

**Math 598K Fall 2008**  
**Homological Algebra: Derived Categories**  
**Syllabus**

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**Class times:** TTh 1:30-2:45 MATH 215

**Homepage for the course:** <http://www.math.purdue.edu/~rkaufman/MA598Kf08/>

**Office hours: TBA**

If you have a conflict with these times, we can arrange for another time to meet.

**Texts:** S.I. Gelfand and Yu. I. Manin  
*Methods of Homological Algebra*  
Springer 1996  
Charles A. Weibel  
*An introduction to homological algebra.*  
Cambridge Studies in advanced mathematics.  
Cambridge University Press 1997.

**Course description:**

Homological algebra is an indispensable tool in many areas of mathematics, such as topology, algebra, algebraic geometry and mathematical physics related to string theory.

We will start with the basic theory of derived functors and derived categories and then go on to discuss triangulated categories and newer concepts like stability. Throughout we will use examples from topology and algebraic geometry.

**Required Work:** There will be a small number of homework assignments and a take home final or a presentation. The homework will be listed on the webpage. Homework will be collected but not graded. The completion of the homework and attendance/participation in class will be part of the grade.

**Academic Adjustments for Students with Disabilities:**

Students who have been certified by the Office of the Dean of Students – Adaptive Programs as eligible for academic adjustments should go to MATH 242 with a copy of their certification letter and request an *Information Sheet* for this semester that explains how to proceed this semester to get these adjustments made in Mathematics courses. It is not the same as last semester. **This should be done during the first week of classes.** Only students who have been certified by the ODOS-Adaptive Programs and who have

requested ODOS to send their certification letter to their instructor are eligible for academic adjustments.

Students, who are currently undergoing an evaluation process to determine whether they are eligible for academic adjustments, are encouraged to find out **now** what procedures they will have to follow when they are certified, by requesting the above mentioned *Information Sheet* from MATH 242.