

Mathematics and Statistics

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Click the appropriate links for [Mathematics courses](#), [Mathematics Education courses](#), and [Statistics courses](#).

The Department of Mathematics and Statistics offers major programs in five areas: liberal arts mathematics; applied mathematics; mathematics secondary education; statistics; and mathematics education for elementary, early childhood, deaf and hard of hearing, and special education. In each of these programs, students are provided with a basic mathematical background which will be utilized in advanced study in one of these areas:

Mathematics: Liberal Arts: This program is built on taking a wide range of mathematics courses, including analysis and abstract algebra. Each student will develop a program, through advisement, of taking upper-level mathematics courses according to his/her own interests. These courses will reflect the student's goals: to develop their knowledge and appreciation of mathematics, to prepare them for careers in mathematics, and/or prepare them for future graduate study.

Mathematics: Applied Mathematics: The foundation of this program is based on differential equations and analysis. Students in this program have a great deal of flexibility in their choice of upper-level courses in order to allow students to pursue their interests in mathematics and statistics. This specialization prepares students to pursue careers in mathematics following graduation, and prepares students who wish to go on to graduate study in Applied Mathematics.

Mathematics: Secondary Education: In this program, students take mathematics and professional courses which prepare them to meet the educational requirements for the New Jersey certificate to teach mathematics K–12. Students participate in student-teaching experiences in both their junior and senior years.

Mathematics: Statistics: This program builds upon mathematical skills acquired in the freshman and sophomore years so that students become equipped with the knowledge necessary to enable them to apply advanced statistical techniques to a wide variety of real-life problems arising in application areas such as business, government, and research. Students are prepared to enter either graduate study or employment as a statistician.

Mathematics: Education–Elementary, Early Childhood, Deaf and Hard of Hearing, and Special Education: In this program, students take mathematics and professional courses which prepare them to meet the educational requirements for the New Jersey certificate to teach in their respective education field. Students wishing to take the mathematics Praxis test could also be certified to teach mathematics K–12.

Minors: The department offers minors in four areas: Mathematics, Statistics, Actuarial and Financial Risk Studies, and Quantitative Criminology.

Academic Regulations

Prerequisites:

If a student has not met the exact prerequisites of a course as stated in this Bulletin but believes that the requirements have been satisfied through equivalent experiences, the student may gain admission to the course with the approval of the department chair.

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Majors must earn a minimum grade of C– in a course which is prerequisite to another course in order to register for the subsequent course.

Graduation Requirements:

- A minimum of six course units in the major must be earned in the department. A minimum of four of the final six course units in the major must be earned in the department.
- In courses offered by the Departments of Mathematics and Statistics and Computer Science, a grade of C– or better must be earned for the course to satisfy a graduation requirement of the major, with the following exception:

A student may count two D or D+ grades in 300 or 400 level courses. At most one of these can be earned in a course specifically required for the major. Students should in mind that a course needs a grade of C- or better to be counted as a prerequisite for another course. Students in a mathematics teacher preparation program or who have a dual major in mathematics and elementary, early childhood education, special education, or deaf and hard of hearing/elementary education need a GPA of 2.75 overall before they can student teach.

Retention Standards:

- For majors in all specializations except statistics (e.g. Mathematics: Liberal Arts, Mathematics: Applied Mathematics, Mathematics: Secondary Education, and Mathematics: Education—those in the dual major in mathematics and elementary education, early childhood education, special education, or deaf and hard of hearing/elementary education):

Retention in the program is based on the following performance standards in these “critical content courses”:

- Students must earn a B- or better in either MAT 127 or MAT 128; and
- Students must earn a C or better in either MAT 200 or MAT 205.
- For majors in the Mathematics: Statistics specialization, retention in the program is based on the following performance standards in these “critical content courses”:
 - Students must earn a B- or better in MAT 125, MAT 127, or MAT 128; and
 - Students must earn a C or better in MAT 316 and STA 215.

