With your group, you will research a specific topic in the field of mathematics (problem, concept, person, historical moment, etc.) that demonstrates how mathematics contributes to culture, society, and human flourishing, write an expository paper, and present the mathematics, history, and current state thereof to a general audience in Math and Science Colloquium on **Tuesday, March 18**. Your project grade will be based on the quality of your research, your presentation, and your paper.

Process

1. **Choose a topic by Thursday, January 30.**

   Do some initial research before settling on your topic to make sure that you can find sufficient sources for your project.

2. **Find sources and refine your topic by Thursday, February 6.**

   Find and explore potential sources for your project, making sure that you request anything you'll need through interlibrary loan early. Your goal: expand or narrow your topic, compile a list of starting resources, and write some guiding questions that will give you and me a sense of what you hope to address in your project.

3. **Write your paper and prepare your presentation; paper draft due Thursday, February 27; practice presentations in class Thursday, March 13.**

   Your group will write an expository paper (in LaTeX, approximately 20 double-spaced or 10 single-spaced pages) and prepare a presentation (approximately 15 minutes). Both the paper and the presentation should be aimed at a popular audience, though the paper should go into further depth and include more mathematics than the presentation. Both the paper and the presentation should have symbols, tables, graphs, etc. to support the written/spoken information. See formatting guidelines under the Final Paper due section and follow them for your draft.

4. **Peer review of paper drafts by Tuesday, March 11.** Each of you will act as a peer reviewer for another groups' paper draft. You should both write on a copy of the draft and write a summary review based on the peer review guidelines that you print and give to the group.

5. **Final Presentations in Colloquium Tuesday, March 18 at 11:30 AM.**

6. **Final Paper due Thursday, March 20.** Your final draft of your paper, taking into account feedback from your peers and from me, is due as a hard copy by the beginning of class on Thursday, March 20. The paper should follow these formatting guidelines:

   - Type your paper in LaTeX.
   - Use 1 inch margins and 11-point font.
   - Give it an interesting title (it's for a popular audience, after all), centered at the top of the first page, followed by the group members' names and the date.
   - Include an abstract of no more than 5–6 typed lines that is attractive and accessible for a popular audience.
   - Number and label tables and figures, and number equations that you reference throughout your paper.
   - Use a standard format for citations.
   - Letter any appendices (e.g., Appendix A, Appendix B, etc.)

Grading

Your grade will be based on your research, the paper, and the presentation.

- Research: To earn a B, you must be resourceful and timely in finding and working to understand sources. You should use a variety of sources (textbooks, research papers, expository articles, popular math books, news articles, etc.). You should show initiative and effort in working toward understanding the sources, and show evidence of understanding the underlying mathematics beyond what is required for your paper and presentation. To earn an A, you should go beyond the level just described.
- Paper: To earn a B, your paper should appeal to a popular audience, explain significant mathematics clearly and at an appropriate level, use strong mathematical writing skills, include figures/examples/tables to support the narrative, explain both the relevant mathematics and the historical significance of the topic, describe how the understanding of mathematics in that time period was influencing/was influenced by your topic, and place the topic in the historical context of the world at that point. To earn an A, your paper should exceed these expectations, for example through an exceptional overall approach, demonstrating great elegance, or explaining complex mathematics particularly well.
- Presentation: To earn a B, your presentation should appeal to a popular audience, explain the historical significance of the topic as well as the relevant mathematics, and demonstrate good presentation skills. You will be expected to answer questions from the audience, which will likely require a deeper understanding of the topic than merely what you need to give the presentation. To earn an A, you should give a presentation that is particularly creative or engaging, do an exceptional job of presenting complex mathematics at a level appropriate for the audience, or dazzle me in some other way appropriate to the presentation.
- Peer Reviews: To earn a B, your peer review should be thorough and helpful. To earn an A, your peer review should go above and beyond to make suggestions that will substantially improve the paper you review.