Ideas for Project Topics
MA 330

Below is a list of ideas for project topics. You are *not* restricted to completing a project from this list, these are only suggestions for topics.

(1) The Ishango bone and the beginnings of mathematics
(2) The Pythagorean cult and the discovery of irrational numbers
(3) Hypatia and the role of women during the rise of Christianity
(4) Fibonacci numbers and the golden ratio in art and/or nature
(5) Fibonacci, al-Khwarizmi, and the transmission of the Hindu-Arabic numeral system between cultures
(6) Probability theory: from games of chance to modern statistical modeling
(7) Early developments in calculus and the Protestant Reformation
(8) Early developments in calculus and the English Civil War
(9) The simultaneous development of calculus by Newton and Leibnitz – what does this say about the intellectual climate of 17th century Europe, or mathematical heroism
(10) Johann Bernoulli, L'Hopital, and the patronage system in art and science
(11) Squaring the circle, the transcendence of π, and the logic of impossibility
(12) Non-euclidean geometry and the birth of relativism in Victorian England
(13) Kovalevskaya and late 19th century feminism
(14) History of apportioning House seats in the United States and the Alabama paradox
(15) Fourier series and signal analysis
(16) From ether to DNA: the history of knot theory
(17) Russell, Godel, the Principia Mathematica, and the limits of human knowledge
(18) Nash, von Neumann, and the development of game theory from recreational mathematics to a cornerstone of economics, biology, and political science
(19) Severi, Segre, and the collapse of the Italian school under the fascist regime of Mussolini
(20) Flight of mathematicians from Europe during World War II, and the birth of the United States as mathematical superpower (choose one or two of: Artin, Brauer, Godel, Noether, Segre, Weyl, ...)
(21) Arrow's impossibility theorem and the challenge of democracy
(22) Hilbert's tenth problem and mathematics during the Cold War
(23) Fermat's Little Theorem and public-key cryptography
(24) Error-correcting codes: how number theory makes Youtube work
(25) The Four Color Theorem and the dawn of the computer age
(26) Hamiltonians and computer graphics