

# UCLA Department of Statistics

## 2019 De Leeuw Seminar

### The New Future of Data Analysis

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**California NanoSystems Institute Auditorium**

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Roger D. Peng is a Professor of Biostatistics at the Johns Hopkins Bloomberg School of Public Health where his research focuses on the development of statistical methods for addressing environmental health problems. He is also a co-founder of the Johns Hopkins Data Science Specialization, the Simply Statistics blog, the Not So Standard Deviations podcast, and The Effort Report podcast. He is a Fellow of the American Statistical Association and is the recipient of the 2016 Mortimer Spiegelman Award from the American Public Health Association.

The data revolution has led to an increased interest in the practice of data analysis, which most would agree is a fundamental aspect of a broader definition of data science. But how well can we characterize data analysis and communicate its fundamental principles? Previous work has largely focused on the “forward mechanism” of data analysis by trying to model and understand the cognitive processes that govern data analyses. While developing such an understanding has value, it largely focuses on unobserved phenomena. An alternate approach characterizes data analyses based on their observed outputs and develops principles or criteria for comparing one to another. Furthermore, these principles can be used to formalize a definition of a successful analysis. In general, the theoretical basis for data analysis leaves much to be desired, and in this talk I will attempt to sketch a foundation upon which we can hopefully make progress.