

What to take next?¹

A student finishing a course may want to know what to do next:

- To which majors or minors can you apply your current course?
- What courses can you take next, after your current course?

To get the best and most complete answers to these questions, a student should consult their department advisor, and/or look in the student catalogue.

Here are some guidelines:

- For each course on this list, you will find:
 - All further courses for which the current course is a prerequisite.
 - All majors and minors (within the Department of Mathematics and Computer Science) for which the current course is required.
- Exception: most of the courses listed as required for the Applied Math major can also be taken over at NJIT. See your department advisor or your student catalogue for details.
- Students should also look here at listings for courses previously taken. For instance, Calculus III students should check the listing for Calculus II, to identify courses they are ready to take but haven't taken yet.
- The latest update of this document is also available at <http://newark.rutgers.edu/~mosher/PostRequisities.pdf>

Mathematics courses

640:103 Math for Liberal Arts

- Satisfies the Mathematics Proficiency requirement for all Rutgers–Newark undergraduates.
- This course is not a prerequisite for any other Math courses.

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640:113 or 112: College Algebra

- Satisfies the Mathematics Proficiency requirement for all Rutgers–Newark undergraduates.
- Prerequisite for:
 - 640:114 Precalculus (itself a prerequisite for 640:135 Calculus 1).
 - 640:119 Basic Calculus (required for IS majors and Rutgers Business School students).

640:114 Precalculus

- Prerequisite for 640:135 Calculus 1.

640:119 Basic Calculus

- Required for IS majors and all Rutgers Business School students.
- Credit not given for both 640:119 and 640:135.
- Prerequisite for:
 - 640:237 Discrete Structures (required for IS major, who should take it *As Soon As Possible*).
 - 640:219 Basic Linear Algebra (required for IS major)
 - 640:327 Probability and Statistics, or any other statistics course (required for IS major).

640:135 Calculus I

- Required for Math major/minor and CS major/minor, and Applied Math major.
- Credit not given for both 640:119 and 640:135.
- Prerequisite for:
 - 640:136 Calculus II (required for Math major/minor, Applied Math major, CS major).
 - 640:219 Basic Linear Algebra (required for IS majors, also recommended for interested students in business, social sciences, or liberal arts).
 - 640:237 Discrete Structures (required for CS/IS majors, CS minors, who should take it *As Soon As Possible*).
 - 640:327 Probability and Statistics (required for Applied math major, Math minor, CS major).

640:136 Calculus II

- Required for Math major/minor and CS major, and Applied Math major.
- Prerequisite for:
 - 640:235 Calculus III (required for Math major/minor, Applied Math major, CS major).
 - 640:238 Foundations of Modern Mathematics (required for Math majors, who should take it *As Soon As Possible*).
 - 640:314 Elementary Differential Equations (required for Math major/minor, Applied Math major).
 - 640:350 Linear Algebra (required for Math major/minor, Applied Math major, who should take it *As Soon As Possible*).
 - 640:473 Numerical Analysis (required for CS major, Math minor, Applied math major; also has a prerequisite of 198:101).
- *Special note to CS majors:* you can get a Math minor with just two more courses: 640:314 and 640:350.

640:155 Honors Calculus I

- Prerequisite for:
 - 640:156 Honors Calculus II.
 - Also, same courses as 640:135 Calculus I.

640:156 Honors Calculus II

- Prerequisite for same courses as 640:135 Calculus II.

640:219 Basic Linear Algebra

- Required for IS major.

640:235 Calculus III

- Required for Math major/minor and CS major, and Applied Math major.
- Prerequisite for:
 - 640:311 Advanced Calculus I (required for Math major, also has prerequisites of 640:238 and 640:350).
 - 640:410 Vector Analysis (elective for Math major).
 - Other math major electives (see student catalogue for details).

640:237 Discrete Structures

- Required for CS/IS major, CS minor. This course or 640:238 required for Applied Math Major (640:238 preferred).
- Prerequisite for:
 - 198:335 Data structures and algorithm design (required for CS major/minor, IS major, who should take it *As Soon As Possible*).

