Overview:

This fall we'll be learning *unstable motivic homotopy theory* with an eye towards computations in the unstable setting, and the development of motivic obstruction theory. Some topics we hope to cover (subject to change) include:

- Torsors, descent, sheaves, topoi
- Motivic spaces
- Homotopy purity, six functors formalism
- Chow groups, Chow-Witt groups, I^j-cohomology
- Gersten and Rost-Schmid complexes
- Affine representability
- Motivic obstruction theory

Background

At the very least, we will assume a strong handle of homological algebra, commutative algebra, category theory, and basic algebraic geometry. Knowledge of homotopy theory will be helpful mostly for intuition but we won't assume everyone is a homotopy theorist. We will use the language of infinity-categories, so familiarity with this is a plus.

Grading:

Students interested in taking this class for credit will be expected to **write a small expository paper on an extra topic**, due before the end of the semester.

Contact

Please reach out to me at brazelton@math.harvard.edu with any questions! I look forward to seeing you this fall :)