Academic Rhode Map for BS Computer Science Major at Rhode Island College

GENERAL EDUCATION: A complete listing of General Education courses can be found in the online catalog; look at catalog for year you enrolled. For Gen Ed courses, aside from Second Language requirement, which varies depending on where you are placed, you need ONE course from each category. Second Language 101/102 options are: American Sign, Arabic, French, German, Italian, Japanese, Portuguese, or Spanish. For other ways to satisfy the second language requirement look under the Gen Ed. section of the catalog. For information about Math Placement exam visit the orientation webpage. Courses with an asterisk* have prerequisites. **Courses with a "W" in the prefix are Writing in the Discipline (WID) courses and will be writing intensive. Any courses marked (F) offered Fall only; (Sp) Spring only.**

Academic Major Checklist	Course	Cognates	Course
CSCI 209 Discrete Structures Using Python*		ENGL 230W Workplace Writing* (WID) or ENGL 231W Multimodal Writing* (WID)	
CSCI 211 Computer Programming and Design*			
CSCI 212W Data Structures* (WID)			
CSCI 309 Object-Oriented Design*		MATH 212 Calculus I*	
CSCI 313 Computer Organization and Architecture*		MATH 213 Calculus II*	
CSCI 325 Organization of Programming Language*		PHIL 206 Ethics or PHIL 207 Technology and the Future of Humanity	
CSCI 401W Software Engineering* (WID)		TWO courses from: MATH 240 Statistical Methods I*; MATH 300W Bridge to Advanced Mathematics (Sp)* (WID); MATH 314 Calculus III*; MATH 324 College Geometry*; MATH 417 Intro. to Numerical Analysis (Sp)*; MATH 418 Intro. to Operational Research (Sp)*; MATH 431 Number Theory*; MATH 436 Discrete Mathematics; or DATA 445 Advanced Statistical Methods (Sp)*	
CSCI 423 Analysis of Algorithms*			
CSCI 435 Operating Systems*			
THREE courses from: EITHER CSCI 305 Functional Programming* OR CSCI 402 Cyber Security Principles*, OR CSCI 416 Web Design*; CSCI 415 Software Testing (Sp)*; CSCI 422 Introduction to Computation Theory (Sp)*; CSCI 427 Introduction to Artificial Intelligence*; CSCI 428 Machine Learning (Sp)*; CSCI 437 Networks and Programming * CSCI 455 Introduction to Database Systems (F)*; CSCI 467 Computer Science Internship*; CSCI 476 Advanced Topics in Computer Science (Sp)*		ONE from these two course sequences: BIOL 111 Introductory Biology I* and BIOL 112 Introductory Biology II*; CHEM 103 General Chemistry I* and CHEM 104 General Chemistry II*; or PHYS 101 Physics for Science or Mathematics I* and PHYS 102 Physics for Science or Mathematics II*	

Please note: Students must consult with their assigned advisor before they will be able to register for courses

This map is a semester-by-semester plan to help you toward graduation in four years. Not everyone graduates in four years as it depends on how many courses you can take, and how you do in those courses. This map is not your only route; it is a suggestion. While there are many courses in your major that have prerequisites that you will need to take in a special order, there is some flexibility in this map.

The column to the left on the other side of this page suggests the ideal courses for you to take each semester. There are times when those courses may be full or unavailable the semester you plan to take them, in which case consider another course from a different semester with which you can switch. The column on the right has "Checkpoints" for each semester that show where you should be by the end of that semester. You should work from this map as you plan each semester's schedule with your advisor. You should plan to see your advisor in late September for the Spring Semester and in February for the Fall. The Map is designed primarily for freshmen coming to college for the first time, but transfer students may also use the Rhode Map with the understanding that they have most likely completed several requirements through transfer of credit and will be starting further into the program. Maps assume a Fall start.

