

Kakos School of Science

Marcy Kelly, Ph.D., Dean

Mission Statement

We are a vibrant community of student and faculty scholars working together to advance cutting-edge research, teaching and learning. We combine Lasallian values (<https://manhattan.edu/about/lasallian-catholic.php>), a person-centered approach to education, and the scientific method in order to find innovative solutions to modern problems and challenges, building a more compassionate and just world. To develop well-rounded scientists who value compassion as highly as innovation, we will:

- Build our community of scholars within the Kakos School of Science through the continued recruitment of diverse and outstanding faculty and students.
- Develop high quality faculty and students by providing them with professional and career development opportunities.
- Retain high quality faculty and students through enhanced and streamlined career pathway and student success efforts.

Degree Programs

The Kakos School of Science currently offers the following graduate programs:

- M.S. in Computer Science
- M.S. in Applied Mathematics-Data Analytics
- M.S. in Mathematics
- 5 year B.A.-M.S. or B.S.-M.S. in Applied Mathematics-Data Analytics
- Advanced Certificate in Applied Mathematics-Data Analytics

M.S. in Computer Science

The M.S. in Computer Science program is designed for students interested in pursuing computer science theoretically as well as practically at an advanced level.

Overall, there is a large and continuously growing demand for master's level computer science professionals in the State of New York and across the country. The program will extend well beyond knowledge acquired at the undergraduate level. The program will prepare students to enter the computer-related industry directly after graduation or to continue their educational path to a Ph.D. The curriculum is designed to allow students to develop the skills needed to achieve leadership positions in industry, business, and government or related fields, where computer science has become an important tool.

The coursework in the program represents a realistic balance between fundamental computer science theory and cutting edge modern computing techniques and technologies. Students will master methods of algorithm design and their analysis, networking, databases, and operating systems. Students will have also an excellent opportunity to explore cutting edge areas, which are currently in high demand, such as cryptography and security, cloud computing, neural networks and machine learning,

artificial intelligence, embedded systems, Linux kernel programming, image analysis, and data mining.

Students entering the program should have at least 15 credits of undergraduate computing courses, including at least 6 credits of computer programming, data structures, operating systems, databases. They should also have at least 9 credits of mathematics, which may include calculus, discrete mathematics, probability/statistics, linear algebra, numerical methods, differential equations and other university level mathematics courses.

M.S. in Applied Mathematics-Data Analytics

The M.S. in Applied Mathematics-Data Analytics program is designed for students with a strong background in mathematics and a major in a quantitative field who wish to prepare for careers in industry, business, government, or for further study at the doctoral level. It is a particularly good fit for students who want to transition into data analytics and data science careers. The curriculum emphasizes the application of mathematics and programming with open-ended course projects. The courses combine theory and application striving to give students practical tools which they will use in their future career.

Applicants should possess a degree in a STEM or quantitative discipline, some exposure to computer programming, and have the desire to learn mathematical and computational methods to apply them to real-world problems. The prerequisites for the program are multi-variable calculus, probability or calculus-based statistics, linear algebra, and a programming class.

Students will typically complete the 30-credit program in 3 semesters plus an internship or a research project during a summer. Students may pursue the program full-time or part-time. Courses are scheduled in the evenings to accommodate students who work full-time. The program gives flexibility by allowing students to start in either the fall or the spring semester.

This program is also available as a seamless 5-year B.A.-M.S. or B.S.-M.S. and there is an Advanced Certificate option.

M.S. in Mathematics

The M.S. in Mathematics program is for individuals who hope to pursue a Ph.D. in Mathematics or a related discipline, or who wish to teach mathematics at a community college. Students in the program will complete course work in foundational areas of pure mathematics: linear and abstract algebra, real and complex analysis, topology, and probability-statistics. Electives may be chosen to deepen the applicant's knowledge in preparation for study at the Ph.D. level, for breadth including applications, and may include research. A thesis option is available for those who wish to do research.

