The 35th New England Statistics Symposium

SHORT COURSES

May 22-23, 2022

Bayesian Clinical Trial Designs and Use of RWD

Hybrid, May 22, 9:00am-12:30pm, 1:30pm-5:00pm (EST)

Instructor: Dr. Peter Mueller is Professor in the Department of Statistics and Data Science and in the Department of Mathematics at UT Austin.

Outline: We discuss Bayesian approaches to clinical trial design, focusing on early phase studies. We start with a brief review of Bayesian inference, to introduce notation and concepts. The discussion inludes Bayesian decision problems that add a formal description of selecting optimal actions in the context of Bayesian inference.

Instructor
Dr. Peter Mueller

Statistical Learning Methods in Neuroimaging Data Analysis

Virtual, May 22, 9:00am-12:30pm, 1:30pm-5:00pm (EST)

Instructor: Dr. Hongtu Zhu is a tenured professor of biostatistics and computer science at University of North Carolina at Chapel Hill (UNC-CH).

Outline: This course is designed for researchers and students who wish to analyze and model medical image data quantitatively. The topics cover some basic neuroimaging modalities, shape representation, population statistics, manifold-data analysis, big-data integration, imaging genetics, and mapping genetic-imaging-clinical networks.

Instructor
Dr. Hongtu Zhu

Challenges and Methods for Extracting Reliable Evidence From Real World Data

Virtual, May 22, 9:00am-12:30pm (EST)

Instructor: Dr. Yong Chen is an Associate Professor of Biostatistics in the Department of Biostatistics, Epidemiology and Informatics at the University of Pennsylvania.

Outline: We will discuss key issues for research conducted using RWD, including error in covariates and outcomes extracted from EHR data; and synthesize evidence from EHR data across heterogeneous clinical sites.

Instructor
Dr. Yong Chen

Website: https://symposium.nestat.org/short-courses.html

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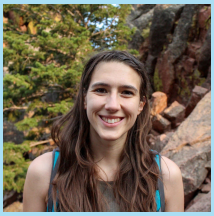
Programming With Hierarchical Statistical Models Using NIMBLE

Hybrid, May 23, 9:00am-12:30pm, 1:30pm-5:00pm (EST)

Instructor: Dr. Sally Paganin is a Research fellow in the Department of Biostatistics at Harvard T.H. Chan School of Public Health, currently working on statistical methods for early cancer detection.

Outline:

1. Introduction to NIMBLE: basic concepts and workflows
2. Customizing an MCMC and advanced model building
3. Highlights of special features in NIMBLE
4. Programming algorithms in NIMBLE



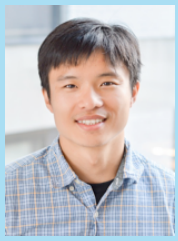
Instructor
Dr. Sally Paganin

Applied Event Time Data Analytics with R

Hybrid, May 23, 9:00am-12:30pm, 1:30pm-5:00pm (EST)

Instructor: Dr. Sy Han (Steven) Chiou is an assistant professor in the Department of Mathematical Sciences at the University of Texas at Dallas (UTD). Dr. Jun Yan is a Professor in the Department of Statistics at the University of Connecticut (UConn) and a Research Fellow in the Center for Population Health at UConn Health.

Outline: This course will provide a comprehensive and practical introduction to analyzing data in the form of time-to-event or survival times. We will begin with the fundamental survival analysis concepts and techniques, including censoring, truncation, survival functions, hazard function, Kaplan-Meier curves, and log-rank tests.



Instructor
Dr. Sy Han (Steven) Chiou

Instructor
Dr. Jun Yan

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SHORT COURSES

Machine Learning for Analyzing Patient Health Data: Small n, Large p, and the Implications

Hybrid, May 23, 9:00am-12:30pm (EST)

Instructor: Dr. Fei Wang is an Associate Professor in Division of Health Informatics, Department of Population Health Sciences, Weill Cornell Medicine, Cornell University.

Outline: In this short course, I will present experiences (success and failure) in recent years on developing machine learning models in such scenario which cover a diverse set of topics including multi-modal learning, algorithmic fairness, model interpretability, federated and transfer learning.

Instructor
Dr. Fei Wang

Statistical Topics in Outcomes Research: Patient-Reported Outcomes, Meta-Analysis, and Health Economics

Virtual, May 23, 1:30pm-5:30pm (EST)

Instructor: Dr. Joseph C. Cappelleri, PhD, MPH, MS is an executive director in the Statistical Research and Data Science Center at Pfizer Inc. Thomas Mathew, PhD, Professor, Department of Mathematics & Statistics, University of Maryland Baltimore County (UMBC). He earned his PhD in statistics from the Indian Statistical Institute in 1983, and has been a faculty member at UMBC since 1985.

Outline: Based in part on the recently published co-edited volume Statistical Topics in Health Economics and Outcomes Research (Alemayehu et al.), this four-hour short course recognizes that, with ever-rising healthcare costs, evidence generation through health economics and outcomes research (HEOR) plays an increasingly important role in decision-making about the allocation of resources.

Instructor
Dr. Joseph C. Cappelleri

Instructor
Dr. Thomas Mathew

Website: https://symposium.nestat.org/short-courses.html