Biostatistics for Health Care Researchers: A Short Course

Tuesday, Wednesday, and Thursday
November 15, 16, 17, 2016
1 PM-5 PM
Health Information and Translational Science Building
410 W. 10th Street, HS 1110

COURSE DESCRIPTION
The Department of Biostatistics in the School of Medicine and Richard M. Fairbanks School of Public Health will present a short course in biostatistics that is designed especially for health care researchers in the health sciences. This course will consist of three sessions. Sessions I and II will cover basic principles, design of medical research studies, standard statistical tests and data analyses, and data management. Session III will focus on more advanced topics, including multiple linear and logistic regression, survival analysis, longitudinal data and genetic analysis. Registrants may choose to attend Sessions I and II, II and III or I, II and III.

COURSE OBJECTIVES
At the conclusion of this program, participants should be able to:
- Recognize common study designs and statistical methods used in medical research;
- Discuss complex study design and analysis with a statistician;
- Describe basic concepts of data management;
- Identify appropriate use of statistical procedures when given a common study design; and
- Implement simple statistical analyses under the guidance of a statistician.

ACCREDITATION STATEMENT
The Indiana University School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

DESIGNATION STATEMENT
The Indiana University School of Medicine designates this live activity for a maximum of 10.75 AMA PRA Category 1 Credits™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

NOTE
While it offers CME credits, this activity is not intended to provide extensive training or certification activity.

FACULTY DISCLOSURE STATEMENT
In accordance with the Accreditation Council for Continuing Medical Education (ACCMCE) Standards for Commercial Support, educational programs sponsored by Indiana University School of Medicine (IUSM) must demonstrate balance, independence, objectivity, and scientific rigor. All faculty, authors, editors, and planning committee members participating in an IUSM-sponsored activity are required to disclose any relevant financial interest or other relationship with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services that are discussed in an educational activity.

COMMERCIAL SUPPORT
This CME activity does not have any commercial support.

LOCATION
The short course will be held at the Health Information and Translational Science Building (HITS), 410 West 10th Street, HS 1110 on the Indiana University Purdue University Indianapolis campus. It is recommended that you park at an IUPUI parking lot and walk or take the People Mover (exit at the IU Health Canal Station) to get to the building. A campus map with the location of the building can be found at http://www.iupui.edu/maps/campusmap_full.pdf. The closest IUPUI parking lots are next to the ETC Building on 10th street (labeled TK on campus map) and at the Gethsemane Church on Martin Luther King Blvd., just south of 10th Street.

FURTHER INFORMATION
Indiana University School of Medicine
Department of Biostatistics
410 W. Tenth Street, Suite 3000
Indianapolis, IN 46202-3002
Phone: (317) 274-2685 • Fax: (317) 274-2678
http://www.biostat.iupui.edu

For other CME offerings, please visit the CME website at http://cme.medicine.iu.edu.
AGENDA for November 15, 16, 17, 2016

SESSION I  Tuesday, November 15, 2016

1:00 p.m. Welcome and Introduction  Susan M. Perkins, Ph.D.
1:10 p.m. Study Design  Susan M. Perkins, Ph.D.
2:00 p.m. Hypothesis Testing & Confidence Interval Estimation
   Spencer Lourens, Ph.D.
   Hypothesis test, type I and type II errors, statistical significance vs. practical significance, confidence interval, sample size estimation

2:50 p.m. Break

3:10 p.m. Comparisons of Means
   Spencer Lourens, Ph.D.
   Paired T-test, group T-test, Wilcoxon, Mann Whitney, one-way ANOVA, multiple comparisons, non-parametric ANOVA, sample size estimation

4:05 p.m. Analysis of Categorical Data
   Giorgos Bakoyannis, Ph.D.
   Estimation and testing of single proportions, two proportions, tests of association (2x2 table, RxC table), Fisher's exact test, sample size estimation

5:00 p.m. Adjournment

SESSION II  Wednesday, November 16, 2016

1:00 p.m. Basics of Data Management  Robert L. Davis, B.S.
   Database design, form design, data entry

