

**King Fahd University of Petroleum & Minerals**

**Department of Mathematics and Statistics**

**Math 521 (General Topology I) – Semester 171**

**Prof. Jawad Abuhihlail**

**Course Description:** Basic Set Theory (countable and uncountable sets, cartesian products). Topological spaces (basis for a topology, product topology, functions, homeomorphisms, standard examples). Connected spaces, path connectedness. Compact spaces, compactness in metrizable spaces. Countability axioms, first countable and second countable spaces. Separation axioms, Urysohn’s Lemma, Urysohn’s metrization theory. Complete metric spaces.

**Prerequisite:** MATH 421 (Introduction to Topology).

**Textbook:** J. Munkres, *Topology*, 2<sup>nd</sup> edition, Pearson Education Limited (2014).

**Additional Reading:**

- 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
25%	25%	10%	5%	35%

**Syllabus**

Chapter	Title	Week(s)	
Ch. 1	Set Theory and Logic	1	
Ch. 2	Topological Spaces and Continuous Functions	2 & 3	
Ch. 3	Connectedness and Compactness	4, 5 & 6	
<b>First Major Exam: Sunday 29.10.2017, 7:00 – 9:00 PM</b>			
Ch. 4	Countability and Separation Axioms	7, 8 & 9	
Ch. 5	The Tychonoff Theorem	10 & 11	
<b>Second Major Exam: Sunday 3.12.2017, 7:00 – 9:00 PM</b>			
Ch. 6	Metrization Theorems and Paracompactness	12 & 13	
Ch. 7	Complete Metric Spaces and Function Spaces	14 & 15	
<b>Final Exam (Comprehensive): Tuesday 2.1.2018, 7:00 – 10:00 PM</b>			
Saturday	17 Muharram	7 October	Normal Sunday Classes

