

## ***GRADUATE STUDENT SEMINAR***

**Guest Speaker: Hari Rau-Murthy**  
**University of Notre Dame**



***Date:*** Monday, April 1, 2019

***Time:*** 4:00 PM

***Location:*** 117 Hayes-Healy Hall

***Lecture Title:***

**The group completion theorem motivates a lot of constructions**

***Abstract***

The group completion theorem records how homology groups of a monoid (with continuous multiplications and inverse) change after we group complete the monoid. This theorem can be used to motivate two esoteric constructions. One is in finding the right definition of the higher K-groups of a ring and the other is in defining higher categorical versions of a vector bundle. We will motivate the group completion theorem and these other two constructions. If time permits we will give applications to the Red Shift conjecture, an active area of research in Homotopy theory.