B.S. in Data Science

Academic Program Guide for **New First-Year Students** (Effective Fall 2023)
Department of Mathematics (mathadvising@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

- Students must receive a grade of C- or better in all courses satisfying Major requirements.

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:*
- ○ (QNTL) Quantitative Literacy   *Recommendation from major:*   MATH 01130 (4 sh counted under Major)
- ○ (SCIL) Scientific Literacy   *Recommendation from major:*

▪ 9 sh counted in this section

Rowan Experience Requirements[2]

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:*
- ○ (RS) Rowan Seminar Attribute[2]   *Recommendation from major:*

▪ 0 sh counted in this section

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
CS 04103	Computer Science and Programming			>= C-	4
					Subtotal: 18 sh

▪ 18 sh counted in this section

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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.

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Major Requirements (63 sh)

SUMMARY OF MAJOR REQUIREMENTS

- 27 sh of Foundational Courses
- 27 sh of Upper-Level and Research Courses
- 9 sh of Data Science Electives
- 63 sh total

FOUNDATIONAL COURSES

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
DS 01100	Introduction to Data Science			>= C-	3
CS 01104	Introduction to Programming and Problem Solving	Python Section		>= C-	3
CS 04225	Principles of Data Structures			>= C-	3
MATH 01130	Calculus I	Satisfies Quantitative Literacy		>= C-	4
MATH 01131	Calculus II			>= C-	4
MATH 01210	Linear Algebra			>= C-	3
MATH 01230	Calculus III			>= C-	4
MATH 03150	Discrete Math			>= C-	3
				Subtotal:	27

UPPER-LEVEL AND RESEARCH COURSES

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
CS 02421	Big Data Tools and Techniques			>= C-	3
CS 04430	Database Systems: Theory and Programming			>= C-	3
CS 07370	Introduction to Information Visualization			>= C-	3
CS 07455	Machine Learning I			>= C-	3
CS 02480 or STAT 02340	Introduction to Data Mining or Elements of Statistical Learning			>= C-	3
STAT 02320	Concepts in Statistical Data Analysis			>= C-	3
STAT 02360	Probability and Random Variables			>= C-	3
DS 01390	Data Science Research I			>= C-	3
DS 01490	Data Science Research II			>= C-	3
				Subtotal:	27

DATA SCIENCE ELECTIVES (CHOOSE ANY 3 FOR 9 S.H.)

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
○	CS 04215	Computer Lab Techniques			>= C-	3
○	CS 02440	Data Warehousing			>= C-	3
○	CS 07342	Algorithms for the Data Scientist			>= C-	3
○	CS 02485	Web and Text Mining			>= C-	3
○	DS 02395	Special Topics in Data Science			>= C-	3
○	STAT 02311	Statistical Computing			>= C-	3
○	STAT 02350	Regression Analysis			>= C-	3
○	STAT 02371	Design of Experiments: Analysis of Variance			>= C-	3
○	STAT 02450	Advanced Data Analysis (Multivariate and Bayesian)			>= C-	3
					Subtotal	9

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Free Electives for this Major/Degree (30 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: 30 sh

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