

# Math 380 - Low-Dimensional Topology

## Final Exam Project

Spring 2018

## 1 The Final Exam Project

The final exam project will have two parts. The first part will be written, and the second part will be oral. Each student can choose to work individually or with a partner on the oral portion of the final exam project. The written part will be a course summary and final project summary to be handed in at the beginning of the exam time, and the oral part will be a presentation about a topological topic that interests you. The presentation will be given during the scheduled final exam time: Monday, May 7, 12:00-2:30 pm .

### 1.1 Course and Project Summary

Each student should complete the written portion of the final exam project individually, not with a partner. This is a course summary and should include each of the items listed below. I would prefer that this summary be no more than 3 pages with normal fonts and margins.

1. **Introduction:** Write a brief introduction.
2. **Outline:** Give a streamlined outline of the course. You should list the topics, definitions, and important theorems that we have learned throughout the semester. You do not have to list all of the theorems, but do your best to include the most important ones, the most useful ones, or the ones that meant the most to you. You may (but this is not required) include any comments that you wish to make (either positive or negative) about any of these things.
3. **Special Topic:** Pick a topological topic that has piqued (or peaked) your interest, and write a brief blurb about it. This could be a homework or exam problem, an exercise from the text that was not assigned, a theorem, a definition, any topic that we discussed during the course, any topic from any chapter of our textbook that we did not discuss, or any topic from some other topology book. **See more information below, as this is related to the oral portion of the exam.** The written blurb should be brief (no more than one page) and should explain why this topic interests you.
4. **Conclusion:** Write a brief conclusion. Include a brief explanation of what “topology” means to *you*, not necessarily a definition or rigorous explanation, but more of a “gut feeling”.

## 1.2 Oral Presentation

The oral portion of the final exam will be an in-class presentation (about 10-15 minutes per person). As part of the written portion, you picked a “special topic” that especially interests you. Again, this could be a problem we did or did not do, a theorem we covered or did not cover, any topic from the book that we covered or did not cover, or any topic from some other topology text. This presentation will be your chance to expound upon this topic. **The only requirements are that it must be a topology topic, it must be approved by me, and it must go beyond what we specifically covered in class.** No two people/groups can do the same topic without authorization from me. Two people may work on a topic together, but the presentation must be 20-30 minutes long with each person doing half of the presentation.

I will leave it up to you to decide how you will do this. For a particular topic, you may want to give a general overview, you may want to find a specific detail to discuss, or you may want to discuss why the topic is important in the broader world of topology or mathematics in general. There are many approaches you can take. In any case, you must go beyond what we did in this course, you should not spend a significant amount of time repeating what we have already learned in class (although short reminders are fine), and you should explain why the topic interests you specifically.

After each presentation, your fellow students may want to ask you questions. Be prepared for this. *Your grade on the oral part of the final exam will be determined by your classmates and me.*

## 2 Great Job!

Good luck on this final exam! You have all done a lot of work this semester, and you have done extremely well. This final exam should be relatively stress-free. The written part should be easy, but I realize the oral part may cause some anxiety. I don't want it to be some major project that causes pain and suffering. Instead, I want this to be fun for each of you. Have fun with it! If you have any questions or problems as you are preparing, please feel free to get some help from me or a classmate. Again, I want you to have fun with it.

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You have all done well this semester. Keep up the good work, and don't get stressed! It has been a great pleasure having each of you in class. Best of luck on the final, and have a fantastic future as topologists!

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