Entrance/Transfer Standards:

- To enter or transfer into all mathematics specializations except statistics (e.g. Mathematics: Liberal Arts, Mathematics: Applied Mathematics, Mathematics: Secondary Education, and Mathematics: Education—those in the dual major in mathematics and elementary education, early childhood education, special education, or deaf and hard of hearing/elementary education), students must meet the following performance standards in these “foundation course”:
 - Students must earn a B- or better in MAT 125, MAT 127, or MAT 128;
 - Students must earn a C or better in MAT 200 or MAT 205.
- To enter or transfer into the Mathematics: Statistics specialization, students must meet the following performance standards in these “foundation courses”:

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- Students must earn a B- or better in MAT 125, MAT 127, or MAT 128; and
- Students must earn a C or better in MAT 316 and STA 215.

Honors: TCNJ awards honors at graduation based upon GPA. In addition, some Mathematics specializations offer majors the opportunity to earn departmental honors. The specific criteria for honors for the Liberal Arts, Applied Mathematics, and Statistics specializations is listed under that specialization.

Independent Study/Guided Study/Independent Research Courses

- At most one course unit of Independent Study, Guided Study, or Independent Research may count as one of the “Mathematics options” or “Statistics options” listed in the major requirements under “Courses in the major”.
- The total course load of a student taking Independent Study, Guided Study, or Independent Research should be at most 4.5 course units.
- Independent Study, Guided Study, or Independent Research may not be taken in order to improve a grade, or to replace a course that a student failed to sign up for.
- In exceptional circumstances, the above rules may be overruled by the department chair.
- A minimum 3.0 GPA in courses taken in the Department of Mathematics and Statistics is required of any student enrolling in Independent Study or Guided Study..

Course Waiver—If a student has a strong background in a particular course, then he/she may acquire or receive a course waiver in one of two ways: 1) credit by examination; or 2) waiver of the course through prior equivalent experience. Students given permission to waive a course are required to replace it with an upper-level (300 or 400) major course.

Calculus Readiness Requirement—Any student who has not satisfied the College’s calculus readiness requirements is not allowed to register for any calculus course offered by the Department of Mathematics and Statistics. The College’s calculus readiness requirements are as follows :

TCNJ Calculus Readiness Course Placement Criteria

SAT-Math score 650 or ACT score 29 or higher and four years of math including Algebra I, Algebra II, Geometry and Trigonometry Placed into Calculus

SAT-Math score between 600 and 640 or ACT score 27 or 28 and four years of math including Algebra I, Algebra II, Geometry and Trigonometry Allowed to register for Calculus but strongly advised prior to registering for Calculus to take Precalculus, at the college level either at TCNJ (MAT 096) or elsewhere.

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SAT-Math score between 550 and 590 or ACT score between 24 and 26 and at least two years of math including Algebra and Geometry. Placed into Precalculus (MAT 096). Upon completion of MAT 096, a student may take Calculus. (*MAT 096 does not count toward graduation but is considered credit-bearing for financial aid, tuition, and full-time status.*)

SAT-Math score below 550 or ACT score below 24 Placed into Intermediate Algebra, MAT 095. (*MAT 095 does not count toward graduation but is considered credit-bearing for financial aid, tuition and full-time status.*)

Note: Precalculus MAT 096 and Intermediate Algebra MAT 095 are offered every semester as well as during the Summer Sessions.

Study Abroad

One of the opportunities available to students pursuing a degree in Mathematics or Statistics is to study abroad for a semester or a year. Students interested in studying abroad should meet with their faculty advisor early in their college career to plan a curriculum so that they may complete their studies in four years. They will also need to meet with the Director of the [Center for Global Engagement](#). The students must receive approval from the chair of the department in order for courses taken abroad to count toward requirements for the major.

Mathematics Major: Liberal Arts

Requirements for the Major: Please see above for the program retention and graduation requirements. All Mathematics: Liberal Arts students are required to take 12 mathematics course units and a 0-course-unit orientation. The 12 course units will consist of the following **seven required** course units:

MAT 099/Orientation to Mathematics and Statistics	0 course units
MAT 128/Calculus B	1 course unit
MAT 200/Proof Writing through Discrete Mathematics	1 course unit
MAT 205/Linear Algebra: Theory and Applications	1 course unit
MAT 229/Multivariable Calculus	1 course unit
MAT 305/Abstract Algebra	1 course unit
MAT 310/Real Analysis	1 course unit
MAT 320/Complex Analysis	1 course unit

and **five additional** course units. The five additional course units can be any MAT courses at the 300- or 400-level. Two of these course units must be MAT courses at the 400-level. In addition, the senior capstone experience requirement is fulfilled by passing MAT 498 in the senior year.