1:55 p.m. Issues in Clinical Trials  Susan M. Perkins, Ph.D.
   Design, analysis, interim reviews, ethics, and reporting of clinical trials

2:50 p.m. Break

3:10 p.m. Correlation and Simple Linear Regression  Joanne K. Daggy, Ph.D.
   Correlation (Spearman & Pearson), regression, prediction, model evaluation

4:05 p.m. Evaluation of Diagnostic Tests
   Giorgos Bakoyannis, Ph.D.
   Sensitivity, specificity, ROC curves, measures of agreement

5:00 p.m. Adjournment

SESSION III  Thursday, November 17, 2016

1:00 p.m. Multiple Linear & Logistic Regression  Joanne K. Daggy, Ph.D.
   Interpretation of coefficients, R^2, odds ratios, logistic regression

1:55 p.m. Analysis of Longitudinal Studies  Ying Zhang, Ph.D.
   Longitudinal vs. cross-section studies, cohort effect vs. age effect, examples, ad hoc vs. formal analysis

2:50 p.m. Break

3:10 p.m. Survival Analysis  Ying Zhang, Ph.D.
   Censoring vs. failure, Kaplan-Meier curves, log-rank test, proportional hazards model

4:05 p.m. Design of Genetic Studies
   Leah Wetherill, M.S.
   Review of basic genetics, study designs for association and sequence analysis.

5:00 p.m. Adjournment

FEE
Attendance at Sessions I and II  $125
Attendance at Sessions II and III  $125
Attendance at Sessions I, II, and III  $150

Enrollment is limited to 30 attendees. The fee includes handout materials and break refreshments each day. Lunch is not provided, nor is the instructional book.

SUGGESTED INSTRUCTIONAL BOOK
Participants who would like to have additional supplementary information are encouraged to purchase a copy of the book:

Basic and Clinical Biostatistics, 4th edition,
© 2004, by Dawson-Saunders and Trapp, ISBN# 0071410171. The book will be available at the IUPUI Campus Center, Barnes and Noble Bookstore, 420 University Boulevard, Indianapolis, Indiana, 46202. When searching for this optional textbook online or in person at the bookstore, note the class name is BIOSTATS and section number FOR HEALTHCARE.

The bookstore phone number is (317) 278-2665.

FACULTY AND STAFF
Indiana University School of Medicine
Indianapolis, Indiana

DEPARTMENT OF BIOSTATISTICS

Joanne K. Daggy, Ph.D.
Assistant Professor of Biostatistics

Robert L. Davis, B.S.
Giorgos Bakoyannis, Ph.D.
Director of Clinical Data Management
Visiting Faculty

Spencer Lourens, Ph.D.
Ying Zhang, Ph.D.
Visiting Faculty

DEPARTMENT OF MEDICAL & MOLECULAR GENETICS
Leah Wetherill, M.S.

Applied Statistician II

Biostatistics for Health Care Researchers: A Short Course
November 15, 16, 17, 2016, HITS HS 1110, Indianapolis, Indiana

Enrollment is limited to 30 attendees

PLEASE TYPE OR PRINT BELOW

Last Name  First Name  Middle Initial

School  Department  Division

Business Address
City  State  Zip Code

Daytime Phone  Fax Number

E-mail Address  (Required for CME certificate)

Hospital/Practice Affiliation/Specialty  Status (e.g. faculty, fellow, student)

Cost
$125  Sessions I and II
$125  Sessions II and III
$150  Sessions I, II, and III

Method of Payment

☐ Check enclosed (made payable to Indiana University)
☐ Indiana University Account Number

Account  Object Code

Account Manager Signature

SEND REGISTRATION AND PAYMENT TO: Indiana University School of Medicine,
Department of Biostatistics, 410 W. Tenth Street, Suite 3000, Indianapolis, IN 46202-3002, or fax to: (317) 274-2678. Please send to the attention of Ann Lyon.

OFFICE USE ONLY:

Check #  Receipt #  Amount