

Mathematics and Statistics

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The Department of Mathematics and Statistics offers majors in mathematics and statistics that prepare students for careers in business, government, research, and teaching. Students considering such majors should consult an advisor during their first or second semester to plan the proper sequence of courses and should continue to consult the advisor at least once each semester. Minors in mathematics and statistics are also offered. Students are reminded that requirements to complete a minor are determined by the major department.

General Education Requirement (GER) MATH 100, 104, 105, 110, 111, 125, 150, 155, 160, STAT 113, 212, 213 may be used to fulfill Academic Foundations/Stage 1, Group B (Quantitative Reasoning). MATH 261(W) may be used to fulfill Broad Exposure/Stage 2, Group B; MATH 376(W) may be used to fulfill Focused Exposure/Stage 3, Group B. At most, 6 credits used to satisfy the General Education Requirement may be credited toward a minor in the department. We suggest, but do not require, that students who are thinking of continuing the study of mathematics or statistics on the doctoral level elect to take French, German, or Russian to meet the Foreign Language Requirement for graduation.

Distribution Requirement See Appendix A for the Distribution Requirement, which was replaced by the General Education Requirement in fall 2001, and which may be binding on students who matriculated prior to fall 2001.

Credit and Course Exemption The department offers credit or course exemption based on standard examinations such as AP and CLEP. Inquiries should be made at the department office.

Mathematics Proficiency and Placement

Effective spring 2000, all students entering Hunter College must demonstrate proficiency (mastery of basic skills) in mathematics as evidenced by scoring 25 or greater (out of 40) on parts 1 and 2 of the CUNY 5-part math exam. Certain categories of students are exempt from parts 1 and 2 of this exam. See the Testing Requirements section of this catalog or check with the Testing Office for more information. Subsequent placement into all mathematics and statistics courses is determined by the student's score on the remaining parts of this exam. New students entering the College take this test in its entirety when they take the other placement exams in reading and writing. Continuing students at the College who have already taken parts 1 and 2 of the exam must take the remaining three parts of the exam before registering for a course above MATH 100. A testing schedule and information about

the math exam is available from the Testing Office, Room 150 HN, 772-4898. The schedule for this examination should be checked well in advance of registration.

Passing specific parts of this examination is now required by various other departments for entry into certain courses. Requests for information about other departments' regulations should be directed to those departments.

Symbolic Computation Proficiency Requirement

Before enrolling in courses at the 200 level or above, a student must have demonstrated entry-level proficiency in symbolic computation; passing any of MATH 126, 151, 154, or a departmental symbolic computation exam will satisfy this requirement.

Accelerated BA/MA Program in Mathematics or in Statistics and Applied Mathematics The BA/MA program offers promising students the opportunity to complete both the bachelor's and master's degree requirements with a minimum of 120 credits. Requirements are the same as those for a major in the department, plus 30 credits at the graduate level. Interested students should contact the graduate advisor for further information regarding eligibility and curriculum requirements.

Option 1: Accelerated BA/MA Program in Mathematics

Students complete the BA in pure mathematics with 30 additional credits at the graduate level in pure mathematics approved by the departmental graduate advisor.

Option 2: Accelerated BA/MA Program in Statistics and Applied Mathematics

Students complete the BA in statistics or mathematics with 30 additional credits at the graduate level in applied mathematics, statistics and computer science approved by the departmental graduate advisor.

Honors A student majoring in mathematics or statistics may become a candidate for departmental honors by successfully completing MATH 490, by presenting a major GPA of at least 3.6, and by achieving a satisfactory rating on a comprehensive examination.

Mathematics Major

The mathematics major introduces students to the fundamental areas of mathematics and provides some degree of specialization in one or more areas. It trains students in the analytic thinking characteristic of pure and applied mathematics and provides some familiarity with rigorous methods of mathematical proof.

To declare the major, the student should have completed one year of calculus (MATH 150 and 155, or the equivalent). The mathematics major consists of at least 30 credits of coursework: 21 credits of core curriculum courses (taken by all mathematics majors except those with a minor in childhood education), and at least 9 credits of advanced courses, chosen by students according to their career plans. Students are expected to select an option from those described below.

Major Core Curriculum (21 cr) MATH 153, 158, 250, 254 or 255, 260, 311, 351, and STAT 213 or 311.

