King Fahd University of Petroleum & Minerals

Department of Mathematics and Statistics

Math 421 (Introduction to Topology) – Semester 141

Prof. Jawad Abuhlail

Course Description: Topological Spaces: Basis for a topology, The Order Topology. The Subspace Topology. Closed sets and limit points. Continuous functions. The Product Topology, The Metric Topology. Connected spaces. Compact spaces. Limit point compactness. The countability axioms. The separation axioms. Urysohn's Lemma. Urysohn's Metrization Theorem. Complete metric spaces.

Prerequisite: MATH 311 (Advanced Calculus I = Real Analysis I).

Textbook: P. L. Shick, *Topology, Point-Set and Geometric*, Wiley (2007).

Additional Reading:

- J. Munkres, *Topology*, 2nd ed., Pearson (2000).
- L. A. Steen, *Counterexamples in Topology*, Dover Publications (1995).
- S. Willard, *General Topology*, Dover Publications (2004).

Grading:

First Major	Second Major	Homework	Projects/Presentations	Final Exam
20%	20%	10%	10%	40%

Syllabus

Chapter	Title	Week(s)
Ch. 1 & 2	Intuition & Background on Sets and Functions	1
Ch. 3	Topological Spaces	2
Ch. 4	More on Open and Closed Sets and Continuous Functions	2
First Major Exam		
Ch. 5	New Spaces from Old	2
Ch. 6	Connected Spaces	2
Ch. 7	Compact Spaces	2
Second Major Exam		
Ch. 8	Separation Axioms	2
Ch. 9	Metric Spaces	2
Final Exam (Comprehensive): Tuesday 30.12.2014, 8:00 – 11:00 AM		