

B.S. in Mathematics

Academic Program Guide for **New First-Year Students** (Effective Fall 2019) 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 Requirements¹

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:* (sh counted under Non-Program or Free Elective categories)
- (GLBL) Global Literacy *Recommendation from major:* (sh counted under Non-Program or Free Elective categories)
- (HUML) Humanistic Literacy *Recommendation from major:* (sh counted under Non-Program or Free Elective categories)
- (QNTL) Quantitative Literacy *Recommendation from major:* MATH 01130 (4 sh counted under major)
- (SCIL) Scientific Literacy *Recommendation from major:* PHYS 00220 (4 sh counted under non-program)

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:* MATH 01498 (3 sh counted under major)
- (RS) Rowan Seminar Attribute² *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
PHYS 00220	Introductory Mechanics	Satisfies Scientific Literacy	Fall/2	>= D-	4
PHYS 00222, or PHYS 00221 or CS 04225	Intro to Electricity & Magnetism, or Intro to Thermodynamics, Fluids, Waves & Optics or Principles of Data Structures		Spr/2	>= D-	4, or 4 or 3
CS 04103	Computer Science and Programming		Fall/1	>= D- ³	4
PHIL 09130	Intro to Symbolic Logic		Fall/1	>= C-	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.

³ Students need a C- or better in CS 01104 to get into MATH 01332 (Numerical Analysis).

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Major Requirements (63 sh)

SUMMARY OF MAJOR REQUIREMENTS

- 21 sh of Foundational Courses
 - 15 sh of Mid-Level Courses
 - 27 sh of Mathematics Restricted Electives
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- 63 sh total

FOUNDATIONAL COURSES

Course #	Course Name	Course Designations / Notes	Sem/Yr	Grade	Credits
MATH 03150	Discrete Mathematics		Spr / 1	>= C-	3
MATH 01130	Calculus I	Satisfies Quantitative literacy	Fall / 1	>= C-	4
MATH 01131	Calculus II		Spr / 1	>= C-	4
MATH 01230	Calculus III		Fall / 2	>= C-	4
MATH 01210	Linear Algebra		Fall / 2	>= C-	3
MATH 01231	Ordinary Differential Equations		Spr / 2	>= C-	3
STAT 02320	Concepts in Statistical Data Analysis		Spr / 2	>= C-	3
					Subtotal: 24 sh

MID-LEVEL COURSES

Course #	Course Name	Course Designations / Notes	Sem/Yr	Grade	Credits
MATH 01340	Modern Algebra I		Fall / 3	>= C-	3
MATH 01330	Introduction to Real Analysis I		Fall / 3	>= C-	3
STAT 02360	Probability & Random Variables		Spr / 2	>= C-	3
MATH 01430	Introduction to Complex Analysis		Spr / 3	>= C-	3
MATH 01498	Mathematics Seminar	Satisfies WI requirement	Spr / 4	>= C-	3
					Subtotal: 15 sh

MATHEMATICS RESTRICTED ELECTIVES

Choose 24 s.h. of courses from the following two banks (a maximum of two courses can be taken from the second bank):

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
First Bank:					
<input type="radio"/>	MATH 01205	Technological Tools for Discovering Mathematics		>= C-	2
<input type="radio"/>	MATH 01310	College Geometry		>= C-	4
<input type="radio"/>	MATH 01331	Intro to Real Analysis II		>= C-	3
<input type="radio"/>	MATH 01341	Modern Algebra II		>= C-	3
<input type="radio"/>	MATH 01354	Intro to Topology		>= C-	3
<input type="radio"/>	MATH 01332	Numerical Analysis		>= C-	3
<input type="radio"/>	STAT 02340	Elements of Statistical Learning		>= C-	3
<input type="radio"/>	STAT 02361	Mathematical Statistics		>= C-	3
<input type="radio"/>	STAT 02371	Design of Experiments: Analysis of Variance		>= C-	3
<input type="radio"/>	MATH 03400	Applications of Mathematics		>= C-	3
<input type="radio"/>	MATH 01421	Mathematics Field Experience		>= C-	3
<input type="radio"/>	MATH 01386	Introduction to Partial Differential Equations		>= C-	3
<input type="radio"/>	MATH 01352	Theory of Numbers		>= C-	3
<input type="radio"/>	MATH 01410	History of Mathematics		>= C-	3
<input type="radio"/>	MATH 03411	Deterministic Models in Operations Research		>= C-	3
<input type="radio"/>	MATH 03412	Stochastic Models in Operations Research		>= C-	3
Second Bank (you may choose at most 2 of the courses below to replace two of the courses from the First Bank above):					
<input type="radio"/>	CS 07340	Design and Analysis of Algorithms	Prereqs.: CS 04222 & CS 07210		3
<input type="radio"/>	CS 07422	Theory of Computing	Prereqs.: CS 04222 & CS 07210		3
<input type="radio"/>	PHYS 00310	Analytical Mechanics			4
<input type="radio"/>	PHYS 00410	Quantum Mechanics I			4
<input type="radio"/>	PHYS 00300	Modern Physics			3

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Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
<input type="radio"/> PHYS 00330	Mathematical Physics				3
<input type="radio"/> PHYS 00430	Statistical Physics				4
<input type="radio"/> PHYS 00320	Electricity and Magnetism I				4
<input type="radio"/> CHEM 08401	Physical Chemistry I				3
<input type="radio"/> CHEM 08402	Physical Chemistry II				3
Subtotal: 24 sh					

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