**Ben Howard (Boston College)**

*Title: Cycles on the moduli space of elliptic curves*

The goal of the mini-course is to develop enough machinery from the deformation theory of elliptic curves to prove two results.  The first result, due to Kudla-Rapoport-Yang, is a formula for the degrees of certain 0-cycles on the moduli space of elliptic curves.  The second result, due to Gross-Zagier, is a formula for the prime factorizations of differences of singular moduli (j invariants of CM elliptic curves).  In both results the explicit formulas also appear, somewhat surprisingly, among the Fourier coefficients of derivatives of Eisenstein series.