

General Advising Information for Liberal Arts Mathematics (MATA) Majors

What can I do with a degree in mathematics?

Almost anything! While some employers may look for specific technical skills, most employers will care more about your ability to think clearly and learn new skills as your career develops. A mathematics degree demonstrates your ability to reason effectively, a prized asset in the increasingly information-driven economy. Good writing and computer skills will further increase your marketability.

Studies show that the average person makes several career changes during their lifetime. The ability to think clearly and logically, tackle difficult problems, and work independently, all skills developed by the liberal arts mathematics major, will be an asset at each step of your career.

What types of fields do MATA majors work in?

Recent TCNJ liberal arts mathematics majors have pursued a diverse number of careers. While some majors have gone on to pursue graduate work in mathematics, the majority of our graduates find jobs upon graduation that make use of their mathematical training and logical reasoning skills. TCNJ MATA graduates work in the actuarial profession (also see the TCNJ actuarial program handout), oceanography, consulting, the computer industry, data analysis, cryptography, financial analysis, public policy analysis, statistics, law, medicine, and education. Nationally, most mathematics majors are employed in industry or with the government. For example, the largest employer of mathematicians in the United States is the National Security Agency, (www.nsa.gov/careers/careers_3.cfm) which does a lot of cryptography work. Most of these jobs only require a bachelor's degree in mathematics. However, many students decide to continue their studies, either immediately after graduation or after working for a few years.

For further career ideas, in addition to the information available on the math department website, you may visit the following websites, run by the Mathematical Association of America, the American Mathematical Society, and the Association for Women in Mathematics:

www.maa.org/students/undergrad/career.html

www.ams.org/employment

www.ams.org/employment/undergrad.html

www.ams.org/careers/

www.awm-math.org/career.html

What can I do this summer?

Many students pursue internships or research programs during the summer, especially during the summer after junior year. Research Experiences for Undergraduates (REU's) are programs funded by the National Science Foundation (NSF) at various colleges and universities across the country, providing students with opportunities to do research in mathematics for eight weeks in the summer under the supervision of a faculty member, with room, board, and a stipend paid by the NSF. These programs provide excellent opportunities, especially for students contemplating graduate school in mathematics. Information may be found at

www.ams.org/employment/reu.html

For student interested in working in government or industry after graduation, many companies and government divisions have internship programs for undergraduates. We post a few ads on the department website. Many more ads can be found on the AMS website at

www.ams.org/employment/internships.html

The National Security Agency has several summer internship programs. Information can be found at www.nsa.gov/careers/students_1.cfm

The College of New Jersey also has its own summer research program, open only to TCNJ students. A summary of the 2005 Summer research program can be found at

www.tcnj.edu/~ccr/update/05september/SummerUndergraduateResearchProgram.html

The Mathematics and Statistics Department expects to participate in the 2006 Summer research program. Details will be released in early spring 2006.

Can I go on a semester abroad?

It is a cliché that “Travel broadens the mind,” but it does. The flexibility of the MATA major allows students to take advantage of TCNJ’s many semester abroad programs.

In mathematics, there are several specialized programs which combine travel opportunities with an intensive mathematical experience with similarly minded undergraduates from other schools. Taught in English, these nationally competitive programs are highly recommended. Information on three programs: Math-in Moscow, the Budapest Semesters in Mathematics, and the MASS program at Penn State (Pennsylvania!) can be found at: www.ams.org/employment/undergrad.html Application deadlines are usually in the latter half of the fall semester.

Post-graduation, Fulbright Awards, Rhodes Scholarships, and other programs and fellowships offer the possibility of support for international study after graduation. The application deadlines for these awards are usually early in your senior year and applications must be started significantly ahead of that deadline.

What do I need to do if I am considering applying to graduate school?

All students considering graduate school in mathematics should take additional mathematics courses beyond those required for the MATA major. For students interested in pure mathematics, topology is highly recommended, as well as additional courses in abstract algebra and analysis beyond those already required. A variety of other 400-level classes or independent study courses is also recommended. Students interested in studying applied mathematics in graduate school should take Differential Equations and supplement it with the courses: Topics in Linear Algebra, Seminar(s) in Applied Mathematics, Numerical Methods, additional analysis courses, as well as independent study courses (Partial Differential Equations has been a past topic). Depending on one’s interests, some computer science courses may also be useful.

Students wishing to go to graduate school in math will need to take the GRE’s. The math subject test is a paper test offered in April, November, and December. The general GRE exam (similar to the SAT) is taken online. See the website www.ets.org for specific GRE information.

Graduate school application deadlines generally fall between December 31 and March 31, depending on the program. Students thinking of applying to graduate schools will therefore need to begin the process in the fall of senior year.

Students wishing to pursue graduate work in other fields may need to take exams as well. Information about LSAT’s (for law schools) and MCAT’s (for medical school) is available at

www.lsac.org (LSAT’s)

www.aamc.org/students/mcat/start.htm (MCAT’s)

Students wishing to do graduate work in other fields will also need to supplement their undergraduate mathematics major program with other classes appropriate to the area of desired study.

What about all my other questions?

Fortunately you have an advisor! Your advisor may know the answer to your question immediately. If not, he or she will be happy to help you find an answer. Call or email for an appointment!