Mathematics Program

A Dual Admissions Program with Rutgers-Newark, Kean University and New Jersey City University
Division of Mathematics and Physics — Curriculum Code: 0604
Will Earn Upon Program Completion: Associate in Science (A.S.) Degree

Why major in Mathematics?

Mathematics encompasses logic and methodology of reasoning, and provides the tools for critical thinking and decision making. The program is designed for students who intend to pursue a baccalaureate degree in mathematics, mathematics education or a related field and emphasizes methodical problem-solving techniques. The program develops fundamental knowledge in proof and theory, applications, and algorithms. Developing an appreciation for and proficiency in using graphing utilities and other technological devices prepares you for success in mathematically rich courses.

If I major in Mathematics, can I transfer to an upper-division college or university?

You may choose to participate in the Dual Admissions program with Rutgers University-Newark, Kean University, or New Jersey City University. Essex County College's transfer/articulation agreements with other area four-year colleges provide smooth transfer for A.S. graduates.

Are there any requirements I must satisfy before I start taking courses in my major?

A solid foundation in all aspects of precalculus mathematics is essential for success in advanced mathematics courses. A knowledge of college algebra, trigonometry, and geometry is necessary.

How long will it take for me to complete this degree?

If you do not need developmental course work and you register for an average of 15-16 credits per semester, you can complete the degree in two years. You may shorten the time by taking courses in the summer sessions.

Where should I direct specific questions about this program?

Call the Division at (973) 877-3302/3303.

Upon completion of this program, graduates will be able to:

- Demonstrate knowledge of the fundamental concepts and theories from calculus, differential equations, linear algebra and discrete mathematics;
- Utilize various problem-solving and critical-thinking techniques to set up and solve applied problems in engineering, sciences, business and technology fields;
- Communicate accurate mathematical terminology and notation in written and/or oral form in order to explain strategies to solve problems as well as to interpret found solutions; and
- Use appropriate technology, such as graphing calculators and computer software, effectively as a tool to solve such problems as those describe above.

Mathematics — A. S. Degree Program

GENERAL EDUCATION REQUIREMENTS:
(36 credits)

Communications (6 credits)

ENG	101	College Composition I	3
ENG	102	College Composition II	3

Social Science (6 credits)

Select a course from: ANT 101, 105; POL 101, 104; PSY 101, 102, 219; or SOC 101, 108	3
Select a course from: ECO 101 or 102	3

Lab Science (12 credits)

MTH	121	Calculus with Analytic Geometry I	4
PHY	103	College Physics I	4
PHY	104	College Physics II	4

Humanities (12 credits)

Select an English course from: ENG 205, 208, 215, 221, 222, 232, 237, 238, 242, 250, 263, or 264	3
Select a History course from: HST 101, 102, 111, 112, 121, 122, 131, 132, 134, 135, 136, 137, 161, 162	3
Select a course from: ART 100, 101, 102 **or** MUS 100, 108, or 109	3
Select one of the following without repeating above courses: ART 100, 101, 102, 200; MUS 100, 108, 109; ARB 101, 102; CIN 101; ENG 205, 208, 215, 221, 222, 232, 237, 238, 242, 250, 263, 264; FRN 101, 102; ITL 101, 102; PHI 101; REL 105; SPN 101, 102, 201, 202; HST 101, 102, 111, 112, 121, 122, 131, 132, 134, 135, 136, 137, 161, 162	3

MAJOR COURSE REQUIREMENTS:
(22 credits)

MTH	122	Calculus with Analytic Geometry II	4
MTH	221	Calculus with Analytic Geometry III	4
MTH	222	Differential Equations	4
MTH	136	Discrete Mathematics	3
MTH	239	Introduction to Linear Algebra	3
CSC	121	Computer Science I	4

ADDITIONAL COURSE REQUIREMENTS:
(7 credits)

ACC	101	Principles of Accounting I	4
Free elective			3

Total Credits Required for Degree **65**

RECOMMENDED SEQUENCE OF COURSES:*

First Semester

MTH	121	Calculus with Analytic Geometry I	4
PHY	103	College Physics I	4
CSC	121	Computer Science I	4
ENG	101	College Composition I	3

Second Semester

MTH	122	Calculus with Analytic Geometry II	4
PHY	104	College Physics II	4
CSC	122	Computer Science II	4
ENG	102	College Composition II	3

Summer

History requirement	3

Third Semester

MTH	221	Calculus with Analytic Geometry III	4
MTH	136	Discrete Mathematics	3
200-level English literature requirement			3
ART/MUS requirement			3
Social Science requirement			3

Fourth Semester

MTH	222	Differential Equations	4
MTH	239	Introduction to Linear Algebra	3
Economics requirement			3
Humanities requirement			3
Free elective			3

***NOTE**: This plan assumes the completion of all required developmental courses in reading, writing, and mathematics as well as other pre- and co-requisites for some of the courses, as listed in the Course Descriptions section.