Information for Prospective Math Majors at Princeton

FRESHMAN YEAR

- **Most prospective majors take MAT 215/217 or MAT 216/218 in the freshman year, for a rigorous introduction to analysis and linear algebra with formal mathematical proofs. These courses are also useful for students interested in physics, computer science, or finance/economics. Prerequisites for MAT 215 are a strong high school background in traditional high school calculus. MAT 215/217 should be followed by MAT300 (or possibly MAT203) to ensure a solid foundation in multivariable calculus. MAT 216 is intended for students who already have significant experience with proof-based mathematics courses at the university level. In very rare cases, some students will begin in 300-level courses, but these students should register for MAT 216 and consult with the instructor to get permission to skip MAT 216.**

- **Some future math majors take MAT 203/204 in the freshman year, an intensive introduction to vector calculus and linear algebra primarily aimed at students with a strong interest in applied mathematics and physics or engineering. Prospective majors who start here should take MAT 215 in the Fall of their sophomore year for an introduction to formal proofs.**

- **Other paths involving 201, 202, and 214 are also possible. Prospective mathematics majors should consult with the department early and plan a program that includes as much of the 215-217-300 or 216-218 sequence as possible.**

- **Some eventual math majors start in MAT 103/104/201/202 in the freshman year. Students in these courses who want to major in math should contact Jennifer Johnson (jmjohnso@princeton.edu) early on to plan a program of study.**

- **Some math majors do the Integrated Science curriculum in the freshman year. This may be difficult to combine with the standard MAT 215/217 sequence, and these students should consult Mark McConnell (markwm@princeton.edu), the Junior Advisor, for advice on planning a program of study.**

DEGREE REQUIREMENTS

- **Majors are required to take eight math courses at the 300-level or higher, with four core requirements: at least one course in each of complex analysis, real analysis, and algebra, and one in geometry, topology, or discrete math. The remaining four courses can be tailored to the individual student's interests, and can include up to three approved courses with suitable mathematical content from other departments. (COS, PHY, ECO, ORFE courses are frequent choices.) This makes it possible to combine a degree in mathematics with a certificate program in COS or Finance, for example.**

- **The junior independent work consists of two junior seminars or a junior seminar and a junior paper.**

- **The senior independent work consists of a senior thesis. Many students write a thesis under the supervision of faculty from other departments; COS, PHY, ORFE, and EE are frequent choices, but ECO/Finance, Biology, Neuroscience, Philosophy and even the Program in History of Science are not uncommon.**

OTHER FREQUENTLY ASKED QUESTIONS

- ***Study Abroad*: Many math majors participate in study abroad programs; this is easiest in the junior year. Consult the Junior Advisor or the Director of Undergraduate Studies.**

- ***Summer Research*: There are many opportunities for summer research, either at Princeton or in REUs at other institutions. Consult the department website or the Junior Advisor. To get the most benefit from these programs, it is very helpful to have already completed the core requirements in algebra and analysis.**

- ***Graduate Courses*: Advanced undergraduates do frequently take graduate courses, primarily in the senior year, with departmental permission.**

- ***Applied Mathematics*: The applied math certificate program is administered by The Program in Applied and Computational Mathematics (PACM). Consult their web site (http://www.pacm.princeton.edu/) or their undergraduate representative (Professor Ramon van Handel, rvan@princeton.edu) to learn more.**

- ***Working on Campus*: Many math majors are employed as graders and course assistants. They also work as peer tutors at McGraw. For further information, contact Jennifer Johnson.**

CAREERS FOR MATH MAJORS

- ***What does a typical math major do after graduating from Princeton?* Based on recent exit surveys, slightly more than half go on to do graduate study in mathematics or related fields. The rest are about equally likely to take positions in tech companies or in finance, from startups to established companies.**

ADDITIONAL INFO AND CONTACTS

The math department maintains an extensive web site with detailed information for majors at http://www.math.princeton.edu/undergraduate/math-majors

- **Dr. Mark McConnell, Junior Advisor (markwm@princeton.edu)**
- **Dr. Jennifer Johnson, Associate Director of Undergraduate Studies (jmjohnso@math.princeton.edu)**
- **Prof. Ana Menezes, Placement Officer (amenezes@princeton.edu)**
- **Prof. János Kollár, Director of Undergraduate Studies (kollar@math.princeton.edu)**
- **Ms. Michelle Matel, Undergraduate Administrator, 315 Fine Hall (mmatel@princeton.edu)**