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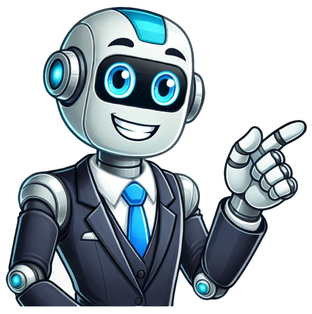

Nyu math department

Department Website The undergraduate division of the Department of Mathematics offers a wide variety of courses in both pure and applied mathematics. Faculty are members of the Courant Institute of Mathematical Sciences, which has become a leading research center through its tradition of integrating mathematical theory and applications. In addition to the mathematics major, joint programs are available in mathematics and (1) computer science, (2) data science, (3) economics, and (4) engineering. These majors lead to the BA degree in four years, with the exception of the engineering option, which leads to the BS degree from the College of Arts and Science and the BS degree from the NYU Tandon School of Engineering in five years. An accelerated, five-year BA and MS mathematics program is offered with the Graduate School of Arts and Science, as well as an MA in mathematics education program with Steinhardt. Independent study courses are available for students with special interests. Mathematics majors are encouraged to spend a semester studying away. Currently, mathematics courses are offered at NYU Abu Dhabi, NYU London, NYU Paris, and NYU Shanghai. Honors Program in Mathematics The honors program is designed for students with a strong commitment to mathematics and is recommended for those who intend to pursue graduate study in this field. The requirements for admission into the honors program are: a GPA of 3.65 or higher in the major (including joint honors requirements); an overall GPA of 3.65 or higher; and approval of the director of the honors program. Interested students must consult with the faculty honors adviser. Like the regular major, the honors major consists of thirteen 4-credit courses (52 credits). However, students in the honors program must fulfill the requirements of the regular program together with the following additional requirements. Honors electives: Honors majors must take at least four of the following 4-credit courses: Where applicable, the same course counts toward both the advanced electives requirement of the regular major and the honors electives. Students who have taken MATH-UA 325 Analysis or MATH-UA 343 Algebra may not take the corresponding MATH-UA 328 Honors Analysis I or MATH-UA 348 Honors Algebra I to fulfill this requirement. Honors research project: Honors students must also complete a senior research project. The research project requirement can be completed through the mathematics summer research program (SURE or AM-SURE). Students who participate in the SURE or AM-SURE program are required to present their research at the undergraduate research forum at Courant in the fall semester of their senior year. Alternatively, students not accepted to the SURE or AM-SURE programs must register for two semesters of independent study (MATH-UA 997, MATH-UA 998) and present their research at the College's Undergraduate Research Conference in the spring semester of their senior year. Students completing the honors research project requirement via the independent study must obtain approval of their research project from the faculty honors advisor, director of undergraduate studies, or vice chair of undergraduate affairs. Joint BS/BS Program in Mathematics and Engineering The College of Arts and Science, in cooperation with the NYU Tandon School of Engineering, offers a joint BS/BS program in engineering. Students in the program receive the BS degree in mathematics from CAS and the BS degree in either civil, computer, electrical, or mechanical engineering from the Tandon School of Engineering. Further information and advisement are available from the College Advising Center, 726 Broadway, 7th floor; 212-998-8130. Accelerated BA/MS Program in Mathematics The College and the Graduate School of Arts and Science offer students the opportunity to obtain both bachelor's and master's degrees in mathematics in five years. Qualifying students are accepted into the program toward the end of the sophomore year or during the junior year before they reach 96 credits. Students must have a minimum 3.50 GPA in order to qualify for acceptance. During their last few undergraduate semesters, students must accelerate by taking one quarter of their graduate courses during regular terms and/or during the summer. Students in the program must satisfy all requirements of both the bachelor's and master's degrees; there is no double-counting of courses. For more information, please contact the College Advising Center, 726 Broadway, 7th floor. Departmental Activities and Awards Mathematics Society Open to all students interested in the study of mathematics. An organizational meeting is held shortly after classes begin in the fall to plan for the coming academic year. Activities include talks by faculty and guest speakers on a variety of topics as well as attending conferences. Association for Women in Mathematics (AWM) The mission and purpose of AWM's NYU chapter is to increase interest in the mathematical sciences and their applications in various industries. It