

ELEMENTAL TOPOLOGY

MATH 4610/8616

1.0 Course Description

1.1 Overview of Content and Purpose: (3 hours) Sets and functions, metric spaces, topological spaces and continuous functions and homeomorphisms, connectedness, compactedness.

1.2 For whom Intended:

1.3 Prerequisite: MATH 3230/8235 or equivalent

2.0 Objectives

2.1 Performance Objectives for the Student: The main objective of the course is to introduce the student to the elementary ideas of general topology. A second goal is to develop the student's skills in abstract mathematical reasoning and the careful presentation of proofs.

3.0 Content and Organization

3.1 Topics:

1. Sets and functions
2. Metric spaces
3. Topological spaces
4. Continuous functions, homeomorphisms, topological properties.
5. Connectedness
6. Compactness

4.0 Teaching Methodology

4.1 Methods to be Used: The course will be taught primarily through lectures, with student questions and discussion encouraged. Students will be expected to complete weekly written problem assignments.

5.0 Evaluation

5.1 Basis for Evaluating Student Performance: Students will be evaluated primarily on the basis of two or three hour tests and a final examination. Performance on homework assignments will also be considered in determining grades. Graduate students will be expected to complete assignments not required of undergraduates.

6.0 Resource Material

6.1 Textbook(s) or Other Required Readings:

6.2 **Current
Bibliography
of Resources:**

1. Baum, John D. , *Elements of Point Set Topology*,
2. Blacket, Donald W., *Elemental Topolog*, Academic Press, 1968.
3. Dugundji, James, *Topology*, Allyn and Bacon, 1966.
4. Geminignaci, Michael C., *Elemental Topology*, Addison Wesley, 1967.
5. Hocking and Young, *Topology*, Addison Wesley, 1961.
6. Kasreil, Robert H., *Undergraduate Topology*, Saunders, 1971.
7. Kelley, John L., *General Topology*, Van Nostrand, 1955.
8. Mansfield, Maynard J., *Introduction to Topology*, Krieger, 1963.
9. Massey, William S., *Algebraic-Topology, An Introduction*, Harcourt, Brace and World, 1967.
10. Mendelson, Bert, *Introduction to Topology*, Allyn and Bacon, 1964.
11. Moore, Theral O., *Elementary General Topology*, Prentice Hall, 1964.
12. Munkres, James R., *Topology, A First Course*, Prentice Hall, 1975.
13. Willard, S., *General Topology*, Addison-Wesley, 1970.