Options Some flexibility is possible within each option, but any deviation from the requirement must be approved by the departmental advisor. Such approval is not automatic and will depend on the career goals of the student.

Option 1 For students intending to pursue technical careers in business, industry, or government:

Required courses (in addition to the core): MATH 352 or 353; MATH 385 or STAT 311. Recommended electives: MATH 254, 255, 301, 354, 485, STAT 312, 313, CSCI 135, 355.

Option 2 For students intending to continue graduate study beyond the master's level:

Required courses (in addition to the core): MATH 352, and any one of MATH 312, 340, or 353.

To prepare adequately for graduate study, the student should choose at least three additional courses from among MATH 301, 312, 340, 353, 354, 370, 376, 385, 454, 485, 490, STAT 311, 312, 313, CSCI 135, 355, and any 700-level graduate course in the department or at the Graduate Center.

Option 3 For students intending to teach in grades 7-12:

Required courses (in addition to the major core): MATH 331, STAT 311.

Recommended electives: MATH 275, 312, 313, 340, 352, 370, 371, 376, 385, STAT 212, 213, 214, CSCI 135.

Option 4 For students intending to teach in grades 1-6:

Any of the above options is appropriate. An alternative requiring permission of the department advisor is an interdisciplinary major including some science courses as well as approved courses within the department. For such a major, core courses would include at least MATH 250, 260, and 311. Elective courses would ordinarily include MATH 261(W) and 313.

Minor Except for mathematics majors planning to teach in elementary or secondary schools, majors in mathematics ordinarily take as a minor 12 approved credits in one of the following subjects: biological sciences, chemistry, computer science, economics, geology, philosophy (in particular, logic), physics, or statistics. However, other minors may also be approved. For students preparing to teach in elementary or secondary schools the minor is education as prescribed by the School of Education.

Statistics Major

The study of statistics provides the student with analytical tools that may find application in various fields within the sciences and social sciences. Actuarial science is one area open to students in statistics who also have backgrounds in such subjects as computer science, mathematics, and economics. The MA in statistics and applied mathematics offered by the department provides enrichment for undergraduate statistics majors. To enter the major the student must have completed MATH 150 and 155. The statistics major consists of 32 credits as follows: MATH 250, 254, 260 or 354, STAT 212, 213, 214, 311, 312, 313, and any additional 3-credit statistics, mathematics, or computer science courses approved by the undergraduate statistics advisor.

Modifications are permitted with the consent of the statistics advisor. For example, a student may elect to replace STAT 212 with a more advanced course. With permission of the advisor, a student may take graduate courses in the MA in statistics and applied mathematics program.

Minor Statistics majors take 12 approved credits as a minor in one of the following subjects: biological sciences, chemistry, computer science, economics, geology, mathematics, philosophy (in particular, logic), physics, political science, psychology, or sociology.

Students may include in their minors up to two 3-, 4-, or 5-credit courses used to meet the General Education Requirement in any one subject, provided the rest of the minor is in the same subject. For information concerning approved minor sequences, students should consult the departmental advisor.

Actuarial Sequence Students interested in actuarial work should take MATH 150, 155, 250, 260, STAT 311 and 313. Students are also encouraged to take courses in accounting, economics, and computer science. For information concerning examinations and prizes given to undergraduates by the Society of Actuaries, consult the departmental advisor.

Preparation for Teaching Students who wish to qualify for teacher certification in childhood or adolescence education should consult the School of Education section of this catalog and discuss their plans with advisors in education as well as in mathematics.

Preparation for Adolescence Education (Grades 7-12) There is a large and growing demand for mathematics teachers in grades 7-12. Students preparing to teach at this level may pursue Option 3, above. The sequence in adolescence education is an appropriate minor for students preparing to teach mathematics in grades 7-12. Students interested in teaching grades 7-12 may also pursue a combined BA/MA program in teaching. This program requires a minimum of 141 credits. Approval for admission to this program requires completion of at least 45 credits with a GPA of 2.8, and completion of at least 10 credits in mathematics, including a year of calculus (MATH 150 and 155 or equivalent), with an average of 2.7 in these major courses. The BA/MA program includes 46 credits in mathematics and 22-24 credits in teacher education courses, some of them taken at the undergraduate level and some at the graduate level. The required mathematics courses for the BA/MA in the teaching of mathematics are: MATH 150 and 155 (or the equivalent), 250, 260 and 311 (or the equivalent), 620, 623, 630, 661, and STAT 720 (or the equivalent), plus 12 additional credits at the 300 level or above, with at least half at the graduate level, selected with the approval of the departmental advisor.