focuses on mentoring, encouraging, and bringing together women undergraduates in mathematics to increase the visibility of women and their contributions in the discipline. The Society for Industrial and Applied Mathematics (NYU SIAM) NYU SIAM is open to all undergraduate and graduate students interested in mathematics regardless of major or background. NYU SIAM creates a space for students to come together and discuss topics significant to the learning of mathematics by engaging them with a diverse range of topics and opportunities in math and its related fields, and also provides opportunities for mentorship, workshops, and cross-school collaboration. William Lowell Putnam Competition The department participates in this annual competition open to all undergraduate mathematics students in the United States and Canada. Interested students should contact the department as early as possible in the school year, as the contest takes place in early December. A series of preparation sessions is held under the supervision of mathematics faculty. Mathematical Contest in Modeling (MCM) In this contest, teams of undergraduates use mathematical modeling to present their solutions to real-world problems. Interested students should contact the department as early as possible in the school year. Interdisciplinary Contest in Modeling (ICM) An international contest for high school students and college undergraduates (an extension of the MCM) designed to develop problem-solving skills and competence in written communication. Registration for ICM is via MCM. Peer Mentor Program The mathematics department has an active peer mentor program for mathematics majors. The program is designed to assist new students in making the transition to the mathematics major and life at NYU. If interested in becoming a mentor or mentee, please contact the department. SURE Program Since the spring 2000 semester, the department has sponsored a number of summer research experiences (SURE) for a selected number of undergraduate math majors. The Summer Undergraduate Research Experience is aimed at mathematics students in their junior year. The project ends with a written report and an oral presentation in the beginning of the fall semester. Funding is limited and student participants are chosen by a faculty committee based on grades, coursework, and "fit" between their research interests and those of the supervising faculty. Students must have a faculty mentor and research topic to apply. AM-SURE A summer research program for undergraduate students interested in applied mathematics, both modeling and simulation. The main goal is for each student to complete a research project under the joint guidance of graduate students, postdocs, and faculty in the mathematics department at NYU. Some projects will involve theoretical modeling and computer simulation, and others may involve Courant's Applied Math Lab, where students will help conduct experiments to validate models and simulations. The program will include a set of coherent activities such as frequent group academic meetings and social gatherings. Awards Departmental awards include the Hollis Cooley Memorial Prize, Mathematics Award, and the Mathematics Award for Academic Achievement. Admissions New York University's Office of Undergraduate Admissions supports the application process for all undergraduate programs at NYU. For additional information about undergraduate admissions, including application requirements, see How to Apply. The major in mathematics requires thirteen 4-credit courses (52 credits) numbered at or above MATH-UA 120 and completed with a grade of C or better (courses graded Pass/Fail do not count) as outlined below. Study Away Students majoring and minoring in the Department of Mathematics can spend a semester studying abroad at one of the many academic centers run by NYU Global Programs. Currently, mathematics can be studied at NYU Abu Dhabi, NYU London, NYU Paris, and NYU Shanghai. Students planning study away should make their plans and speak to an adviser early in their NYU careers. Upon completion of program requirements, students are expected to have acquired: Proficiency in the foundations of modern mathematics, including discrete mathematics, calculus, analysis, and algebra. The ability to communicate mathematically, including understanding, developing, and critiquing mathematical arguments and rigorous proofs. The ability to apply mathematical ideas and methods to questions and problems both within and outside of the mathematical sciences. Advanced knowledge in some specific areas of mathematics, such as differential equations, geometry and topology, complex analysis, probability and statistics, number theory, or numerical analysis. Experience in using appropriate technology to calculate, visualize, and model problems. The Mathematics for Economics I, II, III (MATH-UA 131, 132, 133) sequence does not count toward the major in mathematics as substitutions for the Calculus I, II, III sequence (MATH-UA 121, 122, 123). Limited exceptions may be made for students who have already taken Mathematics for Economics for their declared