

## Project for M505G (562450) Due 5/1/09

**General Information:** The purpose of this project is to investigate one function that is used to encode information for a subjective purpose. This project will be worth 5% of your final grade. Your grade will be determined by a combination of the fulfillment of the requirements, the clarity of your explanations (including grammar), and the quality of your analysis. Functions describe the world often providing insight into natural phenomena. They also can be used to sum up a lot of varied data to provide some kind of subjective insight into that data. Sometimes this summary is beneficial and some this summary is unnecessarily complicated and ultimately worthless. Your goal for this paper is to analyze a function that measures some kind of data and describe that function.

**Requirements:** Start by choosing a function with more than one independent variable. This should be done by April 10<sup>th</sup>. No more than three students in the class can write about the same function and sign up for functions will be a first come first serve basis. In addition to stating the function in its general form, your explanation should include

- 1) Analysis of the domain and range of your function (see attached page) DUE April 17<sup>th</sup>.
- 2) a general description of the function and what is supposed to do, perhaps even a brief history of how it came about or how it is used today
- 3) 2-3 graphs of the function where all but one variable are fixed
- 4) the parts of the domain where the function is a good and bad measure of what the function is supposed to do
- 5) whether in your opinion the function does a good or poor job of doing what it was created to do.

Finally, you should include a bibliography that includes at least two sources. One might be an explanation of the function and the other might be an explanation of how the function is used in some context. Projects without a bibliography will not be graded.

It is expected that your project be 2-3 pages double-spaced (not including graphs). If you are having trouble meeting this requirement, explain yourself more thoroughly (especially parts 4 and 5). In addition, graphs may be hand drawn but should be well-done, neat, and informative.

Some example of functions you might like to choose are (you can choose something off the list):

From Economics and Finance

- 1) The Human Development Index
- 2) A simplified version of your federal income taxes
- 3) Property taxes in Travis county/Austin
- 4) Credit score under one of the of the scoring methods
- 5) The amount of mortgage you qualify for
- 6) Bond rating

From Sports

- 7) Baseball's ERA Plus
- 8) NCAA Quarterback rating
- 9) NFL Quarterback rating
- 10) Baseball's Value Over Replacement Player (VORP)
- 11) Baseball's Ultimate Zone Rating (UZR) system

Other functions

- 12) Body Mass Index BMI
- 13) US news rankings for Colleges/Universities
- 14) Pot odds in poker

To be turned in by April 17, 2009

Name:

Function:

Domain for each variable:

Range of Function: