ASA
AMERICAN STATISTICAL ASSOCIATION
Promoting the Practice and Profession of Statistics

Pittsburgh Chapter of the
American Statistical Association

STATISTICS2013.ORG
INTERNATIONAL YEAR OF
STATISTICS

Applied Mixed Models
(ASA Council of Chapters Traveling Course)

Instructor: **Linda Young,** Dept. of Statistics, University of Florida

Time: **8AM to 4PM, Monday, October 8th, 2012**
Location: A115 Crabtree, GSPH, University of Pittsburgh,
                130 DeSoto Street, Pittsburgh, PA 15261

Sponsor: The Pittsburgh Chapter of the American Statistical Association
            (Awarded by the American Statistical Association)

Registration and Fee:

The registration fee is $65 for regular Chapter members and $50 for students.
An additional fee of $10 will be charged for registrations received after
September 28th or for non-Chapter members (the additional $10 will be applied
toward Pittsburgh Chapter local membership). Lunch is included.

To register, please RSVP to Gong Tang by email: **got1@pitt.edu** and mail the
registration form (see attached) and a check with the appropriate registration fee
to the ASA Pittsburgh Chapter.

Abstract

Data sets from designed experiments, sample surveys, and observational studies often contain
correlated observations due to random effects and repeated measures. Mixed models can be
used to accommodate the correlation structure, produce efficient estimates of means and
differences between means, and provide valid estimates of standard errors. Repeated
measures and longitudinal data require special attention because they involve correlated data
that arise when the primary sampling units are measured repeatedly over time or under
different conditions. Normal theory models for random effects and repeated measures ANOVA
will be used to introduce the concept of correlated data. These models are then extended to
generalized linear mixed models for the analysis of non-normal data, including binomial
responses, Poisson counts, and over-dispersed count data. Methods of assessing the fit and
deciding among competing models will be discussed. Accounting for spatial correlation and
radial smoothing splines within mixed models will be presented and their application illustrated.
The use of SAS System's PROC GLIMMIX will be introduced as an extension of PROC MIXED
and used to analyze data from pharmaceutical trials, environmental studies, educational
research, and laboratory experiments.

Who Would Benefit?

This workshop is for those who want to learn about the theory and application of linear and generalized linear mixed models. The material is presented at an applied level, accessible to participants with training in linear statistical models and previous exposure to linear mixed models. Some experience with SAS's PROC MIXED would be helpful.

Biographical Sketch

Dr. Linda J. Young is a Professor of Statistics at the University of Florida where she teaches, consults, and conducts research on statistical methods for studies in public health, agricultural, environmental, and ecological settings. Dr. Young has a Ph.D. from Oklahoma State University. She has been a faculty member at Oklahoma State University, the University of Nebraska, and the University of Florida. Dr. Young has more than 100 publications in over 50 different journals, constituting a mixture of statistics and subject-matter journals, and two books with a third in press. A major component of her work is collaborative with researchers in the agricultural, ecological, environmental, and health sciences. Her recent research has focused on linking disparate data sets and the subsequent analysis of these data using spatial statistical methods. Dr. Young has been the editor of the Journal of Agricultural, Biological and Environmental Statistics. She is currently associate editor for Biometrics, Journal of Environmental and Ecological Statistics, and Sequential Analysis. Dr. Young also has a keen interest in statistics education at all levels, having worked with students and teachers from Kindergarten through High School as well as undergraduate, graduate, and post-graduate training. Dr. Young has served in a broad range of offices within the professional statistical societies, including President of the Eastern North American Region of the American Statistical Association, Vice-President of the American Statistical Association, Chair of the Committee of Presidents of Statistical Societies, and a member of the National Institute of Statistical Science's Board of Directors. Dr. Young is a recipient of the American Statistical Association's Founders Award, a fellow of the American Statistical Association, and an elected member of the International Statistical Institute. She has served on numerous panels for the National Science Foundation and the Environmental Protection Agency.

Schedule

8:00- 8:30	Registration
8:30-10:10	Fixed and Random Effects Split plot analysis Linear Mixed Models and Generalized Linear Mixed Models
10:30-12:00	Modeling the Covariance Structure in a Repeated Measures Setting
12:00-1:00	Lunch Break (lunch provided)
1:00-2:30	Accounting for Spatial Variability
2:50-4:00	More Advanced Correlation Structures

Registration Form
(For short course "Applied Mixed Models")

If registering for more than one individual, please attach a separate sheet with names, affiliations, email addresses, and student status of the participants.

Name: _____ **Email:** _____

Affiliation: Government _____ Academia _____ Industry_____
Other (specify)_____

Pittsburgh Chapter members $65 x ____ people = $_____

Non-Pittsburgh Chapter members $75 x ____ people = $_____
One year Chapter membership included

Students $50 x ____ people = $_____

Late registration fee (after September 28) $10 x ____ people = $_____

Total $_____

(For students, please indicate the name of your department and school)

_____

Number of Vegetarians _____
Other food restrictions:

_____

Please fill out the form and mail a check (<u>payable to ASA Pittsburgh Chapter</u>) by September 28th, 2012 to:

Gong Tang
Department of Biostatistics
University of Pittsburgh
130 DeSoto Street
Pittsburgh, PA 15261

Further information about the workshop

Area hotels within walking distance of the workshop venue (Graduate School of Public Health):

Holiday Inn University Center
100 Lytton Avenue Pittsburgh, PA 15213
(412) 682-6200]

Hilton Garden Inn Pittsburgh University Place
3454 Forbes Avenue, Pittsburgh, Pennsylvania, 15213, USA
TEL: 412-683-2040

Parking: Parking is available at a daily rate at the O'Hara Garage across the Street (O'hara St). For more info, visit http://www.pts.pitt.edu/parking/visitor.html