or intended second or joint major in economics; they must seek the approval of the Department of Mathematics for this substitution. (All other students must follow the regular calculus sequence.) Note that students are not permitted to combine or double-count between the Calculus and Mathematics for Economics sequences or register simultaneously for separate courses within the two sequences. Any two computer science courses (numbered CSCI-UA 101 or higher, except CSCI-UA 380), DS-UA 112, or graduate data science (DS-GA) courses may be credited toward the general mathematics elective requirement only. However, no more than two courses outside of MATH-UA may fulfill major requirements. This specific policy is only applicable to the major in mathematics. It does not apply to any other major or minor offered by the Department of Mathematics (including joint majors). Only students following the prehealth track (which itself is not a major) may replace no more than two MATH-UA classes with any two of the following: PHYS-UA 11 and 12 General Physics I and II or PHYS-UA 91 and 93 Physics I and II. However, if these physics courses are used towards the mathematics major, then computer science and data science courses cannot also apply toward the major. Students cannot take both honors and non-honors versions of the same course. Students may double-count no more than two courses with another major or a minor. Courses graded Pass/Fail cannot count toward major requirements. A grade of C or better is required in all courses used to fulfill major requirements. Transfer students must complete at least half of the major (seven of thirteen courses) in residence at CAS with MATH-UA courses. Students may petition to enroll in graduate mathematics (MATH-GA) courses. If approved, students may only apply graduate mathematics courses toward the general mathematics elective requirement of this major; graduate mathematics courses cannot count toward the advanced mathematics elective requirement. Note well: students must first earn a grade of A in MATH-UA 325 Analysis before they can petition to enroll in graduate mathematics courses. Please see the undergraduate section of the department's website for more information and to request permission to enroll in a graduate course. To satisfy the College Core Curriculum requirement in Quantitative Reasoning (QR), all College of Arts and Science students must either take one semester of an approved course with mathematical content, or present qualifying advanced standing credit to exempt from the requirement. (There is no CAS examination to exempt students from QR.) Advanced Placement (AP), International Baccalaureate (IB; HL only), and Advanced Level (A Level; not AS) credit in calculus, statistics, and mathematics satisfies the QR requirement, as does similar credit in selected international examinations. Consult the admission section of this Bulletin or a CAS adviser for details on which approved examinations and minimum scores confer credit. Students in the following majors or tracks of study are required to take courses which also satisfy the Core QR requirement: computer science, data science, economics, engineering, global public health, international relations, mathematics, the natural sciences, the prehealth track, psychology, and sociology. (These areas of study differ in whether and how they accept advanced standing credit toward their quantitative requirements; consult the appropriate sections of this Bulletin.) CAS students who are not pursuing one of these courses of study, and who cannot present advanced standing credit for exemption from the QR requirement, must take one of the Quantitative Reasoning (CORE-UA 1XX) courses offered in the College Core Curriculum. Alternatively, students who meet the prerequisites or take a placement exam may register for an appropriate calculus course at the level of Calculus I (MATH-UA 121) or above. Other CAS courses that satisfy the QR requirement (in statistics, e.g.) are posted on the Core Curriculum website, core.cas.nyu.edu. To register for: MATH-UA 120 Discrete Mathematics MATH-UA 121 Calculus I MATH-UA 131 Mathematics for Economics I and/or MATH-UA 140 Linear Algebra students must satisfy at least one (1) of the following requirements: SAT score of 670 or higher on mathematics portion ACT/ACTE mathematics score of 30 or higher Valid AP Score: AP Precalculus score of 4 or higher AP Calculus AB score of 3 or higher AP Calculus BC score of 3 or higher A Level Maths score of C or higher Students who took A Level Further Maths should contact the Department of Mathematics AS Level Maths score of B or higher IB Exam Result from 2021 - 2027 IB Analysis and Approaches HL score of 5 or higher IB Applications and Interpretations HL score of 5 or higher IB Analysis and Approaches SL score of 7 IB Exam Result from 2014 - 2020 IB Mathematics HL score of 5 or higher IB Mathematics SL score of 6 or higher IB Mathematical Studies SL score of 7 Completion of MATH-UA 9 Algebra, Trigonometry, and Functions with a grade of C or higher A grade of Incomplete in this course does not serve as a prerequisite for a