

MATH 363 – Topics in Topology
Spring 2009
MWF, 12:00 Noon to 1:50 PM, Swords 359

Syllabus (1/8/09)

Instructor: Prof. David Damiano, 341 Swords, 793-2476/3374
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Office Hours: MRF 11 AM to Noon. WF 9 to 10 AM, and by appointment.

Course Home Page: <http://math.holycross.edu/~dbd/math363/math363.html>

Course Materials: *Beginning Topology*, Sue E. Goodman. Publisher: Thomson, Brooks Cole, 2005. (Available on-line through Amazon.com. Used copies will be fine.)

Prerequisites: MATH 242 and Math 244 or permission of the instructor.

Intended Audience: This course is designed for upper division mathematics majors or non-majors with knowledge of mathematics through the department's intermediate level courses. This course fulfills the department's Geometry/Topology breadth area requirement.

Introduction to Topology: Topology is a large area of mathematics that has interesting and important connections to all areas of mathematics and many sciences. As a reference point, geometry is the study of curves and surfaces in space and their analogues in higher dimensions. Two such objects are considered equivalent if one can be transformed into the other in such a way that distances between points on the object are preserved. That is, we think of objects as being rigid. For example, geometrically a circle and ellipse are not equivalent. By comparison, in topology, two objects are considered equivalent if one can be continuously deformed into the other. Consequently, we think of objects as being flexible rather than rigid. For example, topologically a circle and ellipse are equivalent. This understanding of equivalence is quite intuitive yet sturdy.

We will follow the text with some care and cover most sections of each chapter. This will provide something of a tour of basic ideas in topology. My own interest in the subject is in the theory of knots, which is covered in the last and longest chapter of the book. My hope is that we will be able to cover this chapter in its entirety and in some detail.

Class Format: Two thirds or so of the classes will be lectures. The remaining classes will be devoted to either homework or small group assignments.

Homework: There will be weekly homework and/or group assignments, mostly due on Fridays. You will have at least a week to complete each assignment.

Exams: There will be one in-class exam that focus on definitions, statements of theorems, and short proofs. This is tentatively scheduled for *Friday, March 13*. (With the agreement of the class, this may be scheduled in the evening.) The final exam will be during the regularly scheduled exam period and will have the same format. The final exam time slot for this time period is Friday, May 8, 2:30-5:30 PM. (The time period may be moved by the Registrar to avoid construction noise.)

Grading: There are several components to the course grade.

Homework	40%
Collaborative Assignments	20%
Mid-term Exam	15%
Final Exam	25%
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Total	100%

Academic Honesty: The Department of Mathematics and Computer Science adheres to the College's policy on Academic Honesty, which may be found on page 13 of the 2008-2009 College Catalogue. In addition, the department has formulated the attached statement intended to amplify the policy as to how it might apply in mathematics and computer science.