GRADUATION REQUIREMENTS: The following requirements must be completed by undergraduate degree candidates at Rhode Island College in order to graduate:
- General Education program, including a second language requirement and RIC 100 or equivalent
- College Math Milestone (which is separate from the Gen Ed math requirement)
- College Writing Competency (satisfied by FYW with a minimum grade of C)
- Academic Major—see check chart below. Writing in the Discipline requirement is satisfied through major courses
- A minimum of 120 credit hours, with a minimum of 45 credit hours taken at RIC. Of the 45 credit hours, a minimum of 15 credit hours must be in the major (12 of which must be at the 300- or 400-level)
- A minimum overall grade point average of 2.0
- A minimum grade point average of 2.0 in your major

Approved by Department of Computer Science and Information Systems Date: 1/12/2021
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SEMESTER 1	CR		SEMESTER 1 CHECKPOINTS
First Year Writing (FYW 100) or First Year Seminar (FYS 100).	4		FYW 100P is a 6-credit option. There is a Directed Self-Placement questionnaire you can take to aid in this decision; check the RIC First Year Writing website.
RIC 100 Introduction to Rhode Island College	1		Exempt if taking COLL 101, COLL 150, or HONR 150
CSCI 157 Introduction to Algorithmic Thinking, or Gen Ed.	4		Recommended as the prerequisite for CSCI 211; prereq. college Math Milestone completed
MATH 209 Precalculus Math* (if needed to be ready for calculus) or MATH 212 Calculus I* [either one satisfies Gen Ed Mathematics (M)]	4		Prereq. for MATH 209 is MATH 120 or appropriate score on Mathematics Placement Exam; a recommended course not required. Prereq for MATH 212 is MATH 209 or appropriate score on Mathematics Placement Exam, is required
Gen Ed--Second Lang 101 (based on placement, a course higher than 101/102 may be taken). If language requirement already satisfied: Any Gen Ed Distribution course.	4		Language placement test with Dept. of Modern Languages (optional). Complete Second Lang 101 (if needed)
Requirements and GPA			Aim for 16 earned credits (While 12 is fulltime, 16 credits are preferred to stay on track to graduate in 4 years); Math Milestone completed; Minimum 2.0 GPA
# CREDITS EARNED	17		Make appointment with advisor to discuss your schedule for next semester in Sept.

SEMESTER 2	CR		SEMESTER 2 CHECKPOINTS
FYW 100 or FYS 100	4		Complete FYS and FYW, for FYW, grade C or better
MATH 212 Calculus I* (if not yet taken), or Gen Ed.	4		Prereq for MATH 212 is MATH 209 or appropriate score on Mathematics Placement Exam; Gen Ed. Math
CSCI 211 Computer Programming and Design*	4		Prereq. is CSCI 157 or consent
Gen Ed--Second Lang 102* (if needed), Gen Ed, elective, or course toward major	3-4		Complete Second Language 102* (if needed)
Requirements and GPA			Aim for minimum of 32 earned credits. Minimum of 2.0 GPA overall and in the major
# CREDITS EARNED	15-16		Make appointment with advisor to discuss your schedule for next semester in Feb.

SEMESTER 3	CR		SEMESTER 3 CHECKPOINTS
ENGL 230W Workplace Writing* or ENGL 231W Multimodal Writing*	4		Prereq. for either is FYW 100 or completion of College Writing Requirement
MATH 213 Calculus II*	4		Prereq. is MATH 212. MATH 213 satisfies Gen Ed Advanced Quantitative/Scientific Reasoning (AQSR)
CSCI 209 Discrete Structures Using Python*	4		CSCI 157; MATH 120 or appropriate score on Placement Exam
CSCI 212W Data Structures*	4		Prereq. is CSCI 211
Requirements and GPA			Aim for minimum of 48 earned credits. Minimum of 2.0 GPA overall and in major
# CREDITS EARNED	16		Make appointment with advisor to discuss your schedule for next semester and discuss possible minor or double major in Sept.

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SEMESTER 4	CR		SEMESTER 4 CHECKPOINTS
CSCI 309 Object-Oriented Design*	4		Prereq. is CSCI 201 or 211
CSCI 325 Organization of Programming Language*	3		Prereq. is CSCI 212 or CSCI 212W, or CSCI 315
Choose ONE from BIOL 111 Introductory Biology I* CHEM 103 General Chemistry I* or PHYS 101 Physics for Science or Mathematics I* [Any will satisfy Gen Ed Natural Science (NS)]	4		Prereqs. for BIOL 111 or CHEM 103 are Math Milestone; for PHYS 101: MATH 120 or appropriate score on Mathematics Placement Exam
Gen Ed distribution, or elective	3-4		
Requirements and GPA			Aim for minimum of 64 earned credits. Minimum of 2.0 GPA overall and in major
# CREDITS EARNED	14-15		Make appointment with advisor to discuss your schedule for next semester in Feb.