Entering students should have seen, at a minimum, calculus I-II-III, a proof-theoretic linear algebra, and a probability or statistics class. Courses in abstract algebra and real analysis are required, but may be taken at the graduate level if necessary. A major in mathematics is desirable. A course in programming is recommended.

This program may be completed on either a full-time or a part-time basis. Qualified Manhattan College undergraduates may begin graduate classes in their junior or senior year, thereby enabling completion of the M.S. degree in a single postgraduate year plus

two summers. The program gives flexibility by allowing students to start in either the fall or the spring semester.

Additional information on any of these programs can be found at the respective department sections of the catalog. (Computer Science (<http://catalog.manhattan.edu/graduate/science/computerscience/>) or Mathematics (<http://catalog.manhattan.edu/graduate/science/mathematics/>))

Application Procedures

Application for admission to all graduate programs in the Kakos School of Science is through the Office of Graduate Admissions. An on-line application can be accessed via the Office of Graduate Admissions web page. The completed form accompanied by the application fee (non-refundable) must be submitted to the Office of Graduate Admissions. Applicants for admission are responsible for having official transcripts of all undergraduate and graduate courses mailed directly to the Office of Graduate Admissions, paying the application fee, submitting letters of recommendation, and submitting standardized test scores.

Official transcripts (not student copies) of all undergraduate and graduate records must be sent to the Office of Graduate Admissions by the institutions issuing them. Applicants who file an application before the baccalaureate degree has been conferred may be accepted pending the successful completion of their undergraduate work. A final transcript must be received in the Office of Graduate Admissions prior to course registration.

Graduates of Manhattan College should contact the Office of the Registrar requesting that an official transcript be sent to the Office of Graduate Admissions.

An application is not complete until all the necessary materials and application fee have been received by the Office of Graduate Admissions. Incomplete applications cannot be processed. Students who file an application and whose official transcripts arrive after the deadline date cannot be assured that their application will be processed in time for the semester for which they are applying.

For best consideration, filing of the graduate application should be completed before May 1st for summer session applicants; August 10th for fall session applicants, and January 7th for spring session applicants; however, applications are reviewed on a continuous basis.

International Student Applicants

The College accepts international students for its full-time graduate programs in the Kakos School of Science. Application procedures, admission criteria and information can be found in the individual sections of the catalog. In general, the College cannot accept these students into its part-time graduate programs. The student who is accepted and receives a student visa must be enrolled in each term of the academic year for a minimum of 9 credits. Such students must complete the program within 18 months.

International student applicants should submit their admission application, official transcripts, and the admission fee four months before the beginning of the session they wish to enter. In addition, they must submit a notarized statement that they have sufficient funds to finance their education and their maintenance. Many of the sources of financial assistance are limited to the residents of the United States.

Unless exempted, all international students applying from foreign countries must take the TOEFL (Test of English as a Foreign Language) or acceptable equivalent and have the test results sent to the Office of Graduate Admissions. A minimum TOEFL score of 80 (internet based test), 213 (computer based exam), or 550 (paper based exam) will satisfy Manhattan College admission requirements and criteria for issuance of the I-20 form. However, admission and issuance of an I-20 form is also possible for students with TOEFL scores below 80, 213 or 550 levels for the internet, computer, and paper based exams, respectively, provided they successfully complete an approved English as a Second Language course at another institution or an acceptable substitute at Manhattan College. The Kakos School of Science will also accept IELTS (International English Language Testing System) scores with a minimum of 6.5 on the 9.0 scale, TOEIC (Test of English for International Communication) scores with minimum score of 690, and Duolingo English Test scores of 110 or higher.

Some international students are exempted from the English proficiency requirement based on where the undergraduate degree was awarded. International students graduating from an accredited four-year undergraduate program in the United States will not need to submit an English proficiency exam score. Graduates of undergraduate programs in English speaking countries that are signatories to the Washington Accord along with the USA, specifically Australia, Canada, Ireland, New Zealand, and the United Kingdom, will not need to submit English proficiency exam scores. A complete list of exempted countries is available from Graduate Admissions.