COURSE DESCRIPTION
The Department of Biostatistics in the School of Medicine 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.
AGENDA for November 10, 11, 12, 2015

SESSION I  
Tuesday, November 10, 2015

1:00 p.m.  Welcome and Introduction  
Susan M. Perkins, Ph.D.

1:10 p.m.  Study Design  
Susan M. Perkins, Ph.D.

Types of study designs with emphasis on observational studies

2:00 p.m.  Hypothesis Testing & Confidence Interval Estimation  
Shanshan Li, 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  
Spencer Lourens, 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 11, 2015

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  
Shanshan Li, Ph.D.

Sensitivity, specificity, ROC curves, measures of agreement

5:00 p.m.  Adjournment

SESSION III  
Thursday, November 12, 2015

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  
Daniel L. Koller, Ph.D.

Review of basic genetics, study designs for gene searching, linkage and association methods based on modern molecular laboratory techniques

5:00 p.m.  Adjournment

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.  
Director of Clinical Data Management

Spencer Lourens, Ph.D.  
Visiting Faculty

Shanshan Li, Ph.D.  
Associate Professor of Biostatistics

Ying Zhang, Ph.D.  
Professor of Biostatistics

DEPARTMENT OF MEDICAL & MOLECULAR GENETICS

Daniel L. Koller, Ph.D.  
Research Assistant Professor of Medical & Molecular Genetics

Biostatistics for Health Care Researchers: A Short Course

November 10, 11, 12, 2015, HITS HS 1110, Indianapolis, Indiana

Enrollment is limited to 30 attendees

PLEASE TYPE OR PRINT BELOW

□ M.D.  □ D.O.  □ Other (please specify)

Last Name  First Name  Middle Initial

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Business Address

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Daytime Phone  Fax Number

E-mail Address  (Required for CME certificate)

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

Cost

□ Sessions I and II  $125

□ Sessions II and III  $125

□ Sessions I, II, and III  $150

Method of Payment

□ Check enclosed (made payable to Indiana University)

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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.

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© 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.

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

We want everyone to feel welcome at this and other CME events. If you have a disability and need an accommodation to participate in this program, we will try to provide it. Please contact the Biostatistics office at (317) 274-2685 before you come to the event. At least 72 hours notice may be necessary.