Geometry and Topology
Fall Semester 2013

Course  MATH 441 Section 1  MWF 9:00–9:50am  RB 126

Instructor Dr. Hanspeter Fischer

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Office Hours Mon 11:00–11:50am, Tue 9:00–9:50am, Wed 10:00–10:50am,
Thu 11:00-11:50am, Fri 1:00–1:50pm, and by appointment.

Prerequisites MATH 217 and MATH 267.

Text As a principle reference for this course will serve the book *Topology of Surfaces, Knots, and Manifolds*, by Stephan C. Carlson. However, we will frequently digress from the text and/or cover additional material, which we will investigate through additional examples and exercises.

It is therefore important that you take and keep complete class notes.

Contents This course is an introduction to the basic ideas and problems of geometric topology, i.e., the topological study of manifolds, and related topics. We will cover the following: basic notions of topology; surfaces and their classification; a brief discussion of 3-dimensional manifolds; orientability; cell/simplicial complexes and Euler characteristic; graphs; knots and links; fundamental group; covering space theory. If time permits we might cover some additional topics: further aspects of 3-dimensional manifolds; reflection groups and tessellations.

Website The above website will feature additional course material as well as links to outside resources. Please visit this site regularly for course announcements and up-to-date deadlines.

Homework There will be weekly homework exercise sets, with the exception of weeks during which take-home exams are given. The assignments (with due dates) will be available online at above website.

Examinations There will be four mid-term examinations. Each of these exams will have an in-class and a take-home component.

Project Each student will give a presentation on a semester project of his/her choice and turn in a written report. Appropriate topics will be suggested later in the course. The presentations will be given during the final exam period on Friday, December 13, 7:30–9:30am.

Timetable A tentative schedule is attached. See above website for changes and updates.

Evaluation Each of the four exams is worth 15% of your grade, homework adds up to 25%. The remaining 15% come from the project.

The approximate grading scale (in percent) is:
A: 90 – 100, B: 80 – 90, C: 70 – 80, D: 60 – 70, F: below 60.
Deadlines

The last day to change a course is Friday, August 23. The course withdrawal period is Saturday, August 24, through Wednesday, October 23, 4:00pm. During this period students can elect to receive a “W” for the course by completing and submitting the proper form to the Registrar’s Office. The instructor’s permission is not required. For details, see the section Withdrawal under Degree Requirements and Time Limits in the current Undergraduate Catalog.

General Remarks

(1) Students are expected to come prepared to all meetings, having read upcoming sections of the textbook. Be always up to date!

(2) It takes time to digest and master new concepts. Expect to study for a minimum of two hours outside of class for each hour in class. Missing class is a major setback.

(3) Everybody is strongly encouraged to engage with classmates in frequent general discussions of the material. However, on assignments, credit should be claimed only for one’s own work. Moreover, collaboration on take-home exams is not permitted.

(4) If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible.

(5) Please turn cell phones off during class. Thank you.