THE UNIVERSITY OF OKLAHOMA

HEALTH
SCIENCES CENTER

OSCTR
Oklahoma Shared Clinical
& Translational Resources

Biostatistics, Epidemiology, and Research Design
Key Component Activity

College of Public Health
Department of Biostatistics and Epidemiology

AGENDA

INTRODUCTION TO BAYESIAN STATISTICS

May 18 – May 20, 2016

College of Public Health Building, Room 320
801 NE 13th Street
Oklahoma City, OK 73104

Workshop Faculty:

Michael Anderson, Ph.D.
Associate Professor of Biostatistics
University of Oklahoma Health Sciences Center

Hélène Carabin, D.V.M., Ph.D.
President's Associates Presidential Professor
Professor Epidemiology
University of Oklahoma Health Sciences Center

SCHEDULE

Wednesday May 18

Time	Topic / activity
8:30-9:00	Registration **College of Public Health Building, room 320** **801 NE 13th Street** **Oklahoma City, OK 73104** **Parking:** The College of Public Health Building is located on the corner of 13th Street and Phillips Avenue. Parking is available on the north side of the building. If you are driving north on Phillips Ave, you will see a sign for the Rogers Building Visitor Parking on the east side of the street. Pull into this lot. You will need to press the emergency button on the speaker box and indicate that you are attending a workshop in the College of Public Health Building for the parking gate to be raised.
9:00-9:10	Welcome and introductions
9:10-10:30	Lecture 1: History and Motivation for Bayes
10:30-10:45	Coffee Break
10:45-11:30	Lecture 2: Intro to Probability
11:30-12:00	Practicum 1: Sensitivity, Specificity, and Positive Predictive Value
12:00-13:30	Lunch
13:30-15:00	Lecture 3: Building Bayes Theorem /Prior Specification
15:00-15:15	Coffee Break
15:15-17:00	Practicum 2: : Elicit priors and explore effect on posterior

Thursday May 19

Time	Topic / activity
9:00-10:30	Lecture 4: Intro to WinBUGS, MCMC, Gibbs Sampling and estimating a posterior proportion distribution
10:30-10:45	Coffee Break
10:45-12:00	Practicum 3: Using WinBUGS to estimate a single proportion
12:00-13:30	Lunch
13:30-15:00	Lecture 5: Estimation of a single mean and variance
15:00-15:15	Coffee Break
15:15-17:00	Practicum 4: Using WinBUGS to estimate a single mean and variance

Friday May 20

Time	Topic / activity
9:00-10:00	Lecture 6: Bayesian Hypothesis testing
10:00-10:15	Coffee Break
10:15-11:00	Lecture 7: Comparing two proportions
11:00-11:45	Practicum 5: Hypothesis testing with WinBUGS
11:45	Closing remarks and completion of the workshop evaluation

Workshop Faculty Biographical Summaries

Dr. Michael Anderson is Assistant Professor of Biostatistics and Epidemiology at The University of Oklahoma Health Sciences Center (OUHSC). Dr. Anderson graduated with a BA in Statistics from Utah State University in 2003, an MS (2006) and PhD (2009) in Statistics from Kansas State University. His dissertation developed Bayesian methods to construct probability models for identifying organisms based only on a small strand of DNA know as a "barcode." He has been a full-time faculty member at OUHSC since 2009 and has continued to develop Bayesian methods to predict infants at risk of severe intra-ventricular hemorrhage as well as to identify differentially expressed genes in micro-array analyses. In 2013, Dr. Anderson co developed and co taught along with Dr. Carabin, the first Bayesian course offered in the College of Public Health.

Hélène Carabin, DVM., PhD. is a Professor at the Department of Biostatistics and Epidemiology, College of Public Health, University of Oklahoma Health Sciences Center. Dr. Carabin graduated with a Doctorate in Veterinary Medicine in 1992 and a Masters in Veterinary Clinical Sciences in 1994 from the Université de Montréal and has a PhD in epidemiology from McGill University (1998). She first used Bayesian methods for her PhD dissertation. One of the publications from this worked was awarded the 2000 Roche-ISPE *Epidemiology* Prize for the best paper published in that journal in 1999. She has since then used Bayesian methods in most of her research, focusing on the impact of misclassification error and clustering on measures of magnitude of effects mostly applied to zoonotic infections.