640:238 Foundations of Modern Mathematics

- Required for Math major. This course or 640:237 required for Applied Math Major (640:238 preferred).
- Satisfies writing requirement.
- Prerequisite for:
 - 640:311 Advanced Calculus I (required for Math major, also has prerequisites of 640:235 and 640:350).
 - Most Math major electives (see student catalogue for details).

640:311 Advanced Calculus I

- Required for Math major.
- Prerequisite for:
 - 640:312 Advanced Calculus II (required for Math major)
 - 640:403 Introductory theory of functions of a complex variable (elective for math major)

640:314 Elementary Differential Equations

- Required for Math major/minor and for Applied Math major.
- *Special note to CS majors:* you can get a Math minor with just two more courses: 640:314 and 640:350.
- Prerequisite for:
 - 640:423 Elementary Partial Differential Equations (required for Applied Math major, elective for Math major)

640:327 Probability and Statistics

- Required for CS major, Applied Math Major, and Math minor. This or another Statistics course is required for IS major.

640:350 Linear Algebra

- Required for Math major/minor and Applied Math major.
- *Special note to CS majors:* you can get a Math minor with just two more courses: 640:314 and 640:350.
- Prerequisite for:
 - 640:311 Advanced Calculus I (required for Math major, also has prerequisites of 640:235 and 640:238).
 - 640:451 Abstract Algebra I (elective for Math major, also has prerequisite of 640:238).
 - Other Math major electives (see student catalogue).

640:423 Elementary Partial Differential Equations

- Required for Applied Math major. Elective for Math Major.

640:441 Topology I

- Elective for Math major.
- Prerequisite for 640:442 Topology II.

640:451 Abstract Algebra I

- Elective for Math major.
- Prerequisite for 640:452 Abstract Algebra II.

640:473 Numerical Analysis

- Required for CS major, Applied Math major, and Math minor. Elective for Math major.

640:475 Applied Math I

- Required for Applied Math major. Elective for Math major.
- Prerequisite for 640:476 Applied Math II.

640:476 Applied Math II

- Required for Applied Math major. Elective for Math major.

Computer Science Courses

198:101 Computers and Programming I

- Required for CS/IS/Math/Applied Math majors and CS minor.
- Prerequisite for:
 - 198:102 Computers and Programming II (required for CS/IS/Math/Applied Math majors and CS minor)
 - 26:198:265 Information Systems and Productivity Toolware (required for IS major, offered at NJIT).
 - 26:198:350 Computers and Society (required for IS major, offered at NJIT).

198:102 Computers and Programming II

- Required for CS/IS/Math/Applied Math majors and CS minor.
- Prerequisite for:
 - 198:251 Computer Organization (required for CS major).
 - 26:198:270 Multimedia Information Systems (required for IS major, offered at NJIT)
 - 26:198:280 Programming Language Concepts (required for CS/IS major and CS minor, offered at NJIT)
 - 198:335 Data structures and algorithm design (required for CS/IS major, CS minor; also has a prerequisite of 640:237).

198:251 Computer organization

- Required for CS major, recommended for IS major.
- Prerequisite for several courses recommended for CS/IS majors that are offered at NJIT (see student catalogue).

198:335 Data structures and algorithm design

- Required for CS/IS major and CS minor.
- Prerequisite for:
 - 26:198:332 Principles of operating systems (required for CS/IS majors, offered at NJIT).
 - 198:431 Introduction to Database Systems (required for IS majors).
 - 198:435 Advanced data structures and algorithm design (required for CS majors, offered at NJIT).
 - Several other courses recommended for CS/IS majors that are offered at NJIT (see your student catalogue).

198:431 Introduction to Database Systems

- Required for IS major
- Prerequisite for:
 - 26:198:465 Advanced Information Systems (required for IS majors, offered at NJIT)

198:435 Advanced data structures and algorithm design

- Required for CS major