

## Departmental Colloquium

### *The Maximal Rank Theorem*

Joe Harris (Harvard)

**Abstract:** The Brill-Noether theorem establishes a fundamental link between the classical notion of a curve in projective space, given as the zero locus of polynomials, and the (relatively) modern notion of an abstract curve. Specifically, it tells us when and how a given general abstract curve can be embedded in  $\mathbb{P}^r$ . But that's just the opening line of the story: having embedded our abstract curve in projective space, we can ask about the geometry and algebra of the image. In particular, we ask what sort of polynomial equations define the image – what their degrees are, and how many of them there are. *The Maximal Rank Conjecture*, recently proved by Eric Larson, gives the answer to this question. In this talk, I'll describe the ideas leading up to this theorem, give an overview of the proof, and discuss the questions that follow.

*This lecture will also serve as the first talk in the "Workshop on Algebraic Geometry and its Broader Implications" to be held over the following weekend March 23-25 at UIC, a conference in honor of Robin Hartshorne's 80th and the book's 40th. See <http://kftucker.people.uic.edu/Hart80/> for further details.*

Friday, March 23 at 3:00 PM in Lecture Center A1
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