

Bachelors of Science in Computer Science Department Major Requirements – Effective Fall 2007

The Revised BS in Computer Science aligns our program with the latest curricular guidelines in computer science as defined by the Association for Computing Machinery (ACM), adds a capstone experience, and adheres more closely to accreditation criteria for computing programs as specified by the Computer Science Accreditation Commission (CSAC) and Computing Program accreditation division of the Accreditation Board for Engineering and Technology (ABET).

Current students will substitute courses as appropriate to meet the requirements of their catalog. For example, current students will not be required to complete the Capstone Experience. The FAQs and sample transition plans below address questions related to current students.

Revised BS in Computer Science (eff. Fall 2007)

Major Core Requirements

CS 110	Introduction to Unix	1
CS 115	Programming I	4
CS 215	Programming II	4
CS 242	Discrete Structures for Computer Science	4
CS 252	Introductory Computer Organization	4
CS 315	Data Structures	4
CS 351	Computer Architecture	4
CS 355	Database Management Systems Design	4
CS 370	Software Engineering	4
CS 415	Algorithm Analysis	4
CS 450	Operating Systems	4
CS 454	Theory of Computation	4
CS 460	Programming Languages	<u>4</u>
Total units in major core (includes 3 units of GE)		49

Required Supporting Courses

Math 161	Differential and Integral Calculus I	4
Choose 2 courses from following:		
Math 165 Elementary Statistics, Math 211 Differential and Integral Calculus II, Math 222 Linear Algebra, Math 241 Differential Equations with Linear Algebra, Math 306 Number Theory, Math 316 Graph Theory and Combinatorics, Math 352 Numerical Analysis, Math 416 Graph Theory and Combinatorics, Math 430 Linear Systems Theory, Math 470 Mathematical Models, Physics 214 Introduction to Physics II, or other by arrangement with the CS Department.		
Total units in supporting courses (includes 3 – 6 units of GE)		<u>6-12</u> 10-16

CS Elective Requirements

Complete 9 units of upper-division CS electives. CS Electives are 3 unit courses.	9
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CS Capstone Experience Requirement

CS 470 Advanced Software Design Project, OR	
CS 495 Special Studies (requires approval of Instructor and Department)	3

General Education Remaining 42-45

Free Elective Units 5-8

Total Units to Graduate 124

Overview of Changes

- The supporting course requirements for the BS in Computer Science are changed.
 - o Effective Fall 2007: Math 161 Calculus I plus 2 additional courses from: Math 165 Elementary Statistics, Math 211 Differential and Integral Calculus II, Math 222 Linear Algebra, Math 241 Differential Equations with Linear Algebra, Math 306 Number Theory, Math 316 Graph Theory and Combinatorics, Math 352 Numerical Analysis, Math 416 Graph Theory and Combinatorics, Math 430 Linear Systems Theory, Math 470 Mathematical Models, Physics 214 Introduction to Physics II, or other by arrangement with the CS Department.
 - o Math 142 and Math 342 are no longer required.
 - o CS 242 Discrete Structures is added.
- CS 451 is no longer required.
- CS 250 and CS 251 have been combined into added CS 252 Intro Computer Organization. CS 250 and CS 251 are no longer required.
- CS 470 Advanced Software Design Project is added.

WHAT ABOUT CURRENT COMPUTER SCIENCE MAJORS?

In general, students that entered the Computer Science major before Fall 2007 will meet their major requirements by satisfying the core and electives courses with the new curriculum offerings and without being required to take the new capstone course CS 470. Several sample student transition plans to the new curriculum are given below.

Frequently Asked Questions (FAQs) for Students Admitted Before Fall 2007

Q1: I've taken Math 142 but not yet taken Math 342. What do I do about Math 342?

A1: You do not need to take Math 342. Instead, the revised CS 415 and CS 454 will cover the advanced discrete structures material.

Q2: I've taken CS 250 but I haven't taken CS 251 (or vice-versa, I've taken CS 251 but not CS 250). What should I do?

