Computer Science Major

F25/S26 TEMPLATE

(only use this template if you entered RPI in the F25/S26 academic year)

This template summarizes the undergraduate curriculum requirements for students majoring in Computer Science, including dual majors. Note that you do not need to take courses in the exact order shown below as long as all requirements are met and you earn at least 128 credit hours. Check the Rensselaer Catalog for prerequisites and semester restrictions (e.g., fall only, spring/summer only) on all courses you plan to take.

Please use this template, the Rensselaer Catalog, Degree Works in SIS, and discussions with your academic advisors to verify that you are meeting <u>all</u> requirements for the CSCI major.

First Year

Fall 2025		Spring 2026	
CSCI 1100 Computer Science I	4	CSCI 1200 Data Structures	4
MATH 1010 Calculus I	4	MATH 1020 Calculus II	4
PHYS 1100 Physics I[1]	4	BIOL 1010 Intro to Biology[1]	3
HASS Elective	4	BIOL 1015 -or- BIOL 1016 Intro. To Biology Lab[1]	1
		HASS Elective	4

Second Year

Fall 2026		Spring 2027	
CSCI 2200 Foundations of Computer Science	4	CSCI 2300 Intro. To Algorithms	4
CSCI 2800 Computer Architecture & Operating Systems	4	CSCI 2600 Principles of Software	4
MATH 2010 Multivariable Calc. & Matrix Algebra	4	MATH/MATP Course as specified by CSCI Track	4
HASS Elective	4	HASS Elective	4
RCOS/URP[2]	2-4	ADMN 1030 ARCH Exploration & Planning	0

Third Year

Your third- and fourth-year requirements will vary depending on your chosen track within the CSCI major. For more details, please see the specific requirements for your chosen track on the second page of this document and the corresponding curriculum checklist specific to your track. In general, the third and fourth year will follow the template below:

Arch Summer 2027		Fall 2027 or Spring 2028	
CSCI 4000 Level Track Course[3]	4	CSCI 4000 Level Track Course	4
HASS Elective	4	Science Option[4]	4
Free Elective	4	HASS Elective	4
Free Elective	4	Free Elective	4

Fourth Year

Fall 2028		Spring 2029	
CSCI 4000 Level Track Course	4	CSCI 4000 Level Track Course	4
CSCI 4000 Level Track Course	4	CSCI 4000 Level Track Course	4
Free Elective	4	Free Elective	4
Free Elective	4	Free Elective	4

1 If you have no prior experience in MATH 1010 Calculus I, we recommend that you take BIOL 1010 and BIOL 1015/1016 in your first semester; otherwise, we recommend that you take PHYS 1100 in your first semester.

2 You are required to take 2-4 credits of either CSCI 1700/2700 RCOS or an Undergraduate Research Project (URP). This can be taken in any semester, and the Pass/No Credit (P/NC) designation cannot be used for this requirement.

3 Specific courses offered will vary. Please check the RPI Catalog for more information on courses and which semesters they are offered.

4 The Science Option consists of one or more courses totaling 4 credits chosen from the following: astronomy, biology, chemistry, earth and environmental science, and physics. The Pass/No Credit (P/NC) option cannot be used for this course. The course ERTH 1030 cannot be used to satisfy this requirement. Reading and independent study courses cannot be used to satisfy this requirement.

Computer Science Focus Tracks

All tracks require seven courses; no course may be double-counted.

One 4000-level CSCI course must be Communication Intensive (CI) unless fulfilled by your dual major CI course.

Focus Track	Required Courses	Depth Electives	Breadth Electives
Systems and Software	• (The MATH 2010 course could be replaced with MATH 4030, MATH 4100, MATH 4140, or MATP 4600) • One MATH/MATP 2000-level or higher course • CSCI 4430 Programming Languages *Choose 1 from:* • CSCI 496x Advanced Operating Sys • CSCI 496x Computer Architecture	*Choose 2 from:* CSCI 4220 Network Programming CSCI 4310 Networking in the Linux Kernel CSCI 4320 Parallel Programming CSCI 4380 Database Systems CSCI 4440 Software Design & Doc. CSCI 4450 Principles of Program Analysis CSCI 4460 Large-Scale Prog. & Testing CSCI 4470 Open Source Software CSCI 4500 Dist. Comp. over the Internet	*Choose 2 from:* • 4000-level CSCI courses • 4000-level courses outside of department (see list of Breadth Elective courses approved by the CS Department on our website)
Vision, Graphics, Robotics, and Visualization	• One MATH/MATP 2000-level or higher course *Choose 2 from:* • CSCI 4020 Design and Analysis of Algorithms **OR** CSCI 4050 Theory of Computation (only one of these) • CSCI 4430 Programming Languages • CSCI 496x Advanced Operating Systems **OR** CSCI 496x Computer Architecture (only one of these)	*Choose 2 from:* CSCI 4270 Computational Vision CSCI 4320 Parallel Programming CSCI 4480 Robotics I CSCI 4530 Advanced Computer Graphics CSCI 4550 Interactive Visualization CSCI 4560 Computational Geometry	*Choose 2 from:* • 4000-level CSCI courses • 4000-level courses outside of department (see list of Breadth Elective courses approved by the CS Department on our website)
Theory and Algorithms	• One MATH/MATP 4000- or 6000-level course *Choose 1 from:* • CSCI 4020 Design and Analysis of Algorithms • CSCI 4050 Theory of Computation *Choose 1 from:* • CSCI 4210 Operating Systems • CSCI 4320 Parallel Programming • CSCI 4430 Programming Languages • CSCI 496x Advanced Operating Systems • CSCI 496x Computer Architecture	*Choose 2 from:* CSCI 4020 Design and Analysis of Algo. CSCI 4030 Randomized Algorithms CSCI 4040 Approximation Algorithms CSCI 4050 Theory of Computation CSCI 4100 Machine Learning from Data CSCI 4230 Cryptography & Net. Security I CSCI 4250 Frontiers of Network Science CSCI 4260 Graph Theory CSCI 4510 Distributed Sys. & Algorithms CSCI 4560 Computational Geometry	*Choose 1 from:* • 4000-level CSCI course • 4000-level course outside of department (see list of Breadth Elective courses approved by the CS Department on our website) *Choose 1 from:* • One MATH/MATP 4000- or 6000- level course
Artificial Intelligence, Machine Learning, and Data Science	• CSCI 2210 Mathematical Foundations of Machine Learning *Choose 1 from:* • CSCI 4130 AI in Fiction and Fact • CSCI 4150 Intro to AI • CSCI 4340 Ontologies • CSCI 4350 Data Science • CSCI 4370 Data & Society *Choose 1 from:* • CSCI 4380 Database Systems • CSCI 4320 Parallel Programming • CSCI 496x Advanced Operating Sys. • CSCI 496x Computer Architecture *Choose 1 from:* • CSCI 4100 Machine Learning from Data • CSCI 4390 Data Mining	*Choose 2 from:* CSCI 4140 Machine Learning & Optimization CSCI 4150 Intro to AI CSCI 4160 Reinforcement Learning CSCI 4170 Projects in AI & ML CSCI 4270 Computational Vision Any 4000-level topics course in AL/ML/Data (a list of approved topics courses is emailed during advisement each semester)	*Choose 1 from:* • 4000-level CSCI course • 4000-level course outside of department (see list of Breadth Elective courses approved by the CS Department on our website)