GENERAL TOPOLOGY I (MATE 3420)

- Professor: Stefano Ferri.
- Text: J. R. Munkres, "*Topology. A First Course*", Prentice–Hall, Engelwood Cliffs, 1975.
- Other recommanded texts:
  - S. Willard, "*General Topology*", Addison–Wesley, London 1970.
  - J. L. Kelley, "*General Topology*", Van Nostrand, Princeton, 1955.
  - J. Dugundji, "*Topology*", Allyn & Bacon, Boston, 1966.
  - R. Engelking, "*General Topology*", Heldermann, Berlin, 1989.
- Timetable: Monday, Tuesday, Thursday and Friday from 11:00 to 11:50 in Z103.
- Home-page: `http://matematicas.uniandes.edu.co/~stferri/students.html`

Programme of the Course

No.	Day.	Theory.	Sections.	Exercises.
1.	18 Mar	Basic concepts and examples	2.1	
2.	20	Bases and subbases	2.2	1, 3, 5
3.	21	Bases and subbases	2.2	
4.	24	Order topology	2.3	6, 7
5.	25	Two-folds products	2.4	
6.	27	Subspaces	2.5	4, 7, 8, 9, 10
7.	28	Closed sets and limit points	2.6	
8.	31	Closed sets and limit points	2.6	3, 6, 7, 8, 9, 10, 11, 13
9.	1 Feb	Continuous functions	2.7	
10.	3	Continuous functions	2.7	2, 4, 5 ab, 7, 8, 9, 10, 11
11.	4	Product topology	2.8	
12.	7	Product topology	2.8	1, 2, 3, 5, 6, 7, 8, 9
13.	8	Metric topology	2.9	
14.	10	Metric topology	2.9	
15.	11	**Exam 1**		
16.	14	Quotients	2.11	
17.	15	Quotients	2.11	2, 4, 5, 7, 8, 9
18.	17	Zorn Lemma	1.9, 1.10	
19.	18	Convergence	W 4.10	
20.	21	Nets	W 4.11	

21.	22	Filters and ultrafilters	W 4.12	
22.	24	Filters and ultrafilters	W 4.12	
23.	25	Connectedness	3.1	
24.	28	Connectedness	3.1	1, 2, 3, 4, 5, 6, 7, 8
25.	1 Mar	Connectedness in $\mathbf{R}$	3.2	
26.	3	Connectedness in $\mathbf{R}$	3.2	5, 6, 7, 8, 9, 10, 11
27.	4	Components	3.3	
28.	7	Local connectedness	3.4	
29.	8	**Exam 2**		
30.	10	Compactness	3.5	
31.	11	Compactness First 40%	3.5	2, 3, 4, 5, 6, 7, 8
32.	14	Compactness in $\mathbf{R}$	3.6	
33.	15	Tychonoff Theorem	5.1	
34.	17	Tychonoff Theorem	5.1	
35.	18	Limit point compactness Last day to retire	3.7	
36.	28	Local compactness	3.8	
37.	29	Local compactness	3.8	1, 2, 6, 8, 9
38.	31	Countability axioms	4.1	
39.	1 Apr	Countability axioms	4.1	1, 2, 5, 6, 8, 10
40.	4	Separation axioms	4.2	
41.	5	Separation axioms	4.2	1, 3, 4, 5, 7, 8, 9
42.	7	Urysohn Lemma	4.3	
43.	8	Urysohn Lemma	4.3	
44.	11	Urysohn Metrization Theorem	4.4	
45.	12	Urysohn Metrization Theorem	4.4	
46.	14	Partitions of Unity	4.5	
47.	15	Complete regularity	5.2	

48.	18	Čech–Stone compactification	5.3	
49.	19	Čech–Stone compactification	5.3	
50.	21	**Exam 3**		
51.	22	Complete metric spaces	7.1	
52.	25	Complete metric spaces	7.1	
53.	26	Uniform spaces	W 9.35	
54.	28	Uniform spaces	W 9.35	
55.	29	Complete uniform spaces: completion	W 9.39	
56.	2 May	Complete uniform spaces: completion	W 9.39	
57.	3	Review		
58.	5	Review		
59.	6	Review		