Additional Required Correlates (two course units): Any two natural science courses from the list approved by the Department of Mathematics and Statistics, (posted on the department's website). One of the courses must be a 200-level or higher course. One of the courses must be a lab course.

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Honors: To receive departmental honors, a Mathematics:Liberal Arts major must complete the following requirements in addition to those required for the Mathematics:Liberal Arts major. The student must have a 3.5 GPA in their 300- and 400-level mathematics courses and take either:

- a. An additional 400-level course (which could be an independent study) and a semester of MAT 493/Independent Research II that builds upon a previous 400-level course.
- or*
- b. A full year of MAT 493/Independent Research II.

Based on their research, students must also write a mathematical paper, read and approved by three members of the department, and give a departmental presentation on it.

Suggested First-Year Course Sequence:

Fall

First Seminar (FSP) course	1 course unit
MAT 099/Orientation to Mathematics and Statistics	0 course units
MAT 127/Calculus A (if not exempted)*	1 course unit
MAT 200/Proof Writing through Discrete Mathematics	1 course unit
Foreign Language (if not exempted)**	1 course unit

Spring

MAT 128/Calculus B	1 course unit
WRI 102/Academic Writing (if not exempted)**	1 course unit
Foreign Language (if not exempted)***	1 course unit
Liberal Learning (arts and humanities or social sciences and history)	1 course unit

**It is recommended that students exempted from this course take Calculus B.*

*** It is recommended that students exempted from these courses take other liberal learning courses.*

****It is recommended that students exempted from these courses take other liberal learning courses. Note: Arabic 151 and 152, Chinese 151 and 152, Japanese 151 and 152, and Russian 151 and 152 (offered annually); and Persian 151 and 152 (offered occasionally) are intensive courses and carry two course units of credit each. Students should take this into account when planning a normal four-course semester.*

Mathematics Major: Applied Mathematics

Requirements for the Major: Please see above for program retention and graduation requirements. The Applied Math Specialization requires 12 course units in the major, plus fulfilling the MAT 498 capstone requirement, MAT 099, and 3 course units of correlate courses.

- A. Required Foundational Courses (6 course units)
 1. MAT 128/Calculus B
 2. MAT 229/Multivariable Calculus
 3. MAT 200/Proof Writing through Discrete Mathematics
 4. MAT 205/Linear Algebra: Theory and Applications
 5. MAT 326/Differential Equations
 6. MAT 310/Real Analysis
 7. MAT 099/Orientation to Mathematics & Statistics (0 Course units)

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- B. Applied Mathematics Options (3 course units required)
1. One 400 level course on the Applied Mathematics Options List
 2. Two additional 300 or 400 level courses on the Applied Mathematics Options List
- C. Mathematics/Statistics Options (3 course units required)
- Three MAT/STA courses at the 300 or 400 level. One of these courses may be replaced by STA 215. These courses are in addition to those satisfying Category B. At least one of these courses cannot appear on the Applied Mathematics Options List.
- D. MAT 498/Capstone in Applied Mathematics (1 course unit)
- E. Correlates (3 course units required)
1. Students must complete one of the following computer science courses:
 - i. CSC 215/Computer Science I for Science and Engineering, or
 - ii. CSC 250/Accelerated Computer Science 1 and 2
 2. 2 course units of a lab science. Acceptable courses are PHY 201, PHY 202, CHE 201, CHE 202, BIO 185, and any upper-level BIO course that counts towards the Biology Liberal Arts (BIOA) major.

Honors:

To receive departmental honors, a Mathematics: Applied Mathematics major must complete the following requirements in addition to those required for the Mathematics: Applied Mathematics specialization. The student must have a 3.5 GPA in their 300- and 400-level mathematics courses and take either:

- a. An additional 400-level course (which could be an independent study) and a semester of MAT 493/Independent Research II that builds upon a previous 400-level course.
- or**
- b. A full year of MAT 493/Independent Research II.

