## B.A. in Computing and Informatics (0710)

## 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.
  - o An individual course can potentially satisfy one Rowan Core literacy and/or multiple Rowan Experience attributes.
  - o Rowan Core & Rowan Experience designations are listed in course details in Section Tally (<a href="www.rowan.edu/registrar">www.rowan.edu/registrar</a>) 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<sup>1</sup>

		·
		all <b>six</b> Rowan Core Literacies. A minimum total of 3 sh of coursework is required to satisfy each Literacy. sh counted here for Communicative Literacy, credits attached to the courses in this section will apply elsewhere.
) (cd	OML) Communicative Litera	cy: Must be met by the following three courses or their official equivalents:
$\bigcirc$ co	OMP 01111 College Compos	sition I (3 sh) COMP 01112 College Composition II (3 sh) CMS 04205 Public Speaking (3 sh)*
	*CMS 04205 is required as pr	e-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.
) (AF	RTL) Artistic Literacy	Recommendation from major:
) (GI	BL) Global Literacy	Recommendation from major:
) (HI	JML) Humanistic Literacy	Recommendation from major: INTR 01265 (3 sh counted under non-program)
) (QI	NTL) Quantitative Literacy	Recommendation from major: STAT 02260; MATH 03125 or 01130 (3 or 4 sh counted under non-program)
) (sc	CIL) 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<sup>2</sup> 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,	Statistics I,				3,
MATH 03125 or	Calculus: Techniques & Applications or	Satisfies Quantitative Literacy			3 or
MATH 01130	Calculus I				4
INTR 01265	Computers and Society	Satisfies Humanistic Literacy			3
WA 01302	Technical Writing	Writing Intensive			3
				Cubtota	l. 10 ch

Subtotal: 18 sh

<sup>&</sup>lt;sup>1</sup> The Rowan Core requirements are waived for transfer students with an earned A.A. or A.S. degree from a NJ community/county college.

<sup>&</sup>lt;sup>2</sup> The Rowan Seminar requirement is waived for all students transferring 24 or more approved credits into Rowan University at the time of initial entry.

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

#### **UPPER-LEVEL AND CAPSTONE COURSES**

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
Database Cou	rsework.				
One of the op	tions below:				
MIS 02337 /	Applied Database Technologies (3 credits)	Database Ontion 1			3
CS 10337	Applied Database Technologies (5 credits)	Database Option 1			3
CS 10338	SQL In-depth (1 credit) AND	Database Ontion 2			3
CS 10339	Database Modeling and Design (2 credits)	Database Option 2			3
CS 10310	Introduction to Web Development				3
CS 10430	Computing & Informatics Capstone Experience				3
				Subtot	al· 9 sh

#### COMPUTING AND INFORMATICS RESTRICTED ELECTIVES

Choose 12 credits from the courses below.

.110030	t 12 Credits from ti	Te courses below.				
	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
$\bigcirc$	BINF 07250	Intro to Bioinformatics				3
$\bigcirc$	CS 01211	Principles of Information Security				3
$\bigcirc$	CS 01295	Special Topics in Computer Science	multiple sections of this course with different topics can be taken.			3
$\bigcirc$	CS 01395	Topics in Computer Science	multiple sections of course with different topics can be taken.			3
$\bigcirc$	CS 02370	Introduction to Information Visualization				3
$\bigcirc$	CS 02421	Big Data Tools and Techniques				3
$\bigcirc$	CS 02485	Web and Text Mining				3
$\bigcirc$	CS 03355	Cybersecurity, Management, Policy, and Risk				3
$\bigcirc$	CS 04215	Computer Laboratory Techniques				3
$\bigcirc$	CS 04350	Blockchain Programming				3
$\bigcirc$	CS 04372	Advanced Android Programming				3
$\bigcirc$	CS 04376	Advanced iOS Programming				3
$\bigcirc$	CS 04444	Human Computer Interaction				3
$\bigcirc$	CS 04471	Topics in Mobile Programming				3
$\bigcirc$	CS 06447	Introduction to IoT Upper Stack				3
$\bigcirc$	CS 99300	Computer Field Experience				3
$\bigcirc$	CS 99310	Advanced Learning Assistant Exp. in CS	Requires permission of instructor			3

