



**Speaker:** Juan Migliore  
University of Notre Dame

Tuesday, November 6, 2012  
12:00 PM  
258 Hurley Hall

**Title:** A Survey on the Weak (and Strong) Lefschetz Property

**Abstract:**

For an artinian graded algebra, the Weak Lefschetz Property basically says that in each degree, multiplication by a general linear form has the largest rank possible, viewed as a homomorphism of vector spaces. The Strong Lefschetz property is defined by the analogous statement for any power of a general linear form. The problem of determining whether or not this property holds for some family of algebras is amazingly complex, and has many unexpected connections to apparently unrelated areas, such as lozenge tilings and the Grauert-M\"ullich theorem for vector bundles. Issues about the characteristic of the ground field turn out to be important. This talk will give an overview of the field, drawing as many connections and quoting as many results as time allows, to give a flavor for what's known and what are some of the important open problems.