Based on their research, students must also write a mathematical paper, read and approved by three members of the department, and give a departmental presentation on it.

Suggested First-Year Course Sequence:

Fall

First Seminar (FSP) course	1 course unit
MAT 099/Orientation to Mathematics and Statistics	0 course units
MAT 127/Calculus A (if not exempted)*	1 course unit
MAT 200/Proof Writing through Discrete Mathematics	1 course unit
Foreign Language (if not exempted)**	1 course unit

Spring

MAT 128/Calculus B	1 course unit
WRI 102/Academic Writing (if not exempted)**	1 course unit
CSC (Computer Science) course	1 course unit

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Foreign Language (if not exempted)*** 1 course unit

**It is recommended that students exempted from this course take Calculus B.*

*** It is recommended that students exempted from these courses take other liberal learning courses.*

****It is recommended that students exempted from these courses take other liberal learning courses. Note: Arabic 151 and 152, Chinese 151 and 152, Japanese 151 and 152, and Russian 151 and 152 (offered annually); and Persian 151 and 152 (offered occasionally) are intensive courses and carry two course units of credit each. Students should take this into account when planning a normal four-course semester.*

Mathematics:Secondary Education

Requirements for the Major: Please see above for program retention and graduation requirements. An overview of the entire secondary-level teacher-preparation sequence and requirements can be found in the section of this bulletin for the [Department of Educational Administration and Secondary Education](#).

Students planning to teach high school mathematics should consult with advisors in both mathematics and secondary education in planning their academic program. These plans should take into account requirements for: the major, liberal learning, professional courses, and state certification. To be retained in the program, a student must earn at least a 2.5 cumulative grade point average (CGPA) before enrolling in the junior year education sequence. The student must establish a minimum 2.75 CGPA, obtain at least a C+ in MTT 390, and must have completed all required courses in the major in order to be allowed to student teach.

Candidates for a teacher-education certificate must establish a minimum 2.75 GPA in order to be allowed to student teach. Candidates for a teacher-education certificate must have a 2.75 or higher cumulative grade point average to successfully complete their teacher education program. They also must meet the state hygiene/physiology requirement, the state Harassment, Intimidation, and Bullying Prevention (HIB) training certificate requirement, and pass the appropriate Praxis examination. Teacher-education candidates will receive a “certificate of eligibility with advanced standing” which requires a candidate to be provisionally certified for his or her first year of teaching. After one year of successful teaching, the candidate is eligible for a permanent certificate.

Mathematics/Statistics Course Requirements: All Mathematics:Secondary Education students are required to take a minimum of ten mathematics/statistics course units, and a 0-course-unit orientation. The ten course units will consist of eight required course units and two MAT/STA options:

MAT 099/Orientation to Mathematics and Statistics	0 course units
MAT 200/Proof Writing through Discrete Mathematics	1 course unit
MAT 205/Linear Algebra: Theory and Applications	1 course unit
MAT 229/Multivariable Calculus	1 course unit
MAT 255/Perspectives on the Development of Mathematics	1 course unit
MAT 301/Number Theory	1 course unit
MAT 305/Abstract Algebra	1 course unit
MAT 316/Probability	1 course unit
MAT 351/Geometry	1 course unit
and two MAT/STA options which can be any MAT/STA courses at the 300/400 level	2 course units

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Content Methods and Professional Sequence Courses: All Mathematics:Secondary Education students are required to take the following methods and professional courses:

SED 224/Adolescent Learning and Development	1 course unit
EFN 299/School and Communities	1 course unit
SED 399/Pedagogy in Secondary Schools	1 course unit
SPE 323/Secondary Content Literacy in Inclusive Classrooms	1 course unit
EFN 398/Historical and Political Context of Schools	1 course unit
MTT 380/Methods of Teaching Mathematics I	1 course unit
MTT 390/Methods of Teaching Mathematics II	1 course unit
MTT 490/Student Teaching	2 course units
SED 498/Collaborative Capstone for Professional Inquiry	1 course unit

Additional Required Correlates:

