

This model is in effect for all students entering the program after 9/1/2008

Name: _____

**PROGRAM GUIDE
BACHELOR OF SCIENCE IN COMPUTER SCIENCE**

- ◆ All students are required to take a minimum combined total of 42 semester hours of General Education and Rowan Experience courses. *(Italics indicate prerequisites)*

GENERAL EDUCATION REQUIREMENTS (choice from Approved Gen Ed Guide)				
Transfer	Rowan	Hegis #	COMMUNICATIONS BANK <i>minimum 6 s.h.</i>	6 S.H.
		COMP 01.111	College Composition I	3 s.h.
		COMP 01.112	College Composition II (<i>College Composition I</i>)	3 s.h.
		Hegis #	SCIENCE/MATHEMATICS BANK <i>minimum 7 s.h.</i>	7 S.H.
			Math/Science (choice from Approved S/M General Education Courses)	3 s.h.
			Lab Science (choice from Approved S/M General Education Courses)	4 s.h.
		Hegis #	SOCIAL & BEHAVIORAL SCIENCES BANK <i>minimum 6 s.h.</i>	6 S.H.
			(choice from Approved SBS General Education Courses)	3 s.h.
			(choice from Approved SBS General Education Courses)	3 s.h.
		Hegis #	HISTORY/HUMANITIES/LANGUAGE BANK <i>minimum 6 s.h.</i>	6 S.H.
			(choice from Approved HHL General Education Courses)	3 s.h.
			(choice from Approved HHL General Education Courses)	3 s.h.
		Hegis #	NON-PROGRAM ELECTIVES <i>minimum 6 s.h.</i>	6 S.H.
				3 s.h.
				3 s.h.

ROWAN EXPERIENCE REQUIREMENTS (choose from Approved RE Guide) (Can be taken as a Gen Ed OR within the major requirements.)				
Transfer	Rowan	Hegis #		
		CMS 04.205	Public Speaking (<i>College Composition I and II</i>)	3 s.h.
			Artistic/Creative Experience	3 s.h.
CHECK TO BE SURE THE FOLLOWING REQUIREMENTS ARE COMPLETED				
			Broad Based Literature Course (LIT)	
			Writing Intensive Course (WI) (<i>College Composition II</i>)	
			Multicultural/Global Course (M/G)	
			Lab Science Course (LAB) (S/M)	
			Computer Competency Exam or Computer Literacy Course	
			Rowan Seminar (RS) – <i>Freshmen Only</i>	

- ◆ **NOTE:** *M/G, LIT, ACE, WI and RS courses, if taken within the major program of study, CAN NOT COUNT towards the minimum total of Gen Ed 42 credits.*
- ◆ This information has been provided by the department listed above as of the date listed below and is subject to change.
- ◆ To declare this major go to the CAP Center in Savitz Hall.
- ◆ **Students should consult with their program advisor for suggested General Education and Rowan Experience courses.**

Bachelor of Science in Computer Science

Program Requirements

69 s.h.

Course #	COURSE NAME	S.H.	PREREQUISITES
MATH 03.160	Discrete Structures	3 s.h	MATH 01.122 or MATH 01.130
MATH 01.130	Calculus I	4 s.h	MATH 01.122 or equivalent experience
MATH 01.131	Calculus II	4 s.h	MATH 01.130
MATH 01.210	Linear Algebra	3 s.h	MATH 01.131 and MATH 03.160
STAT 02.290	Probability and Statistical Inference for Computing Systems	3 s.h	MATH 01.131, MATH 03.160, and (CS 04.113 or CS 04.112) each with a grade of C- or better.
CS 04.113	Introduction to Object-Oriented Programming	4 s.h	MATH 01.122 or MATH 01.123 or MATH 01.131
CS 04.114	Object-Oriented Programming and Data Abstraction	4 s.h	CS 04.113 or (CS 04.103 and CS 04.112)
CS 04.222	Data Structures and Algorithms	4 s.h	CS 04.114 (C- or better) and MATH 03.160
CS 06.205	Computer Organization	3 s.h	(CS 04.113 and MATH 03.160) or (CS 04.103 and MATH 03.160)
CS 07.210	Foundations of Computer Science	3 s.h	C- or better in MATH 01.130, and any one of the following: CS 01.102, CS 04.103, CS 01.104, CS 04.113
CS 07.321	Software Engineering I	3 s.h	CS 04.222 or CS 04.225 and (COMP 01.112 or ENGR 01.201) and (CMS 06.202 or ENGR 01.202)
CS 04.315	Programming Languages	3 s.h	CS 04.222 and CS 06.205
CS 06.310	Principles of Digital Computers	3 s.h	CS 06.205 Co-requisite: CS 06.311
CS 06.311	Digital Computer Laboratory	1 s.h	CS 06.205 Co-requisite: CS 06.310
CS 07.340	Design and Analysis of Algorithms	3 s.h	CS 04.222 and CS 07.210
CS 04.390	Operating Systems	3 s.h	CS 04.222 and CS 06.205
CS 04.400	Senior Project	3 s.h	CS 04.315 and CS 07.340
The following can be used as a Gen Ed Social & Behavioral requirement			
INTR 01.265 OR INTR 01.266	Computers and Society OR Computers and Society (WI)	3 s.h	CMS 06.202
The following can be used as a Gen Ed Math/Science requirement			
Lab Science Elective: Choose any three of the following courses:			
BIOL 01.104	Biology 1: Diversity, Evolution, & Adaptation	4 s.h	
BIOL 01.106	Biology 2: Concepts in Genetics	4 s.h	
BIOL 01.203	Biology 3: Introduction to Cell Biology	4 s.h	
PHYS 02.200	Introductory Mechanics	4 s.h	
PHYS 02.201	Introductory Electricity and Magnetism	4 s.h	
PHYS 02.210	Introductory Thermodynamics, Fluids, Waves, & Optics	4 sh.	
PHYS 02.300	Modern Physics	4 s.h	
PHYS 02.305	Optics and Light	4 s.h	
PHYS 02.315	Analytical Mechanics	4 s.h	
PHYS 02.401	Quantum Mechanics I	4 s.h	
PHYS 02.430	Electricity and Magnetism	4 s.h	
CHEM 06.100	Chemistry I	4 s.h	
CHEM 06.101	Chemistry II	4 s.h	
CHEM 09.250	Quantitative Analysis	4 s.h	
CHEM 07.200	Organic Chemistry	4 s.h	
BIOL 01.100,101	Biology I, II	4 s.h	Transfers Only
BIOL 01.202	Biology 3T: Biological Skills and Methods	4 s.h.	Transfers Only

