

Two talks on

BAYESIAN STATISTICS

At NAU, September 27-28, 2018

Mark Meyer

Georgetown University

Guest Talk #1: Math and Statistics Department Colloquium Series

Examining Rhesus Macaques Computer-usage using Functional Regression Models

Over the course of four years, a group of socially-housed of rhesus macaques (*Macaca mulatta*) at a primate facility in Atlanta, GA were given access to touch-screen computers. The goal of the study was to determine demographic factors that contribute to usage with the ultimate goal of building a better understanding of how the group's social structure functions when exposed to a new tool like computers. Usage data was collected for every minute of the four year period resulting in a large quantity of information that can be considered functional data. While there are many ways to analyze this data, we will discuss and implement a novel method for conducting functional regression where the outcome is not only a function of time but also non-normally distributed---in this case a function of either binary or ordinal responses. In this talk, we will develop the methodology in the Bayesian context, examine its properties in simulation, and, of course, talk a lot about monkeys using computers.

WHEN: September 27 (Thu) 4:00-5:00 p.m.

WHERE: Adel Mathematics (Building #26) Rm #164

Guest Talk #2: Applied Linguistics Speaker Series

Everyday Bayes: A brief tutorial on the Bayesian way

Bayesian statistical methods are enjoying increased popularity, a revolution of sorts, in many fields outside of the statistical sciences. Despite gaining some traction, many students and researchers are left to sort out the details of Bayesian methods on their own since statistical education still primarily focuses on so-called Frequentist methods (t-tests, ANOVA, MLE, etc.). So what is this Bayesian statistics? How does one conduct statistical analyses using it? How does it differ from more classical approaches? How is the word "Bayesian" even pronounced? (Hint: it's an open debate.) This tutorial aims to begin to break the veil of mystery surrounding the Bayesian world. We will discuss some of the philosophical underpinnings of the framework along with the Bayesian versions of common statistical methods from introductory and, if time, intermediate statistics. The latter portion of the tutorial will consist of a hands-on session where attendees can experiment with running different Bayesian models using their own laptops. Instruction will be done using the free statistical software R and knowledge of introductory and intermediate statistics is assumed.

WHEN: September 28 (Fri) 10:10-11:20 a.m.

WHERE: Liberal Arts (Building #18) Rm #123



Dr. Mark Meyer is an Assistant Professor of Statistics at Georgetown University in Washington, DC. He holds a PhD in Biostatistics from Harvard University and previously held positions at Bucknell University and the National Heart, Lung and Blood Institute. He is primarily interested in applications of statistical methods to data resulting from biological and biomedical research but is also interested in expanding the use of Bayesian statistics to all data-driven fields. His areas of statistical expertise include Bayesian statistics, longitudinal and mixed models, categorical data analysis, and functional data analysis.