

Spring 2007
Freshman Discovery Course

Math 299. Mathematics

CRN 47059 (3 credits)
1:00-1:50 MWF, 345 Altgeld Hall

Instructor: Daniel Grayson

Mathematics differs from the physical sciences mainly in that facts, once discovered and proven, remain true forever. The proofs of many basic mathematical facts are accessible to students, eliminating the need to rely on authorities. This course aims to introduce students early to the notion of mathematical proof through a combination of lecture and cooperative group work in class. We will cover topics from number theory, algebra, combinatorics, and calculus.

Students will help develop proofs during class. Written expositions of the mathematical facts and techniques mastered in class will be a major part of the grade.

This Spring semester course is aimed at a level appropriate for freshmen who have taken Calculus or Calculus I in the Fall and are taking Calculus II in the Spring, and are interested in seeing what the wider world of mathematics has to offer. This is a Discovery course for freshmen only.

ABOUT THE INSTRUCTOR:

Daniel Grayson is a Professor of Mathematics. He received his Ph.D. from MIT in 1976 and joined the UIUC Department of Mathematics in 1981. His main research interest is algebraic K-theory (basically the study of very large matrices of polynomials via topological methods) and especially its connection to motivic cohomology and number theory. On the practical side, he is interested also in the development of mathematical software: he was one of the original authors of Mathematica in 1988, and more recently he has been one of the authors of a package called Macaulay 2 for research in algebraic geometry. His research is funded by the National Science Foundation. He won the Prokasy Award for Excellence in Undergraduate Teaching, 1990, and was a University Scholar here, 1985-1988.