

MATH 220 Writing Assignment

Fall 2018, Section 904

This is to be an expository paper, on a topic involving mathematics or mathematics education, written for a reader with a similar mathematical background as your fellow students. Some types of possible topics are: a major theorem (e.g. Fermat's Last Theorem), a recent breakthrough (e.g. on distribution of prime numbers), a problem that remains unsolved but has led to substantial mathematical activity (e.g. the Riemann Hypothesis), an important mathematical concept (e.g. the axiom of choice), a specific application of mathematics to another subject, or a biography of a famous mathematician (which must include some details about the mathematician's work as well). The paper need not contain proofs, but should have significant mathematical content. *Any mathematics should be explained clearly enough that your classmates would understand it.* You must use and cite two or more sources, not including *Wikipedia* (e.g. books, journals, or newspaper articles).

Due dates and further details are below.

- Wednesday 9/19:** Paper proposal due *at or before the start of class*—this should be one or two sentences describing the chosen topic. (Typed or handwritten on paper.) (10 points)
- Wednesday 10/17:** Outline of paper due *at or before the start of class*. It should contain most or all of the ideas that will appear in the final paper. (Typed or handwritten on paper.) (15 points)
- Wednesday 11/14:** Rough draft of paper due *at or before the start of class*. The grade will be based on content only. (Typed.) (25 points)
- Wednesday 12/5:** Final paper due *at or before the start of class*. This must be a minimum of 2000 words, typed (approximately 8 pages if double spaced). The grade will be based on mechanics, presentation, and content. (50 points)

Further possible paper topics: four color problem, party problem and Ramsey numbers, random card shuffling, Euler characteristic, Platonic solids, crystal structures and symmetry, fractals, Poincaré conjecture, continuum hypothesis, public key cryptography, sphere packing problem (Kepler's conjecture), quantum computing, or applications of mathematics or statistics in some setting such as sports.