

Math 1303 - Math in the Liberal Arts

Paper Guidelines

updated November 20, 2020

DUE DATE	Due date is Friday, December 4th. If the paper is not turned in by this time, 2 points will be deducted for each class day until it is turned in. Oral presentations can begin on this date.
FORMAT	The paper should be word processed, double spaced, with the usual margins and type size, and saved in pdf document form. One title page should be stapled to the top. The paper should be spell-checked and grammatically correct. The oral presentation will be give in class. The presentation should cover the main themes of your paper, and should consist of you simply reading your paper to the class.
PAPER LENGTH	Your paper should be more than two pages in length, not including the title page and references. There is no limit to how long the paper can be, just be sure to fill out your ideas to a reasonable depth.
REFERENCES	References should be given at the end of the paper. Web references are fine as long as they are fully cited (along with the date of citation, since information can change quickly on the internet). Plagiarism will not be allowed and is grounds for receiving no credit for the paper. All quotes must be fully cited. Copying and pasting from web sources is plagiarism. Plagiarism includes using someone else's ideas or words as one's own. This must be a new paper, written exclusively for this class; papers written for other classes will receive no credit.
PURPOSE	To broaden your mathematical experience by allowing you to explore mathematical ideas and topics that we won't have time to cover in class.
GRADING	The paper will be graded based on the following: <ul style="list-style-type: none">• originality• mathematical content• demonstrated understanding of the mathematics• evidence of preparation and research• organization• spelling and grammar• format and references• topic approval
TOPICS	The following are a list of ideas you may wish to consider for your paper. Please fill out the topic approval form with your topic. You do not have to chose from the following list. However, if your topic is not approved, it may not be accepted.

FAMOUS PROBLEMS

There are many problems in math that can be understood without learning the mathematics behind the solutions. This paper should explain the problem and describe the history of the problem, who worked on the solution, how it came up, what subjects were involved in solving the problem in the case where a solution is known, etc. The following are examples of topics:

- Fermat's Last Theorem
- The Four Color Problem
- The Traveling Salesman Problem

- The Seven Bridges of Königsberg Problem
- The Problem of Points
- The ABC Conjecture
- The Princess and Monster Game
- Hilbert Problems
- The Collatz Conjecture
- Sum of Three Cubes Problem

MATHEMATICAL SUBJECTS

Mathematics is a collection of subjects, some are relatively new, some are quite old. You could write about a particular subject, how it came about, who was involved with it, what it was used for, etc. The following are example topics:

- Trigonometry and its uses
- Calculus and the problems it helps to solve
- Primes and perfect numbers
- Graph Theory and its applications
- The numbers π , e , i and 0
- History of complex numbers and their applications
- Sphere Packing

MATHEMATICIANS

There are many mathematicians known throughout history for their sizeable contributions to the field of mathematics. Some are more well known than others, but in any case, you should discuss what they are famous for, their background and what problems they posed and/or solved. Here is a list of a few names:

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| • Euclid | • Women in Mathematics (general) |
| • René Descartes | • Grace Chisolm Young |
| • Ramanujan | • Grace Murray Hopper |
| • Blaise Pascal | • Sophie Germain |
| • Pierre de Fermat | • Sonya Kovalevskaya |
| • Gottfried Wilhelm von Leibniz | • Emmy Noether |
| • Isaac Newton | • Sophie Germain |
| • Archimedes | • Hypatia |
| • Leonard Euler | • Terrence Tao |
| • Jacob and Johann Bernoulli | • Katherine Johnson |
| • Paul Erdős | • John Conway |