B.A. in Computing and Informatics (O710)

Academic Program Guide for **New First-Year Students**
Department of Computer Science (computerscience@rowan.edu)

Rowan University Graduation Requirements for all Majors / Degrees

- Students must complete at least 120 semester hours (sh) of coursework that apply to their Rowan University degree.
- Students must have a cumulative GPA of at least 2.0 in Rowan University coursework. (Transfer courses/credit do not count toward the RU GPA.)
- A minimum of 30 sh of coursework must be completed at/through Rowan University.
- Only grades of "D-" or above may apply to graduation/degree requirements. (Some programs may set higher minimums.)
- Students must meet the Rowan Core and Rowan Experience Requirements.
  - An individual course can potentially satisfy one Rowan Core literacy and/or multiple Rowan Experience attributes.
  - Rowan Core & Rowan Experience designations are listed in course details in Section Tally (www.rowan.edu/registrar) and may also be searched on that site under "Attributes." A list of Rowan Core courses is here: https://confluence.rowan.edu/display/AS/Rowan+Core+Course+List.
- Students must apply for graduation and should do so for the term in which they will complete all program requirements.

Program-Specific Graduation Requirements for this Major / Degree

- Graduate courses may be counted as restricted electives when takes as senior privilege or part of the accelerated BS/MS degree program.

Rowan Core Requirements[1]

*Students must satisfy all **six** Rowan Core Literacies. A minimum total of 3 sh of coursework is required to satisfy each Literacy.*
With the exception of the 9 sh counted here for Communicative Literacy, credits attached to the courses in this section will apply elsewhere.

- ◯ (COML) Communicative Literacy: *Must be met by the following three courses or their official equivalents:*
  - ◯ COMP 01111 College Composition I (3 sh)   ◯ COMP 01112 College Composition II (3 sh)   ◯ CMS 04205 Public Speaking (3 sh)*
    *CMS 04205 is required as pre-requisite for one or more major courses in this program. Therefore, CMS 04205 or its transferred equivalent must be taken to fulfill this degree. CMS 04206 Digital Presentations does not substitute CMS 04205 Public Speaking.
- ◯ (ARTL) Artistic Literacy   *Recommendation from major:*
- ◯ (GLBL) Global Literacy   *Recommendation from major:*
- ◯ (HUML) Humanistic Literacy   *Recommendation from major:*   INTR 01265 (3 sh counted under non-program)
- ◯ (QNTL) Quantitative Literacy   *Recommendation from major:*   STAT 02260; MATH 03125 or 01130 (3 or 4 sh counted under non-program)
- ◯ (SCIL) Scientific Literacy   *Recommendation from major:*

> Subtotal of credits counted in this section: 9 sh

Rowan Experience Requirements

Students must satisfy all three Rowan Experience attributes. Credits attached to the courses in this section will apply elsewhere.

- ◯ (LIT) Broad-Based Literature Attribute   *Recommendation from major:*
- ◯ (WI) Writing Intensive Attribute   *Required for major:*   WA 01302 Technical Writing
- ◯ (RS) Rowan Seminar Attribute[2]   *Required for major:*   CS 00100 Computer Science Learning Community (1 sh)
      (required for all incoming students and transfers)

Non-Program Courses (minimum 18 sh)

Courses in this section cannot be in the major department.

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
STAT 02260, MATH 03125 or MATH 01130	Statistics I, Calculus: Techniques & Applications or Calculus I	Satisfies Quantitative Literacy			3, 3 or 4
INTR 01265	Computers and Society	Satisfies Humanistic Literacy			3
WA 01302	Technical Writing	Writing Intensive[3]			3
					Subtotal: 18 sh

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[1] The Rowan Core requirements are waived for transfer students with an earned A.A. or A.S. degree from a NJ community/county college.
[2] The Rowan Seminar requirement is waived for all students transferring 24 or more approved credits into Rowan University at the time of initial entry.
[3] The WA 01302 requirement was introduced in Fall 2022. Students who joined the BA in CI program and completed INTR 01266 Computers and Society (WI) prior to Fall 2022 can follow the previous program requirements and have WA 01302 waived.

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Major Requirements (41 sh)

SUMMARY OF MAJOR REQUIREMENTS

- 20 sh of Foundational Courses
- 9 sh of Upper-Level and Capstone Courses
- 12 sh of Computing and Informatics Restricted Electives
- 41 sh total

FOUNDATIONAL COURSES

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
PHIL 09130, MATH 03160 or MATH 03150	Introduction to Symbolic Logic, Discrete Structures or Discrete Math				3
CS 01104, CS 04171 or CS 04110	Introduction to Programming and Problem Solving, Creating Android Apps or Introduction to Programming Using Robots				3
CS 04103	Computer Science and Programming				4
CS 04210	Advanced Programming Workshop	2 sections of course must be taken with different topics (e.g., JS, C#)			2
CS 04210	Advanced Programming Workshop				2
CS 04225	Principles of Data Structures				3
CST 09210	Intro to Computer Networks & Data Communication				3
				Subtotal: 20 sh	

UPPER-LEVEL AND CAPSTONE COURSES

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
Database Coursework. One of the options below:					
MIS 02337 / CS 10337	Applied Database Technologies (3 credits)	Database Option 1			3
CS 10338 CS 10339	SQL In-depth (1 credit) AND Database Modeling and Design (2 credits)	Database Option 2			3
CS 10310	Introduction to Web Development				3
CS 10430	Computing & Informatics Capstone Experience				3
				Subtotal: 9 sh	

COMPUTING AND INFORMATICS RESTRICTED ELECTIVES

Choose 12 credits from the courses below.

