

MATH 541 Topology II

1. Catalog Description

MATH 541 Topology II (4)

Introduction to general topological spaces with emphasis on surfaces and manifolds. Fundamental group. Triangulations of spaces, classification of surfaces. Other topics may include covering spaces, simplicial homology, homotopy theory and topics from differential topology. 4 lectures. Not open to students with credit in MATH 441. Prerequisite: MATH 540 and graduate standing, or consent of instructor. Recommended: MATH 304.

2. Required Background or Experience

Math 540 and graduate standing. Math 304 recommended.

3. Learning Objectives

The student should:

- a. Be able to define and use the fundamental group.
- b. Develop facility with triangulations of surfaces.
- c. Understand the classification of surfaces.

4. Text and References

To be chosen by the instructor.

5. Minimum Student Materials

Paper, pencils and notebook.

6. Minimum University Facilities

Classroom with ample chalkboard space for class use.

7. Content and Method

Content

<u>Topic</u>	<u>Lectures</u>
The fundamental group	12
Triangulations	12
Classification of surfaces, Euler characteristic	12
<i>Optional:</i> Introduction to simplicial homology	
Total	36

Method

The instructor will lecture and assign problems for homework and class discussion. Students may be assigned topics and problems for presentation to the class.

8. Methods of Assessment

The primary methods of assessment, are, in decreasing order of importance: Essay examinations and homework. Typically, there will be two or three hour-long examinations during the quarter, and a comprehensive final examination. Students are required to show their work, and are graded not only on the correctness of their answers, but also on their understanding of the concepts and techniques. Homework is required weekly.