# ADVANCED DATA ANALYSIS
## CE H-1100

**Instructor**: Prof. Naresh Devineni (ndevineni@ccny.cuny.edu)

Uncertainty

Multivariate

Trends

*Applications on Water Resources, Environmental, Climate and Ecological Data*

*Relevant to big data applications in Civil and Transportation Engineering*

*Hands-on and real-world projects*

$$f(\theta \mid data) = \frac{f(data \mid \theta) f(\theta)}{f(data)}$$

Frequency Domain

Resampling

Predictive Models

Bootstrap

Machine Learning

Causality

Nearest neighbors

Confidence intervals

Dependence

Bayesian Methods

Nonparametric

Extreme Value Analysis

**In this class you will learn**

How to analyze and model engineering data

How to perform exploratory data analysis

How to detect trends using modern machine learning techniques

How to understand the distributional properties and variability in data

How to use dependence measures to detect causality

How to build predictive models

How to use Bayesian techniques

*I took Advanced Data Analysis with Naresh a few years ago and it was by far the most useful class I've ever taken, really set me up for good jobs at home…. (rate my professor)*