**Geol 300**: Geological Data Analysis

**Instructor**: Professor Shuo Ma  
GMCS 233A  
sma@mail.sdsu.edu  
(619) 594-3091  
**Teaching Assistant**: Evan Hirakawa (evan.hirakawa@gmail.com)

**Course Meetings**:  
Lecture: Tuesday and Thursday, 9:30 – 10:45, CSL 427  
Lab: Tuesday, 13:00 – 15:40, CSL 427

**Office Hours**: Tuesday/Thursday, 11:00 am – noon

**Textbook**: No. Reading materials will be provided on Blackboard.

**Learning Objectives**:  
- Be exposed to basic types of geological data  
- Understand simple statistical inferences from data  
- Learn Excel and Matlab as useful tools in numerical analysis, graphical display, and basic programming

**Tentative schedule**:  
Elementary Statistics: 6 weeks  
- Mean, Median, Variance, Standard Deviation  
- Histograms, Probability, Expected Value  
- Binomial Distribution  
- Poisson Distribution  
- Normal Distribution  
- Lognormal Distribution  
- Error Propagation  
- Confidence Intervals  
- Hypothesis Testing

**Midterm 1 (March 5)**

Regression and Curve Fitting: 3 weeks  
- Least Squares  
- Linear Regression  
- Polynomial Regression  
- Nonlinear Regression

**Midterm 2 (March 26)**

*Spring break (March 31, April 2) – no class*
Spatial Data: 2 weeks
   Digital Elevation Data
   Shoreline Data
   Contouring
   Trend Analysis

Temporal and Directional Data: 2 weeks
   Spectral Analysis
   Filtering of Temporal Data
   Rose Diagrams
   Summary Statistics of Directional Data

Seismological Society of America Annual Meeting (April 21, 23) – no class

Midterm 3 (April 30)

Grading: Lab attendance (10%)
   Midterms (30%)
   Project (20%)
   Final (40%)

Grades for the class:
A: (85-100%)
B: (75-84.99%)
C: (60-74.99%)
D: (50-59.99%)
F: (<50%)  You don’t want to be there!