

BACHELOR OF SCIENCE IN COMPUTER SCIENCE - THREAD: MODELING- SIMULATION & DEVICES

Code	Title	Credit Hours
Wellness Requirement		
APPH 1040	Scientific Foundations of Health	2
	or APPH 10 The Science of Physical Activity and Health	
	or APPH 10 Flourishing: Strategies for Well-being and Resilience	
Core IMPACTS		
Institutional Priority		
CS 1301	Introduction to Computing ¹	3
Mathematics and Quantitative Skills		
MATH 1552	Integral Calculus	4
Political Science and U.S. History		
HIST 2111	The United States to 1877	3
	or HIST 2112 The United States since 1877	
	or INTA 1200 American Government in Comparative Perspective	
	or POL 1101 Government of the United States	
	or PUBP 3000 American Constitutional Issues	
Arts, Humanities, and Ethics		
Any HUM		6
Communicating in Writing		
ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
Technology, Mathematics, and Sciences		
PHYS 2211	Introductory Physics I ²	4
	Lab Science ²	4
MATH 1551	Differential Calculus	2
MATH 1554	Linear Algebra ⁴	4
	or MATH 1555 Linear Algebra with Abstract Vector Spaces	
Social Sciences		
Any SS		9
Field of Study		
Lab Science ²		4
CS 1100	Freshman Leap Seminar	1
CS 1331	Introduction to Object Oriented Programming ¹	3
CS 1332	Data Structures and Algorithms for Applications ¹	3
CS 2050	Introduction to Discrete Mathematics for Computer Science ¹	3
	or CS 2051 Honors - Induction to Discrete Mathematics for Computer Science	
MATH 2550	Introduction to Multivariable Calculus ⁴	2
Major Requirements		
CS 2340	Objects and Design ¹	3
	Select one for Ethics/Professionalism: ¹	3
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	
Junior Design 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 3251	Computer Networking I 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
	Select one of the following for Building Devices: ¹	4
	CS 3651 Prototyping Intelligent Devices	
	ECE 4180 Embedded Systems Design	
	Select one of the following for Devices in the Real World: ¹	3
	CS 3630 Introduction to Perception and Robotics	
	CS 4261 Mobile Applications and Services for Converged Networks	
	CS 4605 Mobile and Ubiquitous Computing	
	CS 4476 Introduction to Computer Vision	
	Select two of the following for Computational Science and Engineering: ¹	6
	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	
Other Required Courses		
MATH 3012	Applied Combinatorics	3
	Select one of the following:	3
	MATH 3215 Introduction to Probability and Statistics	
	MATH 3670 Probability and Statistics with Applications	
	CEE 3770 Statistics and Applications	
	ISYE 3770 Statistics and Applications	
	or ISYE 2020 Probability with Applications	
	& ISYE 2021 Basic Statistical Methods	
Free Electives		
Free Electives		12
Total Credit Hours		126

Pass-fail only allowed for Free Electives (max 6 credit hours) and CS 1100.

¹ Minimum grade of C required.

² Two of three labs MUST be a sequence.

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

- 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
- Option 5 - CS 4723 (3 hours), LMC 3403 (3 hours) = 6 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-up 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.

⁴ Two credit hours of MATH 1554 may count along with MATH 2550 to give Field of Study 18 credit hours.