# Project TMATH 402

The reason why: By the end of this project you will have

1. applied techniques covered in class to a new topic without the direct aide from a teacher, and
2. developed technical writing skills.

Beginning in week five you will start periodically working on your own research topics outside of class. The project will center around a direct application of abstract algebra and requires the completion of a paper, portfolio, and poster. You may select a topic from the list below or choose your own topic.

## Tentative Timeline:

1. Week 4:1/26 In class writing activity: Come to class with two or three topics you are considering for your project. You need not have decided on a topic, but you should have a short list of interests.
2. Week 5: 2/2 In class writing activity: Decide on a topic be the beginning of class.
3. Week 7: 2/16 Draft due: Bring *two* copies of your paper to class. One will be turned in to me and the other will exchanged with a peer in the class. Each person will then review a paper, fill out the grading rubric, and provide general feedback. The reviews will be returned at the start of class on 2/21. Keep a copy of your review as it must be included in the portfolio.
4. Week 8: Poster session: Date and location to be announced.
5. Week 10: 3/8 Final paper due.
6. Week 11: 3/13 Portfolio is due.

## Potential Topics:

- Check-digits (e.g. driver's license #, money orders, credit card #)
- Puzzels (e.g. 15 puzzle, Rubric cube)
- Secrete codes using modular arithmetic
- Symmetry in chemistry (e.g. crystals)
- Card tricks
- Bell ringing

Paper Specifications: The writing component is minimally a five page single space paper in size 12 font. The paper is expected to be written clearly and be free of grammatical mistakes. Papers with the proper formatting will be handed out that can be used as examples of technical writing You may use either the APA style or IEEE for your work cited. The paper must include:

1. An abstract that gives a clear, concise description of the paper in less than 100 words. (I will count the words!)
2. At least two pages to serve as an introduction to the topic being discussed. Included in this introduction should be precise definitions and examples to help clarify any new concepts. The audience for this paper will be your peers, so make sure you write at an appropriate level.
3. A few problems/examples completed and clearly written up. The problems must be your own examples and not simply following those provided by your sources. The solutions need not be shown in their entirely, but must include a few key steps as well as an explanation of what the computation means.

Poster Specifications: The poster should be a standard sized poster. The audience will be general college students and thus the posters must include a basic introduction to your topic and at least one example. Please make your posters flashy and attention grabbing but make sure the content is correct and well chosen. A poster session will be held in week 8 and the precise time and location will be announced by the second week of class.

Portfolio Specifications: The following must be collected, ordered as shown below, and turned in by the final exam on 3/13:

1. The first in-class writing activity (1/26).
2. The activity log created on 2/2 and updated regularly.
3. The peer reviewed draft with rubric.
4. One page, typed response to the feedback on your draft.