Math 459 Topology January 2019

Eric Westlund Olin 307 387-1711 wester01@ luther.edu

Course description: This course will cover the basic concepts from point-set topology, (metrics, connectedness, compactness), and consider a variety of applications. We will meet twice a week for questions and discussion. Written exercises and a final paper on a chosen application will be used to determine a grade.

Reading List:

For basic point-set topology and applications:
Munkres, Topology, 2e (QA611 .M82 2000)
Adams & Franzosa, Introduction to Topology: Pure and Applied (QA611.A3455 2008)
Basener, Topology and its Applications (QA611.B275 2006)
Messer & Straffin, Topology Now! (QA611.M47 2006)
Additional articles on applications

Day	Date	Sections	Topics	Exercises		Due Date
Munkres, Chapter 1: Set Theory						
1	M 1/7	1 2 3	Basic Set Theory Functions Relations	- 2cg, 5 10		
2	T 1/8	4 5 6	Z and R Cartesian Products Cardinality	- - 2, 3, 7		
3	W 1/9	7	Countability	1, 5		F 1/11
Chapter 2: Topological Spaces and Continuous Functions						
4	R 1/10	12 13	Topological Spaces Basis for a Topology	- 7, 8		
5	F 1/11	14 15 16	Order Topology Product Topology Subspace Topology	- - 3, 4, 6, 10		
6	M 1/14	17	Closed Sets and Limit Points	3, 6, 11, 16, 19, 20		W 1/16
7	T 1/15		Applications			
8	W 1/16	18	Continuous Functions	2, 5		
9	R 1/17	19	Product Topology	3, 7		
10	F 1/18	20 21	Metric Topology	2, 5 6, 9		M 1/21
Chapter 3: Connectedness and Compactness						
11	M 1/21	23 24	Connectedness Connected Subspaces of R	6 1c, 3, 8		
12	T 1/22	26 27	Compactness Compact Subspaces of R	5 2abc, 6		F 1/25
Chapter 4: Countability and Separation Axioms						
13	W 1/23		Applications			
14	R 1/24	30	Countability Axioms	-		
15	F 1/25	31 32	Separation Axioms Normal Spaces	1, 2, 3 1		W 1/30
16	M 1/28	33	Urysohn Lemma	-		
17	T 1/29	34	Urysohn Metrization Theorem	-		
18	W 1/30		Final Paper Due			W 1/30