

## Math 106: Project Descriptions

The course is an introduction to mathematical thinking. The goals of the projects are thus to promote mathematical thinking, an understanding of what mathematics is and who mathematicians are, and mathematical communication. Have fun with the projects!

All papers are expected to be well-written (as if for an English class). A main idea, proper grammar, readability/clarity, logical flow, and references/works consulted (wikipedia is not sufficient - use print sources as well) are required for all projects. Any act of plagiarism is cause for an automatic zero.

### **Project 1:** Due on .

A brochure introducing the class to an area of math (fully covering front and back of a sheet of paper). Be creative in how a brochure is appropriate to introduce the math (eg. a museum brochure, imaginary city like our units, an important city for your area, a travel brochure for a tour of cities where people made important contributions to that area, etc). The brochure must include a description of the area of math (in terms the class can understand), its history, why it is interesting/useful, major advancements/important theorems, some people associated with the area.

You may do this project in pairs. You will pass around your brochure on the due date.

Graded on: quality and depth of information (35%); demonstrated understanding of your topic (15%); brochure layout - readability, informative, interesting/eye-catching (25%); works consulted (at least 3, not only internet sources) (10%); reflections on other brochures (15%).

### **Project 2:** Due on .

A newspaper article or blog introducing the class to a mathematician. 3 pages minimum (ie. spilling onto 4th page). May include pictures, but will not count toward total length.

Newspaper option: in newspaper format: headline, columns, etc. I encourage you to interview a living mathematician to write your article, either one in our department or I have many friends who would be happy to help.

Blog option: must contain a minimum of 10 entries. Write the blog in the first person as if you are the mathematician.

You must include: when and where the person lives/d, his or her major contributions to math, other interesting information, etc.

You may do this project in pairs. You will give a brief (2-3 minute) synopsis on the due date.

Graded on: quality and depth of information (50%); readability, informative, interesting (30%); works consulted (at least 3 (unless you do an interview), not only internet sources) (10%); synopsis and reflection on what you learned from others' projects (10%)

### **Project 3:** Due on .

A free topic project on something not covered in class. It may be done individually or in a group of a maximum of three people. You must get the project idea/topic and format

of presentation approved by the 2nd exam, although I recommend getting it approved much earlier. Note that this represents a significant portion of your grade, and the work you put into it and the project output should reflect that.

Format ideas: paper (6-10 pages - full 6), presentation (around 20 minutes), other format ideas - talk to me

A few topic ideas: art project- wall paper patterns, symmetry in art, golden ratio in art, tessellations, Escher; math and music; math and photography; book analysis/reflection on Flatland (Abbott), Flatterland (Stewart), Mathematical Universe (Dunham), Does God Play Dice?, Why Beauty is Truth, Numbers Behind Numbers (book about the TV show), Music of the Primes, Math in Simpsons, or another book (there are a variety of options and subject matter); mathematical games; surreal numbers; math and sports; voting theory; fair division; graph theory; mathematics of another culture; history of math; math and (your major), etc. Feel free to stop by my office to look through my magazines and books and to discuss ideas.

The topic cannot be one we covered in class.

Graded on: quality and depth of information (40%), understanding of your topic (15%), quality and clarity of presentation (oral or written) (25%), works consulted (at least 3, not only internet) (10%), reflections on other projects (10%).