A2: You should take CS 252.

Q3: I've taken CS 250 and CS 251. Do I have to take CS 252?

A3: No.

Q4: CS 451 is no longer offered. What should I do?

A4: In most cases, the units associated with CS 451 will be absorbed in the remaining 4-unit courses that most majors will need to complete. In some cases, it may be necessary to require a course (e.g. a CS elective) to substitute for CS 451. This will be determined on a case by case basis.

Q4: Do I have to satisfy the Capstone requirement?

A4: No.

Sample Substitution/Degree Completions for Students Admitted Before Fall 2007

SAMPLE 1: Student has completed CS 110, CS 115, and CS 215

Existing BS in CS			New BS in CS		
Course	Units	Completed	Course	Units	To Complete
CS 110	1	X	CS 110	1	
CS 115	4	X	CS 115	4	
CS 215	3	X	CS 215	4	
CS 250	3		CS 252	4	√
CS 251	3				
CS 315	3		CS 315	4	√
CS 351	3		CS 351	4	√
CS 355	3		CS 355	4	√
CS 370	3		CS 370	4	√
CS 415	3		CS 415	4	√
CS 450	3		CS 450	4	√
CS 451	3				
CS 454	3		CS 454	4	√
CS 460	3		CS 460	4	√
Math 142	3		CS 242	4	√
Math 161	4		Math 161	4	√
Math 211	4		Math Elec	3	√
Math 342	3				
Math/Phys Elec	3		Math/Phys Elec	3	√
CS Elec	3		CS Elec	3	√
CS Elec	3		CS Elec	3	√
CS Elec	3		CS Elec	3	√
			CS Capstone	3	--
Total	67	8 completed			59 to do

Total units = 67

SAMPLE 2: Student has completed CS 110, CS 115, CS 215, CS 250, Math 142, and Math 161

Existing BS in CS			New BS in CS		
Course	Units	Completed	Course	Units	To Complete
CS 110	1	X	CS 110	1	
CS 115	4	X	CS 115	4	
CS 215	3	X	CS 215	4	
CS 250	3	X	CS 252	4	√
CS 251	3				
CS 315	3		CS 315	4	√
CS 351	3		CS 351	4	√
CS 355	3		CS 355	4	√
CS 370	3		CS 370	4	√
CS 415	3		CS 415	4	√
CS 450	3		CS 450	4	√
CS 451	3				
CS 454	3		CS 454	4	√
CS 460	3		CS 460	4	√
Math 142	3	X	CS 242	4	
Math 161	4	X	Math 161	4	
Math 211	4		Math Elec	3	√
Math 342	3				
Math/Phys Elec	3		Math/Phys Elec	3	√
CS Elec	3		CS Elec	3	√
CS Elec	3		CS Elec	3	√
CS Elec	3		CS Elec	3	√ (1 unit)
			CS Capstone	3	--
	67	18 completed			49 to do

Total units = 67

SAMPLE 3: Student has completed CS 110, CS 115, CS 215, CS 250, Math 142, Math 161, and Math Elective

Existing BS in CS			New BS in CS		
Course	Units	Completed	Course	Units	To Complete
CS 110	1	X	CS 110	1	
CS 115	4	X	CS 115	4	
CS 215	3	X	CS 215	4	
CS 250	3	X	CS 252	4	√
CS 251	3				
CS 315	3		CS 315	4	√
CS 351	3		CS 351	4	√
CS 355	3		CS 355	4	√
CS 370	3		CS 370	4	√
CS 415	3		CS 415	4	√
CS 450	3		CS 450	4	√
CS 451	3				
CS 454	3		CS 454	4	√
CS 460	3		CS 460	4	√
Math 142	3	X	CS 242	4	
Math 161	4	X	Math 161	4	
Math 211	4	X	Math Elec	3	
Math 342	3				
Math/Phys Elec	3	X	Math/Phys Elec	3	
CS Elec	3		CS Elec	3	√
CS Elec	3		CS Elec	3	√
CS Elec	3		CS Elec	3	--
			CS Capstone	3	--
	67	25 completed			42 to do

