

## MATH 540 Topology I

### 1. Catalog Description

#### **MATH 540 Topology I**

**4 units**

Prerequisite: MATH 412 or graduate standing in Mathematics. Corequisite: MATH 481 or graduate standing in Mathematics.

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.

### 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

#### Topic

- a. Introduction to topological spaces, surfaces
- b. Continuity
- c. Compactness and connectedness
- d. Identification spaces

#### Lectures

	8
	8
	12
	8
Total	<u>36</u>

### 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

Exams, homework, and possibly student presentations.