CSC 220/Computer Science I	1 course unit
One science course (BIO 185, CHE 201, or PHY 201)	1 course unit
STA 215/Statistical Inference	1 course unit

Quantitative Reasoning Requirements:

MAT 127/Calculus A	1 course unit
MAT 128/Calculus B	1 course unit

Suggested First-Year Course Sequence:

Fall

First Seminar (FSP) course (Arts and Humanities or Social Change in Historical Perspective)	1 course unit
MAT 099/Orientation to Mathematics and Statistics	0 course unit
MAT 127/Calculus A*	1 course unit
MAT 200/Proof Writing through Discrete Mathematics	1 course unit
Liberal Learning course (Arts and Humanities or Social Change in Historical Perspective)	1 course unit

Spring

MAT 128/Calculus B	1 course unit
WRI 102/Academic Writing (if not exempted)**	1 course unit
STA 215/Statistical Inference	1 course unit
Science course (BIO 185, CHE 201, or PHY 201)	1 course unit

**It is recommended that students exempted from this course take Calculus B*

***It is recommended that students exempted from this course take another liberal learning course or a foreign language. Note: Arabic 151 and 152, Chinese 151 and 152, Japanese 151 and 152, and Russian 151 and 152 (offered annually); and Persian 151 and 152 (offered occasionally) are intensive courses and carry two course units of credit each. Students should take this into account when planning a normal four-course semester.*

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Mathematics Major: Education-Teacher Preparation for Elementary, Early Childhood, Deaf and Hard of Hearing, and Special Education majors

Requirements for the Major: Please see above for program retention and graduation requirements. Students should consult with advisors in both mathematics and in the School of Education in planning their academic program. These plans should take into account requirements for: the majors, liberal learning, professional courses, and state certification. To be retained in the program, a student must earn at least a 2.5 cumulative grade point average (CGPA) before enrolling in the junior year education sequence. The student must establish a minimum 2.75 CGPA, and must have completed all education prerequisites in order to be allowed to student teach.

Candidates for a teacher-education certificate must establish a minimum 2.75 GPA in order to be allowed to student teach. Candidates for a teacher-education certificate must have a 2.75 or higher cumulative grade point average to successfully complete their teacher education program. They also must meet the state hygiene/physiology requirement, the state Harassment, Intimidation, and Bullying Prevention (HIB) training certificate requirement, and pass the appropriate Praxis examination. Teacher-education candidates will receive a “certificate of eligibility with advanced standing” which requires a candidate to be provisionally certified for his or her first year of teaching. After one year of successful teaching, the candidate is eligible for a permanent certificate.

Mathematics/Statistics Course Requirements for the Major:

All Mathematics/Elementary Early Childhood, Deaf and Hard of Hearing, and Special Education students will be required to take a **minimum** of ten mathematics/statistics course units, and a 0 course unit orientation. Ten course units will consist of **nine required** course units, and a MAT/STA option:

MAT 099/Orientation to Mathematics and Statistics	0 course units
MAT 200/Proof Writing through Discrete Mathematics	1 course unit
MAT 205/Linear Algebra: Theory and Applications	1 course unit
MAT 229/Multivariable Calculus	1 course unit
MAT 255/Perspectives on the Development of Mathematics	1 course unit
MAT 301/Number Theory	1 course unit
MAT 305/Abstract Algebra	1 course unit
MAT 316/Probability	1 course unit
MAT 351/Geometry	1 course unit
STA 215/Statistical Inference	1 course unit
and one MAT/STA option which can be any MAT/STA course at the 300/400 level	1 course unit

Additional Required Correlate Course:

CSC 220/Computer Science I	1 course unit
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Quantitative Reasoning Requirements:

MAT 127/Calculus A	1 course unit
MAT 128/Calculus B	1 course unit

*Suggested First-Year Mathematics Course Sequence:**

Fall

MAT 127/Calculus A	1 course unit
MAT 200/Proof Writing through Discrete Mathematics	1 course unit