SEMESTER 5	CR		SEMESTER 5 CHECKPOINTS
CSCI 313 Computer Organization and Architecture*	4		Prereqs are CSCI 211 and prior or concurrent enrollment in CSCI 209 or CSCI 312
ONE course from: EITHER CSCI 305 Functional Programming* OR CSCI 402 Cyber Security Principles* OR CSCI 416 Web Design*; CSCI 415 Software Testing (Sp)*; CSCI 422 Introduction to Computation Theory (Sp)*; CSCI 427 Introduction to Artificial Intelligence*; CSCI 428 Machine Learning (Sp)*; CSCI 437 Networks and Programming * CSCI 455 Introduction to Database Systems (F)*; CSCI 467 Computer Science Internship*; CSCI 476 Advanced Topics in Computer Science (Sp)*	3-4		Prereqs. vary—see catalog. Need a minimum of THREE CSCI electives (not all are offered every semester, see catalog for which semester is likely). Cannot receive credit for more than ONE from CSCI 305, CSCI 402, and CSCI 416 to satisfy elective credits for the major
ONE to complete two course NS sequence: BIOL 112 Introductory Biology II*; CHEM 104 General Chemistry II*; or PHYS 102 Physics for Science or Mathematics II*	4		Prereq. for each is the first in its sequence, so take the same subject
ONE from MATH 240 Statistical Methods I*; MATH 300W Bridge to Advanced Mathematics (Sp)* (WID); MATH 314 Calculus III*; MATH 324 College Geometry*; MATH 417 Intro. to Numerical Analysis (Sp)*; MATH 418 Intro. to Operational Research (Sp)*; MATH 431 Number Theory*; MATH 436 Discrete Mathematics; or DATA 445 Advanced Statistical Methods (Sp)* or elective	3-4		Prereqs. vary—see catalog. Not all are offered every semester, see catalog for which semester is likely. Need to complete TWO from this list
Requirements and GPA			Aim for minimum of 80 earned credits. Minimum of 2.0 GPA overall and in major
# CREDITS EARNED	14-16		Make appointment with advisor to discuss your schedule for next semester in Sept.

SEMESTER 6	CR		SEMESTER 6 CHECKPOINTS
Choose 1 Connections course (Gen Ed-C)	4		Prereqs are 45 completed credits and FYW and FYS.
PHIL 206 Ethics or PHIL 207 Technology and the Future of Humanity	3		
Gen Ed Distribution course from **one** of these categories: Arts (A); Literature (L); History (H), or Social and Behavioral Sciences (SB).	4		
CSCI 423 Analysis of Algorithms*	4		Prereqs are MATH 212, MATH 436 and either CSCI 212 or CSCI 212W or CSCI 315. This course could be taken in Semester 8, and an elective or other course could be taken here
Requirements and GPA			Aim for minimum of 96 earned credits Minimum of 2.0 GPA overall and in major Apply for degree audit online through MyRIC
# CREDITS EARNED	15		Make appointment with advisor to discuss your schedule for next semester in Feb.

