

# BACHELOR OF SCIENCE IN COMPUTER SCIENCE - THREAD: DEVICES & INFORMATION INTERNETWORKS

Code	Title	Credit Hours
<b>Wellness Requirement</b>		
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	
<b>Core IMPACTS</b>		
<b>Institutional Priority</b>		
CS 1301	Introduction to Computing <sup>1</sup>	3
<b>Mathematics and Quantitative Skills</b>		
MATH 1552	Integral Calculus	4
<b>Political Science and U.S. History</b>		
HIST 2111	The United States to 1877	3
	or HIST 2111 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	
<b>Arts, Humanities, and Ethics</b>		
Any HUM		6
<b>Communicating in Writing</b>		
ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
<b>Technology, Mathematics, and Sciences</b>		
Lab Science <sup>2</sup>		8
MATH 1551	Differential Calculus	2
MATH 1554	Linear Algebra <sup>5</sup>	4
	or MATH 15 Linear Algebra with Abstract Vector Spaces	
<b>Social Sciences</b>		
Any SS		9
<b>Field of Study</b>		
PHYS 2211	Principles of Physics I <sup>2</sup>	4
CS 1100	Freshman Leap Seminar	1
CS 1331	Introduction to Object Oriented Programming <sup>1</sup>	3
CS 1332	Data Structures and Algorithms for Applications <sup>1</sup>	3
CS 2050	Introduction to Discrete Mathematics for Computer Science <sup>1</sup>	3
	or CS 2051 Honors - Induction to Discrete Mathematics for Computer Science	
MATH 2550	Introduction to Multivariable Calculus <sup>5</sup>	2
<b>Major Requirements</b>		
CS 2340	Objects and Design <sup>1</sup>	3
Select one for Professionalism/Ethics Requirement: <sup>1</sup>		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	
<b>Junior Design Options (Capstone)</b>		
Junior Design Option <sup>1,4</sup>		6
<b>Concentration</b>		
CS 2110	Computer Organization and Programming <sup>1</sup>	4
CS 2200	Computer Systems and Networks <sup>1</sup>	4
CS 3251	Computer Networking I <sup>1</sup>	3
CS 3510	Design and Analysis of Algorithms <sup>1</sup>	3
	or CS 3511 Design and Analysis of Algorithms, Honors	
ECE 2031	Digital Design Laboratory <sup>1</sup>	2
Select one for Building Devices: <sup>1</sup>		4
CS 3651	Prototyping Intelligent Devices	
ECE 4180	Embedded Systems Design	
Select one for Devices in the Real World: <sup>1,3</sup>		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 one for Introduction to Information Management: <sup>1</sup>		3
CS 3235	Introduction to Information Security	
CS 4400	Introduction to Database Systems	
Select one of the following for Advanced Information Management: <sup>1,3</sup>		3
CS 3235	Introduction to Information Security (if not taken for Introduction to Information Management)	
CS 4251	Computer Networking II	
CS 4255	Introduction to Network Management	
CS 4261	Mobile Applications and Services for Converged Networks	
CS 4262	Network Security	
CS 4270	Data Communications Laboratory	
CS 4365	Introduction to Enterprise Computing	
CS 4400	Introduction to Database Systems (if not taken for Intro to Info Mgt requirement)	
CS 4420	Database System Implementation	
CS 4440	Emerging Database Technologies and Applications	
CS 4675	Internet Computing Systems, Services and Applications	
Select one of the following for Thread elective: <sup>1</sup>		3
CS 3220	Computer Structures: Hardware/Software Codesign of a Processor	
CS 3235	Introduction to Information Security	
CS 3240	Languages and Computation	
CS 3600	Introduction to Artificial Intelligence	
CS 3630	Introduction to Perception and Robotics	

CS 3651	Prototyping Intelligent Devices	
CS 4210	Advanced Operating Systems	
CS 4220	Programming Embedded Systems	
CS 4237	Computer and Network Security	
CS 4251	Computer Networking II	
CS 4255	Introduction to Network Management	
CS 4261	Mobile Applications and Services for Converged Networks	
CS 4270	Data Communications Laboratory	
CS 4365	Introduction to Enterprise Computing	
CS 4400	Introduction to Database Systems	
CS 4420	Database System Implementation	
CS 4440	Emerging Database Technologies and Applications	
CS 4470	Introduction to User Interface Software	
CS 4476	Introduction to Computer Vision	
CS 4605	Mobile and Ubiquitous Computing	
CS 4616	Pattern Recognition	
CS 4632	Advanced Intelligent Robotics	
CS 4641	Machine Learning	
CS 4649	Robot Intelli Planning	
CS 4675	Internet Computing Systems, Services and Applications	
CS 4685	Pervasive Systems and Networking	
ECE 4180	Embedded Systems Design	
<b>Other Required Courses</b>		
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 2 Probability with Applications & ISYE 3 (and Basic Statistical Methods)		
<b>Free Electives</b>		
Free Electives		13
<b>Total Credit Hours</b>		<b>126</b>

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

<sup>1</sup> Minimum grade of C required.

<sup>2</sup> Two of three labs MUST be a sequence.

<sup>3</sup> If CS 4261 is successfully completed, an additional 3 credit hour Thread Elective is required. Thread Electives must be chosen from the following list: CS 3220, CS 3240, CS 3600, CS 3630, CS 3651, CS 4210, CS 4220, CS 4235, CS 4237, CS 4251, CS 4255, CS 4270, CS 4365, CS 4400, CS 4420, CS 4440, CS 4470, CS 4495, CS 4605, CS 4616, CS 4632, CS 4641, CS 4649, CS 4675, CS 4685, or ECE 4180.

<sup>4</sup> 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.

<sup>5</sup> Two credit hours of MATH 1554 may count along with MATH 2550 to give Field of Study 18 credit hours.