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Spring

MAT 128/Calculus B	1 course unit
STA 215/Statistical Inference	1 course unit

**Consult individual major in the School of Education for remaining courses.*

Mathematics Major: Statistics

Requirements for the Major

Please see above for program retention and graduation requirements. Statistics graduates need to have a strong underpinning in mathematics in addition to acquiring all the necessary statistical knowledge and skills. The **12-course** unit sequence consists of the following:

Required Courses: **Seven required** course units and a 0-course-unit orientation:

MAT 099/Orientation to Mathematics and Statistics	0 course units
MAT 200/Proof Writing through Discrete Mathematics	1 course unit
MAT 205/Linear Algebra: Theory and Applications	1 course unit
MAT 229/Multivariable Calculus	1 course unit
MAT 316/Probability	1 course unit
STA 215/Statistical Inference	1 course unit
STA 305/Regression Analysis	1 course unit
STA 410/Mathematical Statistics	1 course unit

Three statistics options chosen from the following courses:

STA 303/Design of Experiments	1 course unit
STA 304/Sampling and Non-Parametric Statistics	1 course unit
STA 306/Applied Multivariate Analysis	1 course unit
STA 307/Data Mining and Predictive Modeling	1 course unit
STA 314/Statistical Quality Control	1 course unit

Two additional options courses which can be chosen from any MAT/STA courses at the 300/400-level 1 course unit

The senior capstone experience requirement is fulfilled by taking STA 498 in the senior year.

Additional Required Correlates:

CSC 220/Computer Science I	1 course unit
Any two natural science course from the list approved by the Mathematics and Statistics department with a lab component	2 course units

Honors: To receive departmental honors, a Mathematics: Statistics major must complete the following requirements in addition to those required for the Mathematics: Statistics program:

They must have a 3.5 GPA in their 300-level and 400-level statistics and mathematics courses, and take a semester of STA 493/Independent Research II. Based on this research, students must also write a statistical paper, have it read and approved by members of the Statistics Committee, and give a presentation.

Suggested First-Year Course Sequence:

Fall

First Seminar (FSP) course	1 course unit
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MAT 099/Orientation to Mathematics and Statistics	0 course units
MAT 127/Calculus A (if not exempted)*	1 course unit
MAT 200/Proof Writing through Discrete Mathematics	1 course unit
Foreign Language (if not exempted)**	1 course unit

Spring

MAT 128/Calculus B	1 course unit
WRI 102/Academic Writing (if not exempted)**	1 course unit
Foreign Language (if not exempted)***	1 course unit
Liberal Learning course (Arts and Humanities or Social Sciences and History)	1 course unit

**It is recommended that students exempted from this course take Calculus B.*

*** It is recommended that students exempted from these courses take other liberal learning courses.*

****It is recommended that students exempted from these courses take other liberal learning courses. Note: Arabic 151 and 152, Chinese 151 and 152, Japanese 151 and 152, and Russian 151 and 152 (offered annually); and Persian 151 and 152 (offered occasionally) are intensive courses and carry two course units of credit each. Students should take this into account when planning a normal four-course semester.*

Minors in the Department of Mathematics and Statistics

Students planning to pursue a minor in Mathematics, Statistics, Actuarial and Finance Risk Studies, or Quantitative Criminology should apply to the department as soon as possible. The minor requirements will be defined by the Bulletin description at the time of application. Students must maintain the same mathematics and statistics cumulative average as required for graduation in the major.

Per TCNJ college policy, only one course taken as a part of the student's major may also be counted toward the student's minor; however, correlate courses for the major may be applied freely to the minor. Multiple minors may overlap by only one course.

Mathematics Minor

For a mathematics minor, a student must earn at least a C- in five MAT courses that are either MAT 128 or at the 200-level or above (except MAT 255, MAT 270). At least two of these courses must be at the 300/400 level. A minimum of four course units for the mathematics minor must be earned at The College of New Jersey.

