

# Math 1483 - Functions and Modeling

## Project Guidelines

updated July 25, 2021

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DUE DATE	Due date is Sunday, December 12th at midnight.
FORMAT	The paper will be written up in Mathematica in the standard paper format with the exception that you will be expected to also use Mathematica code to help analyze and visualize your data.
PAPER LENGTH	Since Mathematica does not exactly work in pages, and the amount of code you may choose to write in support of your research will vary, I will not put a limit (lower or upper) on the number of pages required. You should know if you have written a research paper of sufficient length.
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 apply some of the knowledge you have learned thus far in the course to analyze data over a topic which interests you so that you may obtain a better understanding of said topic. Analysis may consist of using graphs to answer questions you raise, constructing models through regression to answer questions not answerable to the data set in question, and any other mathematical reasoning required to answer questions pertinent to the topic and the data set.
GRADING	The paper will be graded based on the following: <ul style="list-style-type: none"><li>• originality</li><li>• mathematical content</li><li>• demonstrated understanding of the mathematics</li><li>• evidence of preparation and research</li><li>• formulation of questions and subsequent analysis to answer them</li><li>• organization</li><li>• spelling and grammar</li><li>• references</li><li>• topic approval</li></ul>
CHOOSING A TOPIC	Our world is now data driven, nearly everything that is observed is now being measured. From lake levels in Lake Texoma:  <a href="https://www.swt-wc.usace.army.mil/DENI.lakepage.html">https://www.swt-wc.usace.army.mil/DENI.lakepage.html</a>  seasonal last frost dates of Bryan County, to the number of registered voters in Durant, these are just three local ideas for which data can be acquired and analyzed. Anything which involves money is likely to have data available for analysis, even the price of diesel in the United States:  <a href="https://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_m.htm">https://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_m.htm</a> .