**ECI 289E: Structural Reliability (Winter 2020)**

This course will cover: (1) a short review of probability theory (random events, random variables, probability distributions, conditional probability, joint probability distributions, functions of single and multiple random variables); (2) structural component reliability analysis (exact solutions, FORM, SORM); (3) structural system reliability analysis (series systems, parallel systems, general systems); (4) simulation methods (Monte Carlo simulation, variance reduction techniques); and probabilistic codified design (inverse reliability problem, probabilistic design, reliability-based design). Specific applications to earthquake engineering and wind engineering will also be discussed.

Pre-requisites: Students must have taken a graduate level course in Matrix/Indeterminate Structural Analysis and an undergraduate course in Probability Theory.

