MTH 4/530–101 Topology I Fall 2005

Time: MW 2:00–3:15 PM  
Place: SH 509

Instructor: Ralph Oberste-Vorth  
Office: SH 524

Office Hours: MW 3:30-4:00 and TR 2:00-4:00. You are welcome to come in any time I am in my office.

Phone: 696-6010  
E-mail: oberstevorth@marshall.edu  
Fax: 696-4646

Prerequisite: MTH 300 Introduction to Higher Mathematics.

Catalog Course Description: First course in topology. Basics of point-set topology: metric and topological spaces, continuity, connectedness, compactness, products, quotients. Surfaces and simplicial complexes, Euler characteristics.

Learning Objectives: MTH 430 is the first course in the elective topology sequence. The first course is point-set topology and the second course covers algebraic topology. This sequence satisfies one of the sequence requirements for the new undergraduate mathematics major. MTH 530 is an elective in the mathematics masters program. Students who successfully complete this course will:

- learn the algebraic and topological properties of Euclidean space;
- study metric spaces, an abstraction of Euclidean space;
- study topological spaces, an abstraction of metric space;
- prove and apply results concerning products of topological spaces;
- prove and apply results concerning continuous functions on topological spaces;
- study connectedness of topological spaces;
- study compactness of topological spaces; and
- classify one- and two-dimensional manifolds.

Text: The main text is a set of notes distributed by me. The secondary text, especially for the last part of the class, is *Topology: An Introduction to the Point-Set and Algebraic Areas*, by Donald W. Kahn, Dover, New York, 1995.

Attendance: Attendance will not count directly towards your grades.

Homework/Boardwork: Homework/boardwork will count for half of the final grade. You will come to the board to present solutions of the boxed exercises in the notes. You should expect to come to the board roughly once per class. Read ahead and do your best. Feel free to ask questions of the presenters! Written homework may also be assigned.

Exams: There will be 2 exams. The tentative date of the Midterm Exam is Wednesday October 12. The Final Exam is on Monday December 12 from 12:45 to 2:45. Each exam will cover approximately one half of the course content. Students in MTH 530 may have slightly different exams. The Final Exam may be take-home or oral. *There will be make-up exams only for documented excuses!* Make-up exams may be oral exams. However, if you know in advance that you will miss an exam, please reschedule with me before the exam. Missing exam scores are treated as zeros.

Withdrawal Deadline: The deadline for withdrawing from individual classes with a grade of W is Friday October 28.


Grading Policy: The rounded average of twice your Homework/boardwork grade, Midterm Exam grade, and Final Exam grade will determine your letter grade for the course according to the following table:

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<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>90–100</td>
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<td>B</td>
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<td>C</td>
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<td>D</td>
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<td>F</td>
<td>0–59</td>
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