more-advanced course Passing a Calculus I/Mathematics for Economics I placement exam; no credit is ever awarded for a placement exam. Advanced Placement with Credit Students with eligible AP transfer credit should first consult with their home school advising center to determine how much AP credit they are eligible to transfer in. This varies across schools at NYU. A student who earns a 4 or 5 on the Calculus AB exam (or AB subscore) or a 4 on the Calculus BC exam is eligible to receive 4 credits equivalent to Calculus I (MATH-UA 121) and will be placed into Calculus II (MATH-UA 122). A student who earns a score of 5 on the Calculus BC exam is eligible to receive 8 credits, equivalent to both Calculus I (MATH-UA 121) and Calculus II (MATH-UA 122), and is eligible to register for Calculus III (MATH-UA 123); students with advanced math experience are encouraged to register for Honors Calculus III (MATH-UA 129). For calculus equivalencies and placement for advanced standing credit in mathematics from International Baccalaureate (HL only), A Level, and other approved international examinations, please consult the home school advising center or the admission section of this Bulletin. Note that AP and other advanced standing credit by exam cannot be used to place into, or ahead in, the Mathematics for Economics I, II, III sequence (MATH-UA 131, 132, 133). These exam credits are not equivalent to any course in this sequence. Advanced Placement without Credit The following placement exams in mathematics are offered regularly for students to take in order to: place into MATH-UA 121 Calculus I or MATH-UA 131 Mathematics for Economics I place into MATH-UA 122 Calculus II place into MATH-UA 123 Calculus III place out of MATH-UA 123 Calculus III place into MATH-UA 132 Mathematics for Economics II place into MATH-UA 133 Mathematics for Economics III place out of MATH-UA 133 Mathematics for Economics III If a student passes any of these placement exams, they are placed into the next course of the sequence. However, no course credit is ever awarded for any placement exam in the Department of Mathematics.. Additionally, if a student places out of a MATH-UA course that is required for one's major and/or minor, then one must take an additional MATH-UA elective to make up for the missing credits. NYU Policies University-wide policies can be found on the New York University Policy pages. College of Arts and Science Policies A full list of relevant academic policies can be found on the CAS Academic Policies page. Skip to main content Accessibility © New York University Skip to main content Accessibility © New York University Skip to main content Accessibility © New York University Skip to main content Accessibility © New York University Jorge Arvesú Carballo Visiting Associate Professor of Mathematics Charles Stine Visiting Assisting Professor Nour Al Hassanieh Gioacchino Antonelli Gonzalo Cao Labora Jiajie Chen Tyler Chen Yifan Chen Simona Diaconu Yijun Dong Yuzhou Gu Lisa Marquand Christiana Mavroyiakoumou Ulf David Persson Renaud Raquepas Shay Sadovsky Shay Sadovsky Michal Shavit Wenzheng Shi Mingtao Xia Pu Yu Marco Avellaneda Jack Bazer Martin D. Burrow David Cai Professor of Mathematics and Neural Science Aleksandar Donev Harold M. Edwards Professor Emeritus of Mathematics Paul R. Garabedian Eliezer Hameiri Melvin Hausner Professor Emeritus of Mathematics Samuel N. Karp Professor Emeritus of Mathematics Andrew J. Majda Professor Emeritus of Mathematics Henry P. McKean Professor Emeritus of Mathematics Cathleen S. Morawetz Professor Emeritus of Mathematics Louis Nirenberg Professor Emeritus of Mathematics Jerome K. Percus Professor of Mathematics and Physics Richard Pollack Professor Emeritus of Mathematics Harold N. Shapiro We encourage undergraduates with demonstrated excellence in rigorous math courses, and a passion for further study in a specific subject, to apply for permission to enroll in graduate courses. The policies and procedures for doing so are outlined here. Students accepted into the Bachelor's-Master's track for mathematics should contact the graduate math program (grad_math@nyu.edu) with their graduate course requests. All other undergraduates should complete the Graduate Math Course Registration Request Form, linked below, after carefully reading the following information. Eligibility to request enrollment in graduate courses In order to qualify for enrollment in any graduate level math course, students must meet the following requirements: Your home campus is Washington Square campus (NYU New York) This form is not for NYU Shanghai or NYU Abu Dhabi students visitng New York NYU Shanghai & NYU Abu Dhabi students must contact NYU Global Programs for assistance with registering for graduate Math courses at the Courant Institute Pursuing a major degree program in or jointly in mathematics Completion of MATH-UA 325 Analysis or equivalent with a grade of A, or MATH-UA 328 Honors Analysis I or equivalent with a grade of A- or higher Maintaining a math major GPA of 3.65 or higher Junior standing or above at the time the course is offered (Students can find their major GPA in the