Block E+: Wednesday, Friday 10:30 a.m.–11:45 a.m.
Instructor: Kim Ruane
Office: Bromfield-Pearson 213
Office Hours (Fall 2007): Tue 2:30–3:30 a.m., Thu 12:30–1:30 p.m., Fri 1:30-2:30 p.m.
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Prerequisites: Math 12 or consent


Description:

Linear algebra is a foundational subject, not just in mathematics but also in physics, engineering, economics, and many other disciplines. This honors class is meant to offer a solid conceptual introduction to the subject. For this reason, there will be a strong emphasis in this class on proving theorems, and less on doing calculations. We will also cover most of the problems in the text, as they form an absolutely essential part of the course.

Topics covered: finite dimensional vector spaces over $\mathbb{R}$ and $\mathbb{C}$ including the concepts of: basis, span, linear independence, and dimension. Linear maps, eigenvalues, eigenvectors, inner product spaces, operators, determinants.

Along the way we will have some discussion of the computational aspects of linear systems of equations and matrices. However, our primary reason for doing this is to give concrete examples of linear maps between $\mathbb{R}^n$ and $\mathbb{R}^m$ to help us understand many of the important concepts in the theory.