

CARDET-YCAS Course

Introduction to Biostatistics in Clinical Research

Autumn 2016

19/9/2016 – 22/9/2016

Instructor: Jim Dziura, PhD

Course Description

This course provides an introduction to statistical concepts and techniques commonly encountered in medical research. Previous coursework in statistics or experience with statistical software packages are not a requirement. Topics to be discussed include study design, probability, comparing sample means and proportions, regression, survival analysis, and sample size/power calculations. Computer assignments will incorporate lecture content into practical application of how to describe and analyze data.

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Jim Dziura, PhD

Jim is a Professor in Emergency Medicine and in Public Health (Biostatistics) at the Yale School of Medicine. As a biostatistician at Yale since 2002 he has collaborated on numerous clinical research projects and co-authored over 150 peer-reviewed articles with a diverse group of Yale investigators. Dr. Dziura also serves as the Deputy Director of the Yale Center for Analytical Sciences (YCAS) in the Yale School of Public Health as well as the Yale Data Coordinating Center. He has been active in training young investigators, both individually (as a mentor and statistical resource for K-awardees, post-doctoral fellows, residents and Master's students) and in classroom settings (where he has developed a graduate-level course and several workshops on biostatistics in clinical research). His primary research interests are in the impact of interventions in the emergency department and the design and analysis of longitudinal studies including clinical trials.

Introduction to Biostatistics in Clinical Research – Lectures

	LECTURE	LAB	HOMEWORK	RESOURCES
Lecture 1	Lecture01 - Descriptive stats, study design	Lab01	Lecture01_Homework	Detecting Skewness from Summary Information.pdf Good Study Design and Analysis Plans....pdf The Scandal of Poor Medical Research.pdf
Lecture 2	Lecture02 - Probability	Lab02	Lecture02_Homework	Generalization and Extrapolation.pdf The Normal Distribution.pdf
Lecture 3	Lecture03 - Comparing Means	Lab03	Lecture03_Homework	One and Two Sided Tests of Significance.pdf Preparing a Research Protocol....pdf
Lecture 4	Lecture04 - ANOVA	Lab04	Lecture04_Homework	-
Lecture 5	Lecture05 - Correlation and Regression	Lab05	Lecture05_Homework	Correlation, Regression, and Repeated Measures.pdf Statistical Methods for Assessing Agreement....txt.pdf
Lecture 6	Lecture06 - Repeat Measures	Lab06	Lecture06_Homework	Prevention of Missing Data in Clinical Research Studies.pdf NEJMPrevention and Treatment of Missing Data.pdf Strategies for dealing with Missing data.pdf
Lecture 7	Lecture07 - Non-parametric Statistics	Lab07	Lecture07_Homework	-
Lecture 8	Lecture08 - Categorical Data	Lab08	Lecture08_Homework	Phases of Biomarker Development....pdf The Limitations of Risk Factors as Prognostic Tools.pdf
Lecture 9	Lecture09 - Survival Analysis	Lab09	Lecture09_Homework	-
Lecture 10	Lecture10 - Sample size and power	-	-	Introduction to Sample Size Determination.....pdf AppendixC.pdf JSTOR power.pdf Mixed Methods.pdf