Total Units = 67

SAMPLE 4: Student has completed CS 110, CS 115, CS 215, CS 250, CS 251, CS 315, Math 142, Math 161, Math 211, Math 342 and a CS Elective

Existing BS in CS			New BS in CS		
Course	Units	Completed	Course	Units	To Complete
CS 110	1	X	CS 110	1	
CS 115	4	X	CS 115	4	
CS 215	3	X	CS 215	4	
CS 250	3	X	CS 252	4	
CS 251	3	X			
CS 315	3	X	CS 315	4	
CS 351	3		CS 351	4	√
CS 355	3		CS 355	4	√
CS 370	3		CS 370	4	√
CS 415	3		CS 415	4	√
CS 450	3		CS 450	4	√
CS 451	3				
CS 454	3		CS 454	4	√
CS 460	3		CS 460	4	√
Math 142	3	X	CS 242	4	
Math 161	4	X	Math 161	4	
Math 211	4	X	Math Elec	3	
Math 342	3	X			
Math/Phys Elec	3		Math/Phys Elec	3	
CS Elec	3	X	CS Elec	3	√
CS Elec	3		CS Elec	3	
CS Elec	3		CS Elec	3	√ (2 units)
			CS Capstone	3	--
	67	34 completed			33 to do

Total units = 67

SAMPLE 5: Student has completed CS 110, CS 115, CS 215, CS 250, CS 251, CS 315, CS 351, Math 142, Math 161, Math 211, Math 342 and 6 units of CS Elective

Existing BS in CS			New BS in CS		
Course	Units	Completed	Course	Units	To Complete
CS 110	1	X	CS 110	1	
CS 115	4	X	CS 115	4	
CS 215	3	X	CS 215	4	
CS 250	3	X	CS 252	4	
CS 251	3	X			
CS 315	3	X	CS 315	4	
CS 351	3	X	CS 351	4	
CS 355	3		CS 355	4	√
CS 370	3		CS 370	4	√
CS 415	3		CS 415	4	√
CS 450	3		CS 450	4	√
CS 451	3				
CS 454	3		CS 454	4	√
CS 460	3		CS 460	4	√
Math 142	3	X	CS 242	4	
Math 161	4	X	Math 161	4	
Math 211	4	X	Math Elec	3	
Math 342	3	X			
Math/Phys Elec	3	X	Math/Phys Elec	3	
CS Elec	3	X	CS Elec	3	
CS Elec	3	X	CS Elec	3	
CS Elec	3		CS Elec	3	
			CS Capstone	3	--
	67	43 completed			24 to do

Total units = 67

SAMPLE 6: Student has completed CS 110, CS 115, CS 215, CS 250, CS 251, CS 315, CS 351, CS 355, CS 370, CS 451, Math 142, Math 161, Math 211, Math 342, and Math Elective

Existing BS in CS			New BS in CS		
Course	Units	Completed	Course	Units	To Complete
CS 110	1	X	CS 110	1	
CS 115	4	X	CS 115	4	
CS 215	3	X	CS 215	4	
CS 250	3	X	CS 252	4	
CS 251	3	X			
CS 315	3	X	CS 315	4	
CS 351	3	X	CS 351	4	
CS 355	3	X	CS 355	4	
CS 370	3	X	CS 370	4	
CS 415	3		CS 415	4	√
CS 450	3		CS 450	4	√
CS 451	3	X			
CS 454	3		CS 454	4	√
CS 460	3		CS 460	4	√
Math 142	3	X	CS 242	4	
Math 161	4	X	Math 161	4	
Math 211	4	X	Math Elec	3	
Math 342	3	X			
Math/Phys Elec	3	X	Math/Phys Elec	3	
CS Elec	3		CS Elec	3	√
CS Elec	3		CS Elec	3	√ (2 units)
CS Elec	3		CS Elec	3	--
			CS Capstone	3	--
	67	46 completed			21 to do

Total Units = 67