Combined Advanced Degree Program
B.A. in Computing and Informatics + M.S. in Cybersecurity

Academic Program Guide for **New First-Year Students** (Effective Fall 2018)
Department of Computer Science (computerscience@rowan.edu)

Students who entered Rowan University prior to Fall 2018 should follow the guide for their program and start year in consultation with their advisor.

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

- A grade of C- or better in Calculus I, Discrete Structures, Introduction to Object Oriented Programming, Object Oriented Programming/Data Abstraction, Computer Organization, and Data Structures and Algorithms is required for graduation and to take any course that have the above courses as a prerequisite. This policy applies whether these courses are taken locally or transferred.
- 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)
○ (ARTL) Artistic Literacy   *Recommendation from major:*
○ (GLBL) Global Literacy   *Recommendation from major:*
○ (HUML) Humanistic Literacy   *Recommendation from major:*   INTR 01266 (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   *Recommendation from major:* INTR 01266 (3 sh counted under major)
○ (RS) Rowan Seminar Attribute[2]   *Recommendation from major:*

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 01266	Computers and Society (WI)	Satisfies Humanistic Literacy			3
					Subtotal: 18 sh

---

[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.

Combined Advanced Degree Program
B.A. in Computing and Informatics + M.S. in Cybersecurity

Major Requirements (42 sh)

SUMMARY OF MAJOR REQUIREMENTS

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

FOUNDATIONAL COURSES

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
CS 00100	Computer Science Learning Community	Not required for transfer students			1
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 Scientific Programming, 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
CS 01210	Intro to Computer Networks & Data Communication				3
					Subtotal: 21 sh

UPPER-LEVEL AND CAPSTONE COURSES

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
Database Coursework. One of the options below:					3
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 01205	Computer Laboratory Techniques				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 this course with different topics can be taken.			3
○	CS 04350	Blockchain Programming				3
○	CS 10250	Cryptography and Blockchain Essentials				3
○	CS 10271	Introduction to Android Programming				3
○	CS 04372	Advanced Android Programming				3
○	CS 10275	Introduction to iOS Programming				3
○	CS 04376	Advanced iOS Programming				3
○	CS 04471	Topics in Mobile Programming				3
○	CS 07252	Foundations of Computer Forensics				3
○	CS 07370	Introduction to Information Visualization				3
○	CS 07430	Human Computer Interaction				3

Combined Advanced Degree Program
B.A. in Computing and Informatics + M.S. in Cybersecurity

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
○	CS 07485	Web and Text Mining				3
○	CS 99300	Computer Field Experience	Requires permission of instructor. Field experience may be from 3 to 12 credits; however only 3 credits can apply to the program requirements.			3
○	CS 99310	Advanced Learning Assistant Exp. in CS	Requires permission of instructor			3
○	CS 10200	Fundamentals of Network Security				3
○	CS 10215	Penetration Testing Fundamentals				3
○	CS 10218	Ethical Hacking Fundamentals				3
○	CS 10340	Systems Administration				3
○	CS 10342	Web Server Platforms				3
○	CS 10344	Concepts of Computing Technologies				3
○	GEOG 16160	Intro to Mapping/Geographic Info Science				3
○	GEOG 16260	Geographic Info Science I				3
○	GEOG 16261	Cartography				3
○	MIS 02302	Emerging Technologies I				3
○	MIS 02303	Emerging Technologies II				3
○	MIS 02336	Advanced Database Management	Only available to MIS double majors			3
○	MIS 02325	Project Management				3
					Subtotal: 12 sh	

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

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:

- Blockchain Technologies and Cryptocurrencies (C716)
- Cyber Security (C705)
- Dev Ops (C713)
- Mobile Devices (C712)
- Cybersecurity Defense (C714) - *only available to those students pursuing both a C&I major with a CS minor*

Combined Advanced Degree Program
B.A. in Computing and Informatics + M.S. in Cybersecurity

Program Information

- In the final two semesters of the undergraduate portion of the CADP program, students should take four 3 credit graduate courses from any of the courses in the MS Program below. It is recommended that students take the Computer Science Foundation Courses in their final two semesters.
- These 12 credits will count towards the 30 credits required by the M.S. in Cybersecurity as well as the 120 credits required for the B.A. program.
- Students in the CADP programs are still required to fulfill the requirements of the undergraduate degree by the completion of their final undergraduate year including the four undergraduate program restricted electives.
- Only courses from the Cybersecurity Required Core Courses or the Cybersecurity Elective courses can count as undergraduate program restricted electives.
- If a student reverts back to the undergraduate major and does not fulfill the requirements of the MS program, they would need to fulfill the requirements of the undergraduate degree to graduate.

Program Requirements

The M.S. in Cybersecurity is a 30 credit-hour program. All students must complete 6 credits of foundation courses (2 courses) and 9 credits of core courses (3 courses). Students may complete this degree within 1 ½ to 2 years of study.

Foundation Courses – 6 s.h.

Course #	Course Name	Notes	Sem/Yr	Grade	Credits
CS 01501	Essentials of Computer Science I				3
CS 01502	Essentials of Computer Science II				3
				Subtotal:	6 s.h.

Required Core Courses – 9 s.h.

Course #	Course Name	Notes	Sem/Yr	Grade	Credits
CS 03500	Foundations of Cybersecurity				3
CS 03506	Cybersecurity Management, Policy, and Risk				3
CS 03570	Cyber Defense of Operating Systems and Networks				3
				Subtotal:	9 s.h.

Business Skills for IT Professionals – 6 s.h.

Students will be required to take one 3-credit course in strategic writing:

Course #	Course Name	Notes	Sem/Yr	Grade	Credits
MAPR 01547	Graduate Strategic Writing				3

Students must complete one elective course from the list below:

Course #	Course Name	Notes	Sem/Yr	Grade	Credits
MAPR 01561	Graduate Strategic Writing II				3
MGT 06521	Leadership Theory and Practice				3
MGT 07600	Predictive Analysis				3
				Subtotal:	6 s.h.

Combined Advanced Degree Program
B.A. in Computing and Informatics + M.S. in Cybersecurity

Electives – 9 s.h.

Students must complete three elective courses from the list below:

Course #	Course Name	Notes	Sem/Yr	Grade	Credits
CS 03580	Cloud Computing & the Internet of Things-Architectures and Security				3
CS 03551	Advanced Cybersecurity Principles and Applications				3
CS 07652	Cryptographic Algorithms				3
CS 09612	Network Security				3
CJ 09515	Law and Society				3
				Subtotal:	9 s.h.

Any graduate course taken outside of Rowan-CS must be **approved** prior to registration by the Cybersecurity Graduate Program Committee. Such an approval is on an individual basis. The interested student must submit in writing to the Cybersecurity Graduate Program Coordinator an explanation as to why they are interested in the course and how the course addresses one or more of the goals of the MS in Cybersecurity program. The student can expect a response from the Graduate Committee within 10 business days.

Minimum Required Grades and Cumulative GPA

The Master of Science in Cybersecurity is a Category 3 program.

For details regarding satisfactory academic progress and graduation requirements, please visit www.rowanu.com/policies.