



**The University of Texas at Tyler
Executive Health Care Administration MPA Program
Spring 2019**

COURSE NUMBER EHCA 5367

COURSE TITLE Biostatistics

INSTRUCTOR Thomas Ross, PhD

**INSTRUCTOR
INFORMATION** email - tross@uttyler.edu – this one is checked once a week

 rosstk@appstate.edu – this one is checked Monday thru Friday

 Phone - 828.262.7479

REQUIRED TEXT: Wayne Daniel and Chad Cross, **Biostatistics, 10th ed.**, Wiley, 2013, ISBN: 978-1-118-30279-8

COURSE DESCRIPTION This course is designed to teach students the application of statistical methods to the decision-making process in health services administration. Emphasis is placed on understanding the principles in the meaning and use of statistical analyses. Topics discussed include a review of descriptive statistics, the standard normal distribution, sampling distributions, t-tests, ANOVA, simple and multiple regression, and chi-square analysis. Students will use Microsoft Excel or other appropriate computer software in the completion of assignments.

COURSE LEARNING OBJECTIVES

Upon completion of this course, the student will be able to:

1. Use descriptive statistics and graphs to describe data
2. Understand basic principles of probability, sampling distributions, and binomial, Poisson, and normal distributions
3. Formulate research questions and hypotheses
4. Run and interpret t-tests and analyses of variance (ANOVA)
5. Run and interpret regression analyses
6. Run and interpret chi-square analyses

GRADING POLICY

Students will be graded on homework, midterm, and final exam, see weights below.

ATTENDANCE/MAKE UP POLICY

All students are expected to attend all of the on-campus sessions. Students are expected to participate in all online discussions in a substantive manner. If circumstances arise that a student is unable to attend a portion of the on-campus session or any of the online discussions, special arrangements must be made with the instructor in advance for make-up activity.

COURSE SCHEDULE

Jan 24-26, 2019: Chapters 1 through 9

I hope to cover chapters 1 through 9 during our on-campus sessions, following the on-campus sessions, if not prior, homework will be posted for most chapters and will be discussed during online synchronous sessions. Synchronous on-line sessions will be weekly at 7:00 pm CST (8:00 pm EST) on Wednesdays starting February 6. Chapters 10 and 11, extensions of chapter 9 – regression and chapter 12 Chi-square analysis will be tackled via recorded lectures and/or synchronous meetings. All dates are subject to change

Module 1: Introduction to Biostatistics: Introduction and use of Excel for statistical analysis.

Module 2: Descriptive Statistics: Calculating of central tendency and dispersion measures, creating histograms, run charts, Pareto charts, and pivot tables. Homework 1 due 2/6/19, 8:00 pm CST.

Module 3: Probability Concepts: Using probability to aid decision-making, calculation of marginal, conditional, and joint probabilities. Homework 2 due 2/13/19, 8:00 pm CST.

Module 4: Probability Distributions: Recognizing the appropriate distribution for the collected data and assessing the likelihood of events. Homework 3 due 2/20/19, 8:00 pm CST.

Module 5: Sampling Distributions: Understanding the distribution of a sample mean and calculating the likelihood of events. Homework 4 due 2/27/18, 8:00 pm CST.

Module 6: Estimation: Making statistical inferences and creating confidence intervals.

Module 7: Hypothesis Testing: Creating and testing hypotheses, comparing means for two related groups. Homework 5 due 3/13/19, 8:00 pm CST.

Midterm: Dates to be determined during online synchronous sessions

Module 8: Analysis of Variance: Testing the relationship between a numerical dependent variable and two or more categorical independent variables. Homework 6 due 3/27/19, 8:00 pm CST.

Module 9: Simple Linear Regression: Performing and interpreting the results of regression of one continuous dependent variable and one continuous independent variable. Homework 7 due 4/3/19, 8:00 pm CST.

Module 10: Multiple Regression: Performing and interpreting the results of regression of one continuous dependent variable and multiple continuous independent variables. Homework 8 due 4/10/19, 8:00 pm CST.

Module 11: Regression Analysis – Some Additional Techniques: Performing and interpreting the results of regression of one continuous dependent variable and multiple continuous and categorical (dummy variables) independent variables. Homework 9 due 4/17/19, 8:00 pm CST.

Module 12: The Chi-square Distribution: Testing the relationship between two categorical variables. Homework 10 due 4/25/19, 8:00 pm CST.

Final Exam: Dates to be determined during online synchronous sessions

GRADING

Homework	20%
Midterm (chapters 1-7)	40%
<u>Final Exam</u> (all chapters)	<u>40%</u>
Total	100%

STUDENTS RIGHTS AND RESPONSIBILITIES

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link:

<http://www.uttyler.edu/wellness/StudentRightsandResponsibilities.html>

DISABILITY SERVICES

In accordance with federal law, a student requesting accommodation must provide documentation of his/her disability to the Disability Support Services counselor. If you have a disability, including a learning disability, for which you request an accommodation, please contact Ida MacDonald in the Disability Support Services office in UC 282, or call (903) 566-7079.

STUDENT ABSENCE DUE TO RELIGIOUS OBSERVANCE

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

SOCIAL SECURITY AND FERPA STATEMENT

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.