

## ADVICE for FALL 2014 MATH CLASSES FOR PROSPECTIVE MATH MINORS WHO HAVE TAKEN MATH 212 or Math 222

These are the opinions of Professor Cochran, not official opinions of the Math Dept.. see here or the general announcements for the requirements for a MATH minor:  
<http://math.rice.edu/undergrad-math-degree/MathMinor.html>

The minor in mathematics is available to students majoring in other fields who take at least 18 credit hours in MATH at the 200 level or above, including at least 12 credit hours at the 300 level or above. These are subject to certain breadth requirements.

### FALL CLASSES SATISFYING LINEAR ALGEBRA BREADTH REQUIREMENT

221 Honors Calculus III MWF 11 Prof. Jones

354 Honors Linear Algebra MWF2; Dr. Calabrese

Theoretical treatment of matrices, vector spaces, linear transformations etc. Some instruction in mathematical proof. For people who like math, and abstraction, and might want to be a math (or double) major, or mathematically able students in economics, physics, electrical engineering, computer science. Recommend: completion/concurrent enrollment in a 200-level math course. This is the preferred option for all MATH majors.

355 LINEAR ALGEBRA MWF 2; Dr. Kinneberg

Less theoretical than 354, more matrices, fewer proofs. Linear algebra is a required class for many majors.

### FALL CLASSES SATISFYING Algebra/discrete Math BREADTH REQUIREMENT

Note: Math Minors should consider taking Combinatorics or Number theory this fall to satisfy their algebra/discrete math breadth requirement; The abstract algebra classes in the spring are more abstract and more difficult and perhaps less relevant to your major.

365 Number Theory MWF1 Dr. Shadrach

Basic theory of integers, prime numbers, factorization, Diophantine equations, applications in cryptography. This can be a first or second ``proofs'' class.

368 Combinatorics TTh 1; Dr. Allison Moore

No pre reqs. Graph theory, enumerative combinatorics, combinatorial games. Fun topics, though not easy. I think this would be the best choice for someone whose major was in COMP SCI or ECONOMICS

Math 371 Lie Theory: TR 10:50 Dr. Tanimoto

Study of classical groups as symmetries of Euclidean spaces. Geometry of complex numbers and quaternions, rotations and reflections of  $\mathbb{R}^n$ , the orthogonal, unitary and symplectic groups. Tangent spaces to matrix groups, Lie algebras and the exponential map. If time permits: the structure of Lie algebras and the matrix logarithm. (MATH 211 AND MATH 212) OR MATH 221; Recommended Corequisite(s): MATH 354 or MATH 355.

374 Intro to Representation theory MWF 3 Cancelled

FALL CLASSES SATISFYING Analysis BREADTH REQUIREMENT

381 Intro to Partial Diff. Equations MWF 1; Dr. Wu

Laplace transform: inverse transform, applications to constant coefficient differential equations. Boundary value problems: Fourier series, Bessel functions, Legendre polynomials. Especially good if you are a double major in certain science and engineering. Suggested prerequisite Math 211 or permission of instructor.

321 Intro to Modern Analysis I: MWF3 Prof. Semmes

Metric spaces, open, closed sets, continuity, compactness, connectedness, sequences and series of functions. This is a gateway class for all the more advanced classes in real analysis and topology. Requires 221-222 or Math 302 or permission of Instructor.

423 Partial Diff Equations I TTh 9:25 Dr. Ariturk

First order of partial differential equations. The method of characteristics. Analysis of the solutions of the wave equation, heat equation and Laplace's equation. Integral relations and Green's functions. Potential theory, Dirichlet and Neumann problems. Asymptotic methods: the method of stationary phase, geometrical optics, regular and singular perturbation methods. I suggest taking Math 321 before this class.