Preparation for Childhood Education (Grades 1-6) Students preparing to teach in elementary schools may pursue Option 4 above. The specified minor is childhood education.

COURSE LISTINGS

In planning their schedules, prospective majors should note that some advanced required courses are offered only once each year, and several advanced elective courses are offered only once every other year. A rotation schedule for course offerings is available in the department office.

Prerequisites: Because of the nature of mathematics, the department recommends that students refrain from enrolling in any course that carries prerequisites unless these prerequisites have been completed with a grade of C or better.

Mathematics

MATH 100 Basic Structures of Mathematics 3 hrs, 3 cr; GER/1/B. Not open to students who have completed MATH 104 or 155. Not recommended for students majoring in mathematics, statistics, computer science, or natural sciences. Symbolic logic, sets, number systems, relations and operations and topics in probability and statistics.

MATH 101 Algebra for College Students 4 hrs (2 lec, 2 lab), 3 cr. Prereq: placement by appropriate score on placement exam. Topics in algebra, graphing and functions. Includes: algebraic and graphical solutions to systems of equations and inequalities; absolute value, polynomial, rational and radical expressions and equations; complex numbers; the function concept; introduction to polynomial, rational, and exponential functions and their graphs.

MATH 104 Mathematics for Elementary Education I 3 hrs, 3 cr. Prereq: MATH 101 or placement by appropriate score on the mathematics placement exam; GER/1/B. Fundamental and relevant mathematics as recommended by the NCTM for prospective elementary school teachers, including problem solving, sets, logic, numeration, computation, integers, and number theory. Required of students planning to teach in elementary schools. Not open to other students.

MATH 105 Mathematics for Elementary Education II 3 hrs, 3 cr. Prereq: MATH 104. Continuation of MATH 104; GER/1/B. Continuation of the content of the mathematics recommended by the NCTM for prospective elementary school teachers, including probability, statistics, plane and transformational geometry, congruence and similarity.

MATH 110 Topics In the Mathematical Sciences 3 hrs, 3 cr. Prereq: a college-level mathematics or statistics course. Not open to students who have completed MATH 105, 160 or 260. Intended for liberal arts or social science students. Applications of topics selected from algebra, analysis, computer science, geometry, probability and statistics.

MATH 111 Matrices, Vectors and Linear Programming 3 hrs, 3 cr. Prereq: MATH 101 or appropriate score on placement exam; GER/1/B. Not open to students who have completed MATH 160 or 260. Recommended for accounting students; not recommended for students majoring in mathematics or statistics. Introduction to matrices and vectors, systems of linear equations and linear programming with applications.

MATH 125 Precalculus 4 hrs, 4 cr. Prereq: appropriate score on placement exam or a grade of C or better in MATH 101. Coreq: MATH 126; GER/1/B. Functions and their graphs: polynomial, rational, exponential, logarithmic, and trigonometric functions; conic sections; topics in trigonometry; graphical and analytical solutions to systems of equations and inequalities. Not credited to students who have completed MATH 150 or its equivalent.

MATH 126 Precalculus Technology Laboratory 2 hrs, 1 cr. Prereq: appropriate score on placement exam or a grade of C or better in MATH 101. Coreq: MATH 125. Students will be introduced to MATHEMATICA as a tool for exploring qualitative features of functions and solving precalculus problems: simplifying algebraic expressions, solving equations, plotting functions and curves, finding and approximating zeros, and solving systems of equations. *Note:* MATH 126 cannot be taken for credit after a student has passed MATH 150. Students who have passed MATH 150 should register for MATH 154 to satisfy the symbolic computation proficiency requirement.

MATH 130 Preprofessional Science: Core 1 2 hrs, 1.5 cr. Prereq: MATH 101 or appropriate score on placement exam. Coreq: CHEM 130, PHYS 130 and PHYSC 130 Lab. The mathematics component of the first semester of a four-semester, fully integrated course in general chemistry, general physics, and mathematical functions and graphs. Topics include properties of linear functions and their graphs, mechanics, introductory thermodynamics, and stoichiometry.

