

MATH 1473: Semester Projects

Topic Selection: You must select an "advanced" mathematics topic for your project. It could be additional research into topics that we have covered in class this semester (truth tables, combinatorics, probability, etc), or something else entirely. Two books that will give you a great list of possible topics are *50 Math Ideas You Really Need to Know* by Tom Crilly, and *The Handy Math Answer Book* by Thomas Svarney. I have copies of both of these books if you would like to see them (but you also may be able to buy them for cheap; I found them in the bargain bin at the bookstore). There are also countless websites out there that can outline possible topics for you.

One important note: be sure to pick a topic that is accessible to you. There are some topics, while interesting and applicable, are going to be too dense for a project. Also, review the bullet points below on what will be expected for your project and make sure that the topic you are thinking about choosing will fit the criteria. The books I have recommended above include a great list of topics, as well as a way of explaining the basics in a manner that is easy to understand. Your topic selection will be due on Monday, April 20, in class (a worksheet will be provided for you to fill out).

Make-up of the project: Your project will consist of multiple parts:

1. **Introduction:** Write a 1-2 page introduction for your topic. This should give your reader a little bit of a taste of what your project is about.
2. **History:** Write 1-2 pages about the history of your topic. Who is credited with its origins? When was this topic or question first posed? What mathematicians have worked on it? Is it an unsolved problem? Has it been solved? Is anyone working on it now?
3. **Applications:** Write 1-2 pages about the practical applications of your topic, if any. For instance, write about how the mathematics behind your topic can be used or is being used in real life. For instance, truth tables are a primitive form of computer programming. Even if your topic is not immediately applicable, you may be surprised at what you find.
4. **Personal Work:** Record 1-2 pages of your own work with this topic. For instance, if your topic is Hailstone Sequences, compute some Hailstone Sequences in an attempt to find a pattern or something interesting. If your topic involves probability, show a couple of explicit examples that demonstrate the essence of your project.
5. **Conclusion:** Summarize what you have learned about this topic in 1-2 pages, including a basic overview of each of the sections of your project (history, applications, personal work). If you need ideas, try answering questions like: Did anything surprise you? What realizations did you make while working on this project? How has this project broadened your view of mathematics?
6. **Works Cited:** Be sure to attach a typed list of the sources you used and make sure to cite them as necessary throughout your project.

Other important notes for your project:

1. All text parts of your project must be typed. You may, however, write out equations and mathematical symbols and diagrams by hand (Microsoft Word does have an equation editor which will enable you to type equations into documents if you so choose).

2. Start a new page for each of the new sections as described above.
3. Topic selection is due on Monday, April 20, in class. It will be worth a quiz grade. All projects must be approved.
4. Projects are due on Wednesday, April 29, in class. No late projects will be accepted.
5. Each of the five sections of your project will be worth 20 points, bringing the total for the entire project to 100. The project will count as an exam grade.