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G 594940         Computer Science Research II         3           S 10205         Cryptography and Blockchain Essentials         3           CS 10227         Introduction to Android Programming         3           CS 10275         Introduction to 105 Programming         3           CS 10275         Introduction to 105 Programming         3           CS 10340         Systems Administration         3           CS 10341         Concepts of Computing Technologies         3           CS 103220         Database Administration II         3           CS 102230         Database Development         3           CS 102320         Database Post Programming         3           CS 102320         Database Programming         3           CS 102321         Database Programming         3           CS 102320         Database Programming         3           CS 102321         Departmental Testing Fundamentals         3           CS 102321         Ethical Hacking Fundamentals         3           CS 102325         Applications for Digital Forensics		Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
S 10200	$\bigcirc$	CS 99490		,	,		3
S 10250   Cryptography and Blockchain Essentials   3   3	_						3
CS 10271   Introduction to Android Programming   3   3   CS 10340   Systems Administration   3   3   CS 10340   Concepts of Computing Technologies   3   3   CS 10220   Database Administration   3   3   CS 10220   Database Administration   3   3   CS 10220   Database Perception   3   3   CS 102250   Database Security   3   3   CS 102250   Database Security   3   3   CS 102250   Database Security   3   3   CS 102250   Database Programming   3   CS 102330   Database Programming   3   CS 102330   Database Programming   3   CS 102330   Database Programming   3   CS 102400   Database Programming   3   CS 102400   Database Programming   3   CS 102400   Database Programming   3   CS 103215   Security + 3   3   CS 103252   Security - 3   Security + 3   3   CS 103252   Security - 3	~		,				3
St 20275   Introduction to iOS Programming   3   3   3   3   3   3   3   3   3	_	CS 10271					3
St 03420   Systems Administration   3   3   3   3   3   3   3   3   3	~						3
St 10342   Web Server Platforms   3   3   3   3   3   3   3   3   3	~						
St 30344   Concepts of Computing Technologies   3   3   3   3   3   3   3   3   3	_						
ST 02220   Database Administration	_		Concepts of Computing Technologies				
ST 02230	_						
CST 02320   Database Security   3   3   3   3   3   3   3   3   3	_		Database Development				
ST 02320   Database Administration	_						
ST 02330   Database Programming   3   3   3   3   3   3   3   3   3	_	CST 02320					
ST 02400   Database Warehouse Principles   3   3	_		Database Programming				
CST 03211   Security +	_						
CST 03215   Penetration Testing Fundamentals   3   3   3   3   3   3   3   3   3	_		·				
CST 03218   Ethical Hacking Fundamentals   3	_		·				
CST 03252   Foundations of Computer Forensics   3   3   3   3   3   3   3   3   3	_						
CST 03253         Applications for Digital Forensics         3           CST 03270         Introduction to Intrusion Detection         3           CST 03315         Advanced Penetration Testing         3           CST 03315         Digital Incident Handling         3           CST 03370         IDS/IPS Administration         3           CST 03371         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 Administration         3           CST 06220         Linux/Unix Administration         3           CST 06225         Linux/Unix Administration         3           CST 06235         Microcomputer Operating Systems II: Server         3           CST 06236         Microcomputer Operating Systems II: Server         3           CST 06237         Microcomputer Operating Systems II: Server         3           CST 06340         Linux Systems and Services         3           CST 06340         Introduction to Azure Cloud Services         3	_						
CST 03270   Introduction to Intrusion Detection   3   3	_		·				3
CST 03315   Advanced Penetration Testing   3   3	_						
CST 03352 Digital Incident Handling CST 03370 IDS/IPS Administration ST 03370 IDS/IPS Administration ST 03370 IDS/IPS Administration ST 03370 IDS/IPS Administration ST 03410 Cyber Defense ST 03410 Cyber Defense ST 03410 Cyber Defense ST 03418 Advanced Topics in Ethical Hacking ST 03418 Advanced Topics in Ethical Hacking ST 03452 Advanced Digital Forensics Investigation ST 03472 IDS/IPS for Cloud ST 06220 Linux/Unix Essentials ST 06225 Linux/Unix Administration ST 06225 Linux/Unix Administration ST 06226 Linux/Unix Administration ST 06227 Microcomputer Operating Systems I: Workstation ST 06230 Microcomputer Operating Systems II: Server ST 06240 Linux Systems and Services ST 06240 Linux Systems and Services ST 06340 Introduction to Azure Cloud Services ST 06340 Introduction to Azure Cloud Services ST 06340 Azure Management Tools and Security ST 06440 Azure Security, Compliance, and Identity ST 06440 Azur	_						
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CST 03372   Knowledge Management of IDS/IPS   3   3   CST 03410   Cyber Defense   3   3   3   CST 034110   Cyber Defense   3   3   3   CST 03412   Advanced Topics in Ethical Hacking   3   3   CST 03452   Advanced Digital Forensics Investigation   3   3   CST 03452   Advanced Digital Forensics Investigation   3   3   CST 03452   Advanced Digital Forensics Investigation   3   3   CST 06220   Linux/Unix Essentials   3   3   CST 06225   Linux/Unix Administration   3   3   CST 06235   Microcomputer Operating Systems I: Workstation   3   CST 06235   Microcomputer Operating Systems II: Server   3   CST 06235   Microcomputer Operating Systems II: Server   3   CST 06240   Linux Systems and Services   3   CST 06340   Linux Systems and Services   3   CST 06340   Linux Guerrico Introduction to Azure Cloud Services   3   CST 06340   Azure Management Tools and Security   3   CST 06340   Azure Security, Compliance, and Identity   3   CST 06340   Azure Security, Compliance, and Identity   3   CST 09320   Intermediate Networking   3   CST 09320   Network Architectures, Models, and Protocols   3   CST 09320   Network Architectures, Models, and Protocols   3   CST 09325   Network Communication and Configuration   3   CST 09335   Enterprise Networking, Security, and Automation   3   CST 09435   Enterprise Networking, Security, and Automation   3   CST 09435   Enterprise Networking, Security, and Automation   3   CST 09436   Enterprise Networking,	_						
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Science	_		Digital Earth: Mapping & Geographic Information				
GEOG 16261         Cartography         3           MIS 02302         Emerging Technologies I         3           MIS 02303         Emerging Technologies II         3           MIS 02325         Project Management         3	_						
MIS 02302         Emerging Technologies I         3           MIS 02303         Emerging Technologies II         3           MIS 02325         Project Management         3	_						
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		14113 02323	i roject management	1		Subtot	

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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
·				Subtot	al: 51 sh

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

SUMMARY OF GRADUATION REQUIREMEN
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- 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: <a href="https://academics.rowan.edu/csm/departments/cs/advising/ba\_ci/concentrations.html">https://academics.rowan.edu/csm/departments/cs/advising/ba\_ci/concentrations.html</a>

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

- Blockchain Technologies and Cryptocurrencies (C716)
- Cybersecurity (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

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