

# ***ALGEBRAIC GEOMETRY AND COMMUTATIVE ALGEBRA SEMINAR***

**Speaker: Luis Duarte**  
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**Date:** Tuesday, March 1, 2022

**Time:** 2:30 PM

**Location:** 258 Hurley Hall

**Zoom URL:**

***Lecture Title:***

**Ideals in a local ring under small perturbations**

***Abstract***

Let  $I$  be an ideal of a Noetherian local ring  $R$ . We study how properties of  $I$  change for small perturbations, that is, for ideals  $J$  that are the same as  $I$  modulo a large power of the maximal ideal. In particular, assuming that  $J$  has the same Hilbert function as  $I$ , we show that the Betti numbers of  $J$  coincide with those of  $I$ . We also compare the local cohomology modules of  $R/J$  with those of  $R/I$ .