Restricted Electives

12 s.h.

CS 01.395	Topics in Computer Science	varies	<i>permission of instructor</i>
CS 04.305	Web Programming	3 s.h	<i>CS 01.205 and CS 04.222</i>
CS 04.327	Power Java	3 s.h	<i>CS 04.222</i>
CS 04.380	Object Oriented Design	3 s.h	<i>CS 07.340</i>
CS 04.391	Concurrent Programming	3 s.h	<i>CS 04.390</i>
CS 04.392	System Programming and Operating System Internals	3 s.h	<i>CS 04. 390 and CS 01.205</i>
CS 04.394	Distributed Systems	3 s.h	<i>(CS 06.205 and CS 04.222) or (ECE 09.242 and CS 04.255)</i>
CS 04.401	Compiler Design	3 s.h	<i>CS 07.210 and CS 04.315</i>
CS 04.430	Database Systems: Theory and Programming	3 s.h	<i>CS 07.340</i>
CS 06.410	Data Communications and Networking	3 s.h	<i>CS 07.340 and STAT 02.360</i>
CS 06.412	Advanced Computer Architecture	3 s.h	<i>CS 06.310</i>
CS 06.415	Wireless Networks, Protocols and Applications	3 s.h	<i>CS 06.410</i>
CS 06.416	TCP/IP and Internet Protocols and Technologies	3 s.h	<i>CS 06.410</i>
CS 06.420	Embedded Systems Programming	3 s.h	<i>(CS 04.390 and CS 06.310 and CS 06.311) or (CS 04.390 and ECE 09.241 and ECE 09.242)</i>
CS 07.310	Robotics	3 s.h	<i>CS 04.113 and CS 04.222 and Math 01. 210) or (CS 04.103 and CS 04. 225 and ENGR 01.202 and MATH 01.236)</i>
CS 07.322	Software Engineering II	3 s.h	<i>CS 07.321</i>
CS 07.350	Computer Cryptography	3 s.h	<i>CS 07.210</i>
CS 07.360	Introduction to Computer Graphics	3 s.h	<i>(MATH 01. 210 or MATH 01.235) and CS 07.340</i>
CS 07.370	Introduction to Information Visualization	3 s.h	<i>MATH 01.210 or MATH 01.236</i>
CS 07.380	Introduction to Computer Animation	3 s.h	<i>(MATH 01.210 or MATH 01.236) and PHYS 02.200</i>
CS 07.422	Theory of Computing	3 s.h	<i>CS 04.222 and MATH 01.131 and CS 07.210</i>
CS 07.450	Artificial Intelligence	3 s.h	<i>MATH 03.160, and CS 04.222 and CS 07.210</i>
CS 07.460	Computer Vision	3 s.h	<i>CS 04.103 and MATH 01.210 and STAT 02.360</i>
CS 99.300	Computer Field Experience	3 or 6 s.h	<i>permission of instructor note: only 3 credits for CFE can be applied towards the restricted electives.</i>

Free Electives

0-16 s.h.

The student who applies *Calculus I*, the lab science courses, and *Computers and Society* toward the General Education requirement will have 16 s.h. of free electives. These may be any courses offered by Rowan University, or they may be transferred in from another school.

Total Credits in Program 120 S.H.

- Note:**
- 1) A grade of C- or better is required for graduation in
 - Calculus I
 - Discrete Structures
 - Introduction to Object Oriented Programming
 - Object Oriented Programming/Data Abstraction
 - Computer Organization
 - Data Structures

This policy applies whether these courses are taken locally or transferred.

- 2) A 2.5 grade point average in the required and restricted elective courses together with College Composition I, whether they are taken locally or transferred, is required for graduation (A = 4; B = 3; C = 2; D = 1; F = 0; "+" = +0.3; "-" = -0.3).