MATH 131 Preprofessional Science: Core 2 2 hrs, 1.5 cr. Prereq: MATH 130, PHYS 130, CHEM 130, and PHYSC 130 Lab. Coreq: CHEM 131, PHYS 131, and PHYSC 131 Lab. The mathematics component of the second semester of a four-semester, fully integrated course in general chemistry, general physics, and mathematical functions and graphs. Topics include properties of polynomial, rational, exponential, and logarithmic functions and their graphs, chemical equilibrium, electrochemistry and further topics in thermodynamics.

MATH 132 Preprofessional Science: Core 3 2 hrs, 1 cr. Prereq: MATH 131, PHYS 131, CHEM 131 and PHYSC 131 Lab. Coreq: CHEM 132, PHYS 132, PHYSC 132 Lab. The mathematics component of the third semester of a four-semester, fully integrated course in general chemistry, general physics, and mathematical functions and graphs. Topics include trigonometric functions, topics in analytic geometry, waves, the structure of the atom, and chemical bonding.

MATH 133 Preprofessional Science: Core 4 2 hrs, 1 cr. Prereq: MATH 132, PHYS 132, CHEM 132 and PHYSC 132 Lab. Coreq: CHEM 133, PHYS 133 and PHYSC 133 Lab. The mathematics component of the fourth semester of a four-semester, fully integrated course in general chemistry, general physics, and mathematical functions and graphs. Topics include trigonometric identities, applications of trigonometry, chemical kinetics, electricity and magnetism, optics and nuclear physics. Completion of MATH 132 and 133 is equivalent to completion of MATH 125 and 126.

MATH 150 Calculus with Analytic Geometry I 4 hrs, 4 cr. Prereq: a grade of C or better in MATH 125 or appropriate score on placement exam; GER/1/B. Limits, continuity, differentiation and integration of elementary functions and trigonometric functions, applications.

MATH 151 Calculus I with Symbolic Computation 6 hrs, 5 cr. Prereq: a grade of C or better in MATH 125 or appropriate score on placement exam. Some previous experience with computers is desirable but not required. This course combines MATH 150 (Calculus I) with MATH 154.

MATH 153 Theoretical Calculus I Workshop 2 hrs, .5 cr. Prereq: MATH 150. This class meets once a week over the first six weeks of the semester. An introduction to mathematical proofs by means of a theoretical treatment of topics from MATH 150, including but not restricted to mathematical induction, epsilon-delta arguments, extreme and mean-value theorems.

MATH 154 An Introduction to Symbolic Computation 2 hrs, 1 cr. Prereq: MATH 125. Pre- or coreq: MATH 150. Some previous experience with computers is desirable but not required. Laboratory introduction to machine aided computation with an emphasis on examples related to calculus. Students will use a symbolic computation package to investigate and solve problems numerically, analytically, and graphically. They will use the same package to create reports of their results.

MATH 155 Calculus with Analytic Geometry II 4 hrs, 4 cr. Prereq: MATH 150; GER/1/B. Differentiation and integration of transcendental functions, integration techniques, infinite sequences and series, improper integrals, polar coordinates.

MATH 158 Theoretical Calculus II Workshop 2 hrs, .5 cr. Prereq: MATH 153 and 155. This class meets once a week for the second six weeks of the semester. A continuation of MATH 153. The topics include but are not restricted to existence theory for the integral of a continuous function on a closed interval and convergence tests.

MATH 160 Matrix Algebra 3 hrs, 3 cr. Prereq: MATH 125 or appropriate score on placement exam; GER/1/B. Systems of linear equations, matrices, determinants, introduction to vector spaces and linear transformations, applications.

MATH 250 Calculus with Analytic Geometry III 4 hrs, 4 cr. Prereq: MATH 155. Vector geometry, dot and cross products, partial derivatives, matrices, determinants, Jacobians, multiple integration.

MATH 254 Ordinary Differential Equations 3 hrs, 3 cr. Prereq: MATH 250. First-order equations, second-order linear equations and linear systems, power series solutions, transform and numerical methods, introduction to qualitative theory.

MATH 255 Vector Analysis 3 hrs, 3 cr. Prereq: MATH 250. Not open to students who have completed MATH 352. Line and surface integrals, Green's Theorem, divergence theorem, Stokes' Theorem, generalized coordinates.