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
○	BINF 07250	Intro to Bioinformatics				3
○	CS 01211	Principles of Information Security				3
○	CS 01295	Special Topics in Computer Science	multiple sections of this course with different topics can be taken.			3
○	CS 01395	Topics in Computer Science	multiple sections of course with different topics can be taken.			3
○	CS 02370	Introduction to Information Visualization				3
○	CS 02421	Big Data Tools and Techniques				3
○	CS 02485	Web and Text Mining				3
○	CS 03355	Cybersecurity, Management, Policy, and Risk				3
○	CS 04215	Computer Laboratory Techniques				3
○	CS 04350	Blockchain Programming				3
○	CS 04372	Advanced Android Programming				3
○	CS 04376	Advanced iOS Programming				3
○	CS 04444	Human Computer Interaction				3
○	CS 04471	Topics in Mobile Programming				3
○	CS 06205	Computer Organization				3
○	CS 06447	Introduction to IoT Upper Stack				3
○	CS 99300	Computer Field Experience				3
○	CS 99310	Advanced Learning Assistant Exp. in CS	Requires permission of instructor			3
○	CS 99490	Computer Science Research II				3

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	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
○	CS 10200	Fundamentals of Network Security				3
○	CS 10250	Cryptography and Blockchain Essentials				3
○	CS 10271	Introduction to Android Programming				3
○	CS 10275	Introduction to iOS Programming				3
○	CS 10340	Systems Administration				3
○	CS 10342	Web Server Platforms				3
○	CS 10344	Concepts of Computing Technologies				3
○	CST 02220	Database Administration I				3
○	CST 02230	Database Development				3
○	CST 02250	Database Security				3
○	CST 02320	Database Administration II				3
○	CST 02330	Database Programming				3
○	CST 02400	Database Warehouse Principles				3
○	CST 03201	Security +				3
○	CST 03215	Penetration Testing Fundamentals				3
○	CST 03218	Ethical Hacking Fundamentals				3
○	CST 03252	Foundations of Computer Forensics				
○	CST 03253	Applications for Computer Forensics				3
○	CST 03270	Introduction to Intrusion Detection				3
○	CST 03315	Advanced Penetration Testing				3
○	CST 03352	Digital Incident Handling				3
○	CST 03370	IDS/IPS Administration				3
○	CST 03372	Knowledge Management of IDS/IPS				3
○	CST 03410	Cyber Defense				3
○	CST 03418	Advanced Topics in Ethical Hacking				3
○	CST 03452	Advanced Digital Forensics Investigation				3
○	CST 03472	IDS/IPS for Cloud				3
○	CST 06220	Linux/Unix Essentials				3
○	CST 06225	Linux/Unix Administration				3
○	CST 06230	Microcomputer Operating Systems I: Workstation				3
○	CST 06235	Microcomputer Operating Systems II: Server				3
○	CST 06240	Linux Systems and Services				3
○	CST 06340	Introduction to Azure Cloud Services				3
○	CST 06343	Azure Management Tools and Security				3
○	CST 06440	Azure Security, Compliance, and Identity				3
○	CST 09290	Intermediate Networking				3
○	CST 09310	Network Support and Troubleshooting				3
○	CST 09320	Network Architectures, Models, and Protocols				3
○	CST 09325	Network Communication and Configuration				3
○	CST 09430	Switching, Routing, and Wireless Essentials				3
○	CST 09435	Enterprise Networking, Security, and Automation				3
○	BIOL 01301	Data Science for Biologists				3
○	ENT 06351	Technology Entrepreneurship				3
○	GEOG 16160	Digital Earth: Mapping & Geographic Info Science				3
○	GEOG 16260	Fundamentals of Geographic Information Systems				3
○	GEOG 16261	Cartography				3
○	GEOG 16360	Applications of Geographic Information Systems				3
○	GEOG 16462	Web-based GIS Mapping				3
○	HIST 05399	Digital History				3
○	MIS 02302	Emerging Technologies I				3
○	MIS 02303	Emerging Technologies II				3
○	MIS 02325	Project Management				3
						Subtotal: 12 sh

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Free Electives for this Major/Degree (51 sh)

Students should choose Free Electives that satisfy any Rowan Core or Rowan Experience requirements that are not fulfilled by Major or Non-Program courses.

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
					Subtotal: 51 sh

Total Program Credits Required for this Major / Degree: 120 SH

SUMMARY OF GRADUATION REQUIREMENTS

- 41 sh of Program Requirements
- 28 sh of Rowan Core and Rowan Experience
- 51 sh of Free Electives
- 120 sh total

Computing and Informatics Concentrations

If you declare a Concentration and choose the correct restricted electives from the list below, that designation will appear on your transcript.
Specific guidelines for these optional Concentrations can be found here: https://academics.rowan.edu/csm/departments/cs/advising/ba_ci/concentrations.html

The following Concentrations are available for the Computing and Informatics major:

- Cybersecurity (C705)
- Dev Ops (C713)
- Cybersecurity Defense (C714) - *only available to those students pursuing both a C&I major with a CS minor*