

MATH 540 Topology I

1. Catalog Description

MATH 540 Topology 1 (4)

Introduction to general topological spaces with emphasis on surfaces and manifolds. Open and closed sets, continuity, compactness, connectedness. Quotient spaces. 4 lectures. Not open to students with credit in MATH 440. Prerequisite: MATH 412 and concurrent enrollment in or completion of MATH 481, or consent of instructor.

2. Required Background or Experience

Math 412 and concurrent enrollment in or completion of Math 481.

3. Learning Objectives

The student should:

- a. Develop facility with basic topological spaces and surfaces.
- b. Be able to define and use the concepts of continuity, compactness, and connectedness.
- c. Understand and be able to construct spaces using the quotient topology.

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>
Introduction to topological spaces, surfaces	8
Continuity	8
Compactness and connectedness	12
Identification spaces	<u>8</u>
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.