MATH 260 Linear Algebra 4 hrs, 4 cr. Prereq: MATH 153. Pre- or coreq: MATH 250. Vector spaces, linear transformations, canonical forms, inner product spaces, bilinear forms, applications.

MATH 261(W) Mathematics in Human History 3 hrs, 3 cr. Prereq: ENGL 120 and a college-level mathematics course beyond MATH 101; GER/2/B. A historical treatment of themes in mathematics, probability and statistics, with applications in the arts and sciences. Roots of mathematics in non-Western cultures and contributions of women and minorities are included.

MATH 275 Intermediate Symbolic Logic 3 hrs, 3 cr. Prereq: MATH 153 and 158. Symbolization of statements in sentential and predicate notation, sentential derivations, interpretations, predicate derivations through logic of identity and definite descriptions. This course is cross-listed as PHILO 275.

MATH 295 Intermediate Topics in Mathematical Sciences 3 hrs, 3 cr. Prereq: MATH 150; additional prereqs vary with specific topics and will be announced at time of course offering. May be repeated as topics vary, but not more than twice. Topics to be studied in any given term will be announced prior to registration.

MATH 301 Mathematical Methods for the Physical Sciences 3 hrs, 3 cr. Prereq: MATH 254. The course will concentrate on the solution of linear partial differential equations and boundary value problems. Solution techniques such as separation of variables, Fourier series, Green's functions, and Laplace transforms will be covered. These will be applied to several equations which occur in physical applications such as the heat equation, the Laplace equation, and the wave equation. This course is cross-listed as PHYS 301.

MATH 311 Abstract Algebra I 3 hrs, 3 cr. Prereq: MATH 260. Introduction to the theory of groups and rings.

MATH 312 Abstract Algebra II 3 hrs, 3 cr. Prereq: MATH 311. Elements of Galois theory, construction with ruler and compass, advanced topics in ring theory and linear algebra.

MATH 313 Theory of Numbers 3 hrs, 3 cr. Prereq: MATH 260. Congruences, quadratic residues, elementary Diophantine analysis, continued fractions, sums of squares.

MATH 331 Geometries 3 hrs, 3 cr. Prereq: MATH 260. Topics in affine and projective geometry and/or topics in differential geometry.

MATH 340 Topology 3 hrs, 3 cr. Prereq: MATH 351. Metric and topological spaces, continuity, homeomorphisms, compactness, connectedness, homotopy, fundamental group.

MATH 351 Mathematical Analysis I 3 hrs, 3 cr. Prereq: MATH 158, 250 and 260. Rigorous treatment of foundations of calculus, including topology of real line and higher-dimensional spaces. Basic results on continuous functions.

MATH 352 Mathematical Analysis II 3 hrs, 3 cr. Prereq: MATH 351. Integration, sequences and series, uniform convergence, differentiation of functions of several variables, inverse and implicit function theorems, formula for change of variables.

MATH 353 Introduction To Complex Variables 3 hrs, 3 cr. Prereq: MATH 158 and 255. Complex numbers, analytic functions, elementary functions, contour integrals, Cauchy integral theory, series.

MATH 354 Dynamical Systems and Chaos 3 hrs, 3 cr. Prereq: MATH 250 and MATH 260. Linear flows, qualitative theory of low-dimensional nonlinear systems, introduction to chaos in discrete one-dimensional dynamical systems.

MATH 370 Mathematical Logic 3 hrs, 3 cr. Prereq: MATH 260 or permission of the instructor. A survey of the central results and techniques of metalogic, principally mathematical induction, the soundness and completeness of theorems for first-order logic, the Skolem Theorem, and Church's Theorem on undecidability. The course is cross-listed as PHILO 375.

MATH 371 Fundamental Concepts of Modern Mathematics 3 hrs, 3 cr. Prereq: Any 2 courses chosen from MATH 260, 311, 351, 352. Axiomatic approach to set theory: axiom of choice, Zorn's Lemma, transfinite arithmetic.

MATH 376(W) Philosophy of Mathematics 3 hrs, 3 cr Prereq: ENGL 120, at least one course in philosophy, and a second course in either philosophy or mathematics, precalculus or beyond; GER/3/B. Study of such issues as the nature of demonstration or proof, and the nature of mathematical knowledge and mathematical objects such as numbers and sets. This course is cross-listed as PHILO 376.

