Fall 2015
Math 3680.004
Applied Statistics

Class meets: TR, 8:00 am – 9:20 am, in SAGE 176

Instructor: Professor Michael Monticino

Contacting me

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Office hours: Sycamore 129, T, TH: 9:30 – 11:00 am, or by appointment.

Through Enhanced Webassign by clicking Communication near the top of the Enhanced WebAssign page and then follow the prompts. Through by using Enhanced WebAssign as you are doing your homework. Click Ask Your Teacher near the top of the Enhanced WebAssign page and then follow the prompts. This method is good for homework questions, as it allows me to see your message and your attempts at doing the homework problems.


There are two options for purchasing the text. The second option is cheaper; however, it only provides temporary online access to the textbook, so that you would neither be able to use a physical hard copy of the book this semester nor permanently add it to your bookshelf after completing the course. Both can be purchased at http://www.cengagebrain.com/course/site.html?id=1-1MH23VQ.


Another useful resource. Lecture notes closely following the course can be purchased from the Eagle Images Print Center for approximately $20. The Eagle Images Print Center is in room 124 of the University Service Building (USB), which located near the Fouts Field Parking Lot. The Mean Green (stop 7 on the map) and Campus Cruiser shuttles both stop at USB. You should enter through the north door (that is, the door that isn’t facing Fouts Field) to easily get to the Print Center.

Technology: You will be expected to bