MAT 691 SPRING 2015
Advanced topics in algebraic geometry:
Perverse sheaves in algebraic geometry and in representation theory

Instructor: Mark Andrea de Cataldo
Tu and Th 2:30-3:50

This is an introduction to the use of perverse sheaves in geometry and in representation theory.
This will be done by analogy with other hopefully more familiar objects (such as locally constant
sheaves), by means of many examples and also a bit more formally. There will be a discussion of
perverse sheaves, their basic structure theorems (Jordan-Holder, intersection complexes and a bit of
intersection cohomology), the way in which they appear in the topology of algebraic varieties and maps
and, eventually, of some of the remarkable applications of these objects to geometry, representation
theory and combinatorics.
A partial reference is the following survey: http://www.ams.org/journals/bull/2009-46-04/
S0273-0979-09-01260-9/S0273-0979-09-01260-9.pdf