

MA 69700 - Fall 2011- Syllabus
Cobordisms, Genera, Characteristic Classes and Topological K-Theory

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Class times: MWF 10:30 – 11:20 am in REC 114

Homepage for the course: <http://www.math.purdue.edu/~rkaufman/MA697f11/>

Office hours: Monday and Wednesday 1:30 – 2:20 am.

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

Texts: The course is eclectic in its sources. The main references are:

1. Hirzebruch, Berger and Jung: Manifolds and Modular Forms Viehweg 1992
2. Schwarz: Notes on K-theory (typoscript)
3. Atiyah, K-theory: original or Westview Press

I will try to make them available in the library.

Course description:

In this course we will discuss several generalizations of cohomology theories.

We will start with the theory of cobordisms and discuss its relation to topological field theories. A related topic, which we will treat, is characteristic classes and numbers. We then go on to discuss general, with an emphasis on the elliptic genus and the Witten genus. Finally we will treat topological K-theory.

Required Work: Besides the expected participation in class there will be homework assignments and a take home final or written project at the end of the semester. The homework will be listed on the webpage. If there is no grader homework will be collected but not graded.

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.