BACHELOR OF SCIENCE IN COMPUTER SCIENCE - THREAD: MODELING -**SIMULATION & SYSTEMS AND ARCHITECTURE**

APPH 1040 Scientific Foundations of Health or APPH 10 The Science of Physical Activity and Health or APPH 10 Flourishing: Strategies for Well-being and Resilience Core A - Essential Skills ENGL 1101 English Composition I 3 ENGL 1102 English Composition II 3 MATH 1552 Integral Calculus 4 Core B - Institutional Options CS 1301 Introduction to Computing 1 3 Core C - Humanities Any HUM 6 Core D - Science, Math, & Technology PHYS 2211 Introductory Physics I 2 4 Lab Science 2 4 MATH 1551 Differential Calculus 2 2 MATH 1554 Linear Algebra 4 4 or MATH 1556/hear Algebra with Abstract Vector Spaces Core E - Social Sciences Choose one of the following: 3 HIST 2111 The United States to 1877 HIST 2112 The United States ince 1877 INTA 1200 American Government in Comparative Perspective POL 1101 Government of the United States PUBP 3000 American Constitutional Issues Any SS 9 Core F - Courses Related to Major Lab Science 2 CS 1331 Introduction to Object Oriented Programming 1 3 CS 1332 Data Structures and Algorithms for Applications 1 CS 2050 Introduction to Discrete Mathematics for Computer Science MATH 2550 Introduction to Discrete Mathematics for Computer Science 1 MATH 2550 Introduction to Multivariable Calculus 4 2 Major Requirements CS 2340 Objects and Design 1 3 Select one for Professionalism/Ethics requirement: 1 3	Code	Title	Credit Hours
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CS 2340 Objects and Design ¹ 3	Major Require		
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CS 3001	Computing, Society, and Professionalism	
CS 4001	Computing, Society, and Professionalism	
CS 4002	Robots and Society	
CS 4003	AI, Ethics, and Society	
CS 4726	Privacy, Technology, Policy, and Law	
SLS 3110	Technology and Sustainable Community Development	
	Options (Capstone)	
Junior Design	Option ^{1,3}	6
Concentration		
CS 2110	Computer Organization and Programming 1	4
CS 2200	Computer Systems and Networks ¹	4
CS 3210	Design of Operating Systems ¹	3
CS 3220	Computer Structures: Hardware/Software Codesign of a Processor ¹	3
CS 3510	Design and Analysis of Algorithms ¹	3
or CS 3511	Design and Analysis of Algorithms, Honors	
ECE 2031	Digital Design Laboratory ¹	2
MATH 2552	Differential Equations ¹	4
	the following for Computational Science and	6
Engineering: 1		
CS 4641	Machine Learning	
CX 4140	Computational Modeling Algorithms	
CX 4220	Introduction to High Performance Computing	
CX 4230	Computer Simulation	
CX 4640	Numerical Analysis I	
	the following for Software Systems Tools: 1	3
CS 3300	Introduction to Software Engineering	
CS 4240	Compilers, Interpreters, and Program Analyzers	
Select one of Architectures:	the following for Advanced Systems	3
CS 4210	Advanced Operating Systems	
CS 4220	Programming Embedded Systems	
CS 4290	Advanced Computer Organization	
Other Require		
MATH 3012	Applied Combinatorics	3
Select one of	the following:	3
MATH 321	5Introduction to Probability and Statistics	
MATH 3670	Probability and Statistics with Applications	
CEE 3770	Statistics and Applications	
ISYE 3770	Statistics and Applications	
	2Probability with Applications Cand Basic Statistical Methods	
Free Electives		
Free Electives		10
Total Credit H	ours	126
Pass-fail only and CS 1100.	allowed for Free Electives (max 6 credit hours)	
•		

Minimum grade of C required.
 Two of three lab sciences MUST be a sequence.

³ Junior Design Options are as follows (students must pick one option and may not change):

- 2
- · Option 1 LMC 3432, LMC 3431, CS 3311,CS 3312.
- · Option 2 ECE VIP courses and LMC 3403.
- · Option 3 Satisfy Georgia Tech Research Option.
- Option 4- CS 2701 (3 hours), CS 4699-I2P (3 hours), LMC 3403 (3 hours) = 9 hours OR CS 4699- I2P (6 hours), LMC 3403 (3 hours) = 9 hours

Six credits of the Junior Design option are used as Major Requirements and the overage credits of research/VIP (5 credit hours/2 credit hours) may be used as free electives. Students completing VIP for their junior design requirement will be required to complete at least three semesters of VIP. (VIP 1 + VIP 2 + VIP 3) (for a total of 5 credit hours) + LMC 3403 = 8 hours of VIP credit.

Students using CREATE-X for junior design take at least 6 hours of CREATE-X Start-ip Lab and Idea 2 Prototype (I2P) and 3 of the 6 hours must be I2P. Students take these 6 hours with LMC 3403 (3 hours) for a total of 9 hours. Extra three hours for CREATE-X option can be used in free electives.

Two credit hours of MATH 1554 may count along with MATH 2550 to give Area F 18 credit hours.

2