

## Math 262 Point Set Topology

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TuTh 11-12:20 Eck 202

### **Office hours.**

SW, Eck 403: Monday 2 - 3:30 & by appointment  
NM, MathStat 014: Wednesday 4-6 & by appointment

Problem session - to be scheduled.

Homeworks will be assigned on Tuesday and due the following Tuesday, except for week 1, when it is assigned on Thursday and due Thursday at class time. Homeworks turned in late will have a 50% penalty. People may work together, but all solutions should be written up separately, expressed in your own words.

Exams: There will be one midterm and one final. The midterm will be in-class on **Tuesday February 6.**

The grade will be based on 30% homework, 30% midterm and 40% final.

Syllabus: We will mainly follow the text **Munkres, Topology 2<sup>nd</sup> edition**. The pace will be approximately one chapter a week with a goal to get through the *most important* material in the first 9 chapters.

Homework 1: Due Thursday January 11

Read Chapter 1 on set theory and make sure that everything there seems easy except perhaps sections 7, 9, 10, 11. (In particular, section 8 should be easy.) These later sections are important and you should gain understanding with time.

Do problems:

p.51: 4,5,6,7  
p.61: 2,5,7  
p.66: 3,6,7,10

Homework 2: Due Tuesday January 16

Do problems:

p.72: 8  
p.83: 3, 4, 8  
p.92: 3, 4, 7  
p. 100: 4, 5, 7, 13.

Homework 3: Due Tuesday January 23

Read Chapter 2 including section 22; you don't have to pay attention to the supplementary exercises on topological groups.

p.101: 20, 21

p. 111: 2, 3, 6, 7, 11, 12

p. 118: 5, 8

p. 126: 2, 4

Homework 4: Due Tuesday January 30

Read Chapter 3. We probably won't get through the whole thing this week, but we're going there.

133. 3, 5, 6, 11

144. 2, 4

152. 5, 9

157. 1, 2, 8, 9

**Read and study for the exam on Tuesday February 6. It will be on material from chapters 1-3.**

Homework 5: Due Tuesday February 13.

Read the beginning of Chapter 4. Do the following problems

p. 170 1, 8, 10

p. 177 2, 4, 5

p.181 6, 7

p. 194 3, 4, 5.

Homework 6: Due Tuesday February 20. Read chapter 4 through the Urysohn metrization theorem. It is worth being familiar with the examples of strange spaces (it's like a trip to the zoo), although in class we will concentrate on positive results.

p.194 1, 2, 10

p.199 2, 4

p. 205 1, 2.

p. 212 3, 4

p. 218 1,3, 7.

Homework 7: Due Tuesday February 27. This week's material will consist of chapter 5 and the remainder of chapter 7 (that we have not gotten to earlier).

p.236 4

p.241 2, 4, 5\* (I am making 55 voluntary since it requires the 1 point compactification, that we did not cover in class --but, see section 29)

p.270 1,2,5,6

p.274 1,2,3

p.280 7

Homework 8: Due Tuesday March 6 (Last homework)

p.288 #4, 10, 11

p.298 #2, 4,

p.330 #2, 3,

p.334 #1, 2, 3, 4, 7