4	Pre-Engr, ChE, CS, ECE, IE majors only		
MATH 2326 Intro to Linear Algebra & Math. Reasoning	3	MATH 1290 or 1296 or 1596		
STAT 3611 Introduction to Probability & Statistics	4	MATH 1290 or 1296 or 1596		
Lab science I[2A]	4-5			
Lab science II[2A]	4-5			
THIRD YEAR				
WRIT 3130 Advanced Writing: Engineering		WRIT 1120 and 60 credits		
or WRIT 3150 Advanced Writing: Science	3	WRIT 1120 and 60 credits		
CS 3111 Computer Ethics	4	WRIT 3130 or 3150, 60 credits		
CS 5631 Operating Systems	4	CS 2511, 2521		
CS 5621 Computer Architecture	4	CS 2521		
or CS 5651 Computer Networks	4	CS 2511, 2521		
CS breadth course[3]	4			
Liberal education[4] or minor field courses[5]	14			
FOURTH YEAR				
Additional science course[2B]	4-5			
CS elective course[3]	4			
CS elective course[3]	4			
Liberal education[4] or minor field courses[5]	17-18			

^First math course is determined by math placement exam. This schedule presupposes placement into Math 1296.

[1] MATH 1596 Honors Calculus I and or MATH 1597 Honors Calculus II may be taken in place of MATH 1296 and 1297.

[2] Students must complete **one science sequence**[A] and **one additional 4 credit science course**[B] to equal a minimum of 12 science credits. The science *sequence*[A] should be selected from the following sequence options: BIOL 1011 & 1012 or CHEM 1151 & 1152 or GEOL 1110, 2311, & 2312 or PHYS 2011 & 2012.
The *additional science course*[B] must be chosen from liberal education category 4 or require a category 4 course as a prerequisite.

[3] Students must complete three CS breadth/elective courses. At least one course must be chosen from the following breadth courses: CS 4511, 4521, 4531, 4611, 5541, 5551, 5621*, 5641, 5651*. (*Course may be used to fulfill only one CS major requirement.) Additional CS electives may be chosen from: CS 4821, 5721, 5741, 5751, 5761, 5831.

[4] CS majors must take a minimum 21 credits in the humanities, social sciences, and arts.

[5] CS majors may NOT minor in mathematics or computer information systems.

NOTE: In addition to the above requirements, students must complete the liberal education program and a minor (or a second major) to earn a B.S. degree. Computer Science majors may not minor in mathematics or computer information systems.