

OKLAHOMA BAPTIST UNIVERSITY RESEARCH METHODS AND BIOSTATISTICS, BIOL 1999 FALL, 2010

CATALOG DESCRIPTION

Introduction to research methods and biostatistics for students preparing for careers in medical and health sciences; including medicine and dentistry, biomedical research, and other allied health fields. The course will focus on research design, data collection methods, choosing proper statistical methods, scientific interpretation of statistical tests, and generation of data tables and graphics.

COURSE OBJECTIVES

The course will focus on research design, data collection methods, the uses of various scientific equipment and instrumentation, choosing proper statistical methods, scientific interpretation of statistical tests, and generation of data tables and graphics. Students will critically read current and historical scientific literature, learn proper techniques for scientific manuscript compilation, and learn techniques for scientific symposium and poster presentation.

CLASS DATES

Section A: Tues., Thurs., 11:00 – 11:50am Wood Sci. Bldg. Room 118

INSTRUCTOR

Bradley Jett, Ph.D.

Office: 119B

Phone: 405-878-2043

Office Hours: MWF 1 – 3pm; TR 1-2pm

Email: brad.jett@okbu.edu

CREDIT HOURS

2 Credits

TEXTBOOKS TO PURCHASE

“Doing Science: Design, Analysis, and Communication of Scientific Research”, by Valiela

PREREQUISITES

Open to all classifications. Students should have taken College Algebra, and at least one college-level science course.

CLASS PARTICIPATION

50 minutes is simply insufficient time to cover every aspect of a textbook chapter in detail. Therefore, it is imperative that you are prepared to discuss the subject matter PRIOR to coming to class. Hopefully, we will then be able to specifically address problems you are having with a given concept, or answer your specific questions. Remember that the best learning experience is that in which we learn from each other. As such, active participation by each student during classroom discussions is both encouraged and expected.

EXAMS

There will be 4 major exams and a final exam, all of equal value.

ASSIGNMENTS

There will be periodic take-home assignments and oral presentations.

ORAL PRESENTATIONS

Students will be responsible for organizing 10 minute research presentations, based on scientific research articles. These “journal-club-style” presentations will be delivered using multi-media equipment (PowerPoint, etc.). The presentation will be graded according to clarity, background research accomplished, organization of data, proper statistical analysis of data, choice of graphics, and ability to answer questions from the class.

GRADES

Grades will be based on the standard scale of percent of total points available: A (100-90%), B (89-80%), C (79-70%), D (69-60%), F (59-0%). Percentages will be based on the following components:

- 4 exams x 100 points each: 400 points
 - Final exam: 100 points
 - Assignments and presentations: 100 points
- TOTAL POINTS: 600 points

STUDENTS WITH DISABILITIES

Oklahoma Baptist University complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Students with disabilities who need special accommodations must self-identify and submit acceptable documentation in the Student Services office located in the Geiger Center, Room 101.

ADDITIONAL IMPORTANT INFORMATION FOR OBU STUDENTS

Please refer to the following link,

http://www.okbu.edu/academics/forms/syllabus_attachment_fall10.pdf for important information regarding class attendance policies academic policies and expectations, tutoring information, library hours, important dates and holidays, inclement weather policies, chapel attendance policies, and more.

CLASS SCHEDULE

DATE	ASSIGNMENT	TOPIC
Aug 26	Introduction	Introduction
Aug 31	Chapter 1	Scientific methodology
Sept 2	Chapter 2	Elements of scientific data
Sept 7	Chapter 2	Elements of scientific data
Sept 9	Chapter 3 and handouts	Descriptive statistics and variation, Q-test
Sept 14	Chapter 3 and handouts	Descriptive statistics and variation, Q-test
Sept 16	EXAM 1	

Sept 21	Chapter 3 and handouts	Relative risks and odds ratios
Sept 23	Chapter 3 and handouts	Student t-test, analysis of variance
Sept 28	Chapter 3 and handouts	Correlation, the chi-square test
Sept 30	Chapter 3 and handouts	Regression analysis
Oct 5	Chapter 3 and handouts	Miscellaneous non-parametric tests
Oct 7	EXAM 2	
Oct 12	Chapter 4	Principles of research design
Oct 14	Chapter 5	Scientific writing
Oct 19	Chapter 4	Principles of research design, estimation and sample size
Oct 21	Fall Recess	None
Oct 26	Chapter 5 and 6	Scientific writing, The scientific paper
Oct 28	Research articles	Oral presentations
Nov 2	Chapter 7	Scientific talks, poster presentations, and proposals
Nov 4	Chapter 7	Scientific talks, poster presentations, and proposals
Nov 9	EXAM 3	
Nov 11	Handouts	Research equipment
Nov 16	Handouts	Research equipment
Nov 18	Chapter 8 and 9	Data tables and figures
Nov 23	Handouts	Basics of genomics and bioinformatics
Nov 25	Thanksgiving Recess	None
Nov 30	Handouts	Basics of genomics and bioinformatics
Dec 2	EXAM 4	
Dec 7	Research articles	Oral presentations
Dec 9	Review day	

FINAL EXAM: December 15th (Wednesday), 1:00pm-3:00pm