Academic Requirements Report in their Albert Student Center drop down menu. The major GPA will be located at the bottom of the Math Major Requirements section.) Students who do not meet the requirements on this page and would like to petition to enroll in a graduate course should still complete the Graduate Math Course Registration Request Form, and must complete the "Special Permission Request" box at the end of the form. Procedures for requesting permission and enrollment Students should submit the request form once for each course requested. Students should not submit the request form twice for the same course. While waiting for their request(s) to be evaluated, students are advised to enroll in undergraduate course selection(s) first, which can later be swapped for any approved graduate courses. Requests will be evaluated by the Vice Chair for Undergraduate Affairs. Students should receive a follow-up email within ten (10) university business days (normally two weeks) of completing the form. Students may follow up by email if they have not heard about their request by then. For Fall 2025 enrollment, math graduate courses are being restricted to graduate students only until Tuesday, August 18, 2025. Undergraduate students who are approved for a graduate course will not be able to register until after this date, pending available seats. General course enrollment policies Students are normally granted permission to enroll in one graduate course in their first semester of receiving permission, and a maximum of two in subsequent semesters. MATH-GA courses do not count towards the Restricted/Advanced Electives portion of the Math Major MATH-GA courses do not count towards the four required honors level courses of the honors math program. The four honors level courses must be MATH-UA Honors courses. Half-credit (1.5 credit) MATH-GA courses do not count towards the general math elective requirement for the Math Major. Only three-credit (3 credit) MATH-GA courses count towards the general math elective requirement. DS-GA courses do not count towards the Joint Mathematics & Computer Science and the Joint Mathematics & Economics majors. This process should not be seen as a "back door" to a master's program. Students interested in completing a large number of graduate courses should apply for the bachelor's-master's track. All math graduate courses carry 3 credits, while undergraduate courses carry 4. Undergraduates taking graduate courses should take care to earn 128 credits prior to their anticipated graduation date. Specific course policies and prerequisites "Core" master's courses such as MATH-GA 1410–20 Introduction to Mathematical Analysis I–II, MATH-GA 2110 Linear Algebra I, MATH-GA 2050 Elements of Discrete Mathematics, etc., are generally off limits to undergraduates Advanced Ph.D. courses designated as "Advanced Topics" are generally off limits to undergraduates The number of seats available to undergraduates in a specific graduate course may be limited. Permissions are granted on a first-come, first-served basis. Certain courses require additional permission from faculty instructors or overseers. Students should not seek permission from faculty instructors to override an unfavorable decision from the department. A complete list of graduate math courses available to undergraduate students and their prerequisites is available below: MATH-GA Prerequisites for Undergraduate Students Prerequisites listed are in addition to the general eligibility requirements, and are satisfied by course work or experience, not by undirected self-study. Students who would like to petition to enroll in a course that is not listed can do so by choosing the "Other" course option on the request form. Descriptions of graduate math courses and current graduate course offerings are available online: Graduate Course Descriptions Graduate Course Schedule Additional Information Any questions regarding the Graduate Math Course Registration Request Form, or the process of requesting graduate math course enrollment, should be directed to undergrad@math.nyu.edu. Enrollment Request Form Click here to complete the Graduate Math Course Registration Request Form * Please note that you must be logged into your NYU email account in order to access the form Previous Next Hong Wang, Associate Professor of Mathematics, has proven the century-old Kakeya set conjecture in a joint work with Joshua Zahl. Read More Chao Li, Assistant Professor of Mathematics, has been awarded a research fellowship from the Alfred P. Sloan Foundation. Read More Eric Vanden-Eijnden will hold the Paulette Goddard Chair in Mathematics. Laure Zanna will be the inaugural recipient of the Joseph B. Keller and Herbert B. Keller Professorship in Applied Mathematics. Read More Lai-Sang Young, Professor of Mathematics and Neural Science, has received the 2024 Rolf Schock Prize in Mathematics from the Royal Swedish Academy of Sciences. Read More Eyal Lubetzky, Chair and Professor of Mathematics, has been named a 2025 Fellow of the American Mathematical Society. Read More More News There are no upcoming events. All Upcoming Events Past Events