Statistics Minor

For a statistics minor, a student must complete five courses as detailed below:

Required Courses: (2 course units)

STA 215/Statistics or Statistical Inference	1 course unit
STA 305/Regression Analysis	1 course unit

Three Options Courses Chosen From the Following List:

STA 303/Design of Experiments	1 course unit
STA 304/Sampling and Non-Parametric Statistics	1 course unit
STA 306/Applied Multivariate Analysis	1 course unit
STA 307/Data Mining and Predictive Modeling	1 course unit
STA 314/Statistical Quality Control	1 course unit
MAT 316/Probability	1 course unit
MAT 317/Linear Programming	1 course unit

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STA 318/Operations Research	1 course unit
STA 410/Mathematical Statistics	1 course unit
STA 492/Internship II in Statistics	1 course unit
STA 494/Seminar in Statistics	1 course unit

TOTAL: 5 COURSE UNITS

A minimum of three course units for the statistics minor must be earned at The College of New Jersey.

Actuarial and Financial Risk Studies Minor

For the Actuarial and Financial Risk Studies Minor, a student must complete the prerequisites of MAT 125 or 127, MAT 128, MAT 200 and STA 215, and complete five required courses as follows:

Students must take five courses from the following two groups. The choice of courses depends on the major (see details following the two groups). The groups are:

GROUP A:

MAT 229/Multivariable Calculus	1 course unit
STA 305/Regression Analysis <i>Gives VEE-Applied Statistics credit.</i>	1 course unit
MAT 316/Probability	1 course unit
STA 410/MAT 318/Mathematical Statistics	1 course unit

GROUP B:

ECO 102/Principles of Macroeconomics	1 course unit
FIN 201/Fundamental Financial Methods AND MIT 201/Information Systems: Concepts and Applications <i>Both of these are half-courses.</i>	1 course unit total
FIN 310/Introduction to Investments and Financial Analysis <i>Gives VEE-Corporate Finance credit.</i>	1 course unit
FIN 360/Financial Modeling OR FIN 410/Portfolio Management and Derivative Securities <i>Only one of these two courses can count towards the minor.</i>	1 course unit

For Statistics Majors: Students will select one course from Group A, which are all required in the Statistics major, and double-count this course towards the Minor. They will then take four courses listed in Group B.

For Business Majors: Students will choose one course from Group B (which will be the double-counting course), and the four courses from Group A.

For Mathematics Majors: Students may choose 5 courses from Groups A and B but it is highly recommended that MAT 316 and STA 410/MAT 318 are among those selected.

For Other Majors: Selections from Groups A and B as advised.

Note: While only ECO 102 is listed in Group B, it is recommended that all students take ECO 101/*Principles of Microeconomics* as an elective in order to obtain VEE-Economics credit.

Quantitative Criminology Minor

For the Quantitative Criminology Minor, a student must complete the prerequisites of

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MAT 125 or MAT 127, STA 215, and one semester of Criminology (CRI 205 or CRI 215). Students completing the minor will not be required to complete CRI 100 as the prerequisite for CRI 205.

Students must take five courses from the following two groups. The choice of courses depends on the major (see details following the two groups). The groups are:

GROUP A:

STA 303/Design of Experiments	1 course unit
STA 305/Regression Analysis	1 course unit
STA 306/Applied Multivariate Analysis	1 course unit
STA 307/Data Mining and Predictive Modeling	1 course unit
STA 318/Operations Research	1 course unit

GROUP B:

CRI 304/Victimology	1 course unit
CRI 306/Research Methods	1 course unit
CRI 340/International Terrorism	1 course unit
CRI 350/Advanced Criminology: Juvenile Delinquency and Justice	1 course unit
CRI 498/Senior Capstone in Policy Analysis	1 course unit

Note: CRI 390 (Research Course in Criminology) may be substituted for either CRI 340 or CRI 350 with permission of Dr. Holleran.

For Students Majoring in Statistics: Students will be able to double-count STA 305 since this course is required in the Statistics major. They will then take four courses from the five courses listed in Group B.

For Students Majoring in Criminology: Students will be required to take the sequence MAT 125 and STA 215 to enable them to meet the prerequisites above. Students will be able to double-count one of the Advanced Criminology courses from Group B (i.e., 350, 351, or 352). Students will then take 4 courses from Group A.

For Students Majoring in Mathematics: Students must choose at least two courses from both Groups A and B, and five courses in total.

For Students in Other Majors: Selections from Groups A and B as advised by the Department of Criminology and by the Department of Mathematics and Statistics.