MATH 385 Numerical Methods I 3 hrs, 3 cr. Prereq: MATH 155 and either MATH 160 or 260. Accuracy and precision, convergence, iterative and direct methods. Topics selected from: solution of polynomial equations and linear systems of equations, curve fitting and function approximation, interpolation, differentiation and integration, differential equations. This course is cross-listed as CSCI 385 and PHYS 385.

MATH 391, 392, 393 Independent Study in Mathematics 1 hr, 1 cr; 2 hrs, 2 cr; 3 hrs, 3 cr. Prereq: Jr/Sr only with perm dept. Independent study and reading under direction of faculty member.

MATH 454 Calculus on Manifolds 3 hrs, 3 cr. Prereq: MATH 352. Functions on Euclidean space, implicit function theorem, Fubini's Theorem, integration on chains and manifolds.

MATH 485 Numerical Methods II 3 hrs, 3 cr. Prereq: MATH 385. Advanced topics selected from: solution of equations and systems of equations, curve fitting and function approximation, interpolation, differentiation and integration, differential equations. Major project will be assigned. This course is cross-listed as CSCI 485 and PHYS 485.

MATH 490 Honors Seminar 3 hrs, 3 cr. Prereq: MATH 311, 351, and perm dept.

Statistics

STAT 113 Elementary Probability and Statistics 3 hrs, 3 cr. Prereq: MATH 101 or appropriate score on placement exam; GER/1/B. Not open to students who have completed STAT 213, ECO 221, PSYCH 206, or SOC 241. Not credited for majors in statistics or mathematics unless minor is elementary education. Discrete probability; descriptive, inferential statistics. Estimation and hypothesis testing for normal and binomial means. Students who have taken calculus or place into calculus by the placement exam should take STAT 213 instead of STAT 113.

STAT 212 Discrete Probability 3 hrs, 3 cr. Prereq: MATH 125 or appropriate score on placement exam; GER/1/B. Combinatorics, discrete probability, random walks, and game theory. Emphasis on model building.

STAT 213 Introduction to Applied Statistics 3 hrs, 3 cr. Prereq: MATH 125 or appropriate score on placement exam; GER/1/B. Not open to students who have completed ECO 221, PSYCH 206, or SOC 241. Familiarity with the Windows computing environment encouraged. Sampling, estimation, tests of hypotheses, including one- and two-sample t-tests, two- and three-way tables for nominal and ordinal data, linear regression, analysis of variance through two-way with interaction, SPSS statistical software.

STAT 214 Data Analysis Using Statistical Software 3 hrs, 3 cr. Prereq: STAT 213 or both MATH 125 and STAT 113 with C or better in each course. Familiarity with the Windows computing environment encouraged. Analysis of variance, simple and multiple regression, nonparametric statistics, statistical model building.

STAT 311 Probability Theory 3 hrs, 3 cr. Prereq: MATH 250. Combinatorics, distribution theory for discrete and continuous random variables, central limit theorems.

STAT 312 Stochastic Processes 3 hrs, 3 cr. Prereq: STAT 311. Discrete and continuous stochastic processes including Markov chains, birth processes, queues, and Brownian motion.

STAT 313 Introduction to Mathematical Statistics 3 hrs, 3 cr. Prereq: STAT 311. Estimation, hypothesis testing, confidence limits for normal, binomial, Poisson, and exponential random variables.

STAT 351 Advanced Biometrics 3 hrs, 3 cr. Prereq: Mathematics at the level of MATH 125/126 and STAT 113, 213 or equivalent introductory statistics course. Linear algebra recommended but not required. A second course in statistics covering quantitative methods applicable in the life sciences. Topics include experimental design, life table analysis, ethical issues, survival analysis, logistic regression, and Cox regression.

STAT 391 Independent Study 1 hr, 1 cr. Prereq: Students must have declared a statistics major and be classified as a junior. Independent study in which a student selects a topic of interest to him- or herself. The study is carried out under the direction of a faculty member.

STAT 392 Independent Study 2 hrs, 2 cr. Prereq: Students must have declared a statistics major and be classified as a junior. Independent study in which a student selects a topic of interest to him- or herself. The study is carried out under the direction of a faculty member.

STAT 393 Independent Study 3 hrs, 3 cr. Prereq: Students must have declared a statistics major and be classified as a junior. Independent study in which a student selects a topic of interest to him- or herself. The study is carried out under the direction of a faculty member.