Speaker: Ted Chinburg

Title: Arithmetic quotients of the upper half plane and its complex counterpart

Abstract: Lefschetz theorems have to do with generating the fundamental group of a large algebraic variety S, up to finite index by the image of the fundamental group of the union C of a small number of small subvarieties C_i. Let us say that C is big in S if this is true. In this talk I will focus on the case in which S is a smooth complex projective surface and C is a union of curves. The main new result, with Matt Stover, is that any sufficiently large finite set of irreducible curves on S which each have negative self-intersection must contain two curves C_1 and C_2 whose union C is connected and big in S. I will then talk about applications in which S is an arithmetic quotient of either the complex hyperbolic upper half plane or the product of two copies of the real upper half plane.