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SEMESTER 7	CR		SEMESTER 7 CHECKPOINTS
ONE course from: EITHER CSCI 305 Functional Programming* OR CSCI 402 Cyber Security Principles* OR CSCI 416 Web Design*; CSCI 415 Software Testing (Sp)*; CSCI 422 Introduction to Computation Theory (Sp)*; CSCI 427 Introduction to Artificial Intelligence*; CSCI 428 Machine Learning (Sp)*; CSCI 437 Networks and Programming * CSCI 455 Introduction to Database Systems (F)*; CSCI 467 Computer Science Internship*; CSCI 476 Advanced Topics in Computer Science (Sp)*	3-4		Prereqs. vary—see catalog. Need a minimum of THREE CSCI electives (not all are offered every semester, see catalog for which semester is likely). Cannot receive credit for more than ONE from CSCI 305, CSCI 402, and CSCI 416 to satisfy elective credits for the major.
CSCI 435 Operating Systems*	4		Prereqs are CSCI 313 and either CSCI 212 or CSCI 212W or CSCI 315
ONE from MATH 240 Statistical Methods I*; MATH 300W Bridge to Advanced Mathematics (Sp)* (WID); MATH 314 Calculus III*; MATH 324 College Geometry*; MATH 417 Intro. to Numerical Analysis (Sp)*; MATH 418 Intro. to Operational Research (Sp)*; MATH 431 Number Theory*; MATH 436 Discrete Mathematics; or DATA 445 Advanced Statistical Methods (Sp)* or elective	3-4		Prereqs. vary—see catalog. Not all are offered every semester, see catalog for which semester is likely. Need to complete TWO from this list
Gen Ed Distribution course from **one** of these categories: Arts (A); Literature (L); History (H), or Social and Behavioral Sciences (SB) if needed, or elective	3-4		
Requirements and GPA			Aim for minimum of 108 earned credits. Minimum of 2.0 GPA overall and in the major. All ten GE courses and second lang. req. completed
# CREDITS EARNED	13-16		Make appointment with advisor to discuss your schedule for next semester in Sept.

SEMESTER 8	CR		SEMESTER 8 CHECKPOINTS
CSCI 401W Software Engineering* (WID)	3		Prereqs are CSCI 212 or CSCI 212W or CSCI 315; and CSCI 309 and at least two additional computer science courses at the 300-level or above, or consent of department chair
ONE course from: EITHER CSCI 305 Functional Programming* OR CSCI 402 Cyber Security Principles* OR CSCI 416 Web Design*; CSCI 415 Software Testing (Sp)*; CSCI 422 Introduction to Computation Theory (Sp)*; CSCI 427 Introduction to Artificial Intelligence*; CSCI 428 Machine Learning (Sp)*; CSCI 437 Networks and Programming * CSCI 455 Introduction to Database Systems (F)*; CSCI 467 Computer Science Internship*; CSCI 476 Advanced Topics in Computer Science (Sp)*	3-4		Prereqs. vary—see catalog. Need a minimum of THREE CSCI electives (not all are offered every semester, see catalog for which semester is likely). Cannot receive credit for more than ONE from CSCI 305, CSCI 402, and CSCI 416 to satisfy elective credits for the major
ONE from MATH 240 Statistical Methods I*; MATH 300W Bridge to Advanced Mathematics (Sp)* (WID); MATH 314 Calculus III*; MATH 324 College Geometry*; MATH 417 Intro. to Numerical Analysis (Sp)*; MATH 418 Intro. to Operational Research (Sp)*; MATH 431 Number Theory*; MATH 436 Discrete Mathematics; or DATA 445 Advanced Statistical Methods (Sp)* or elective	3-4		Prereqs. vary—see catalog. Not all are offered every semester, see catalog for which semester is likely. Need to complete TWO from this list
Gen Ed Distribution course from **one** of these categories: Arts (A); Literature (L); History (H), or Social and Behavioral Sciences (SB if needed, or elective	3-4		Completed CSCI 401W and CSCI 423
Requirements and GPA			Need minimum of 120 earned credits. Minimum of 2.0 GPA overall and in the major
# CREDITS EARNED	12-15		Attend Gradfest and Commencement

For more information, check the COMPUTER SCIENCE AND INFORMATION SYSTEMS Department website:
https://www.ric.edu/department-directory/department-computer-science-and-information-systems/computer-science-ba-bs

NOTE: Students cannot count toward the major more than TWO courses with grades below C-

NOTE: The minimum total credit count for the BS Computer Science major is 74 credits (depending on choices), and there are 40 credits of Gen Ed. with possibly 9 more depending on secondary language needs and RIC 100. However, 12 Gen Ed. credits for AQSR, M, NS could double-count, making the total 102 credits, leaving room for 18 credits that may need to include two secondary language courses and RIC 100, but could go toward a minor or electives.