STAT 597A

(*Spring 2018*)

Course Design and Analysis of Computer Experiments

Objectives The rapid growth in computing power has made the computational simulation of complex systems feasible. Scientists are able to adjust inputs to computer simulators in order to help understand their impact on a system. That is, they perform a designed computer experiment (or simply a computer experiment). These are commonly used in science and engineering, and are making inroads in health sciences, etc.
The course will introduce students to the statistical design and analysis of computer experiments in general. Of particular interest are dynamic computer models, with output over time and/or space. This course is intended primarily for graduate students in the Department of Statistics, but qualified students from other programs are welcome.

Lecture 4:00—5:15pm Monday, Wednesday & Friday
Room 119 Thomas Building

Instructor Dennis K. J. Lin, University Distinguished Professor
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Office Hours: 11:05am—12:05pm, Mon & Wed (or by appointment)

Course Grade

Assignment	20%
Reading/Presentation	15%
Course Project (Team)	25%
Course Project (Individual)	40%

Topics What is Computer Experiment? Design of Computer Experiment; Analysis of Computer Experiment; Uncertainty Qualification; Combining computer model runs and physical data. Specifically, Optimal Design; Space-Filling Design (Uniform Design and Latin Hypercube); Gaussian Process Regression; Response Surface & Optimization and more, will be covered.

Other course information will be distributed through course website at CANVAS <psu.instructure.com>