Course Description

Students in this course will explore the description and analysis of random hydrologic variables such as stream flow, precipitation and temperature. Applications of this will be to extreme value analysis, variable relationships between various hydrologic variables and time series analysis.

It is expected that students taking this course will have an undergraduate degree in engineering or equivalent. Although an undergraduate course in groundwater would be advantageous, it is not necessary. In addition, it is expected that students will be familiar with the use of computers and have some skills with spreadsheets and other engineering applications.

Course Outline

- review of necessary probability and statistical topics
- apply concepts in previous to hydrologic variables for the purpose of describing their variability
- develop different forms of extreme value analysis for both high and low variable extremes
- develop functional relationships between hydrologic variables (correlation and regressive models)
- analyze hydrologic times series data for the purpose of establishing the underlying variability and trends in the data
- develop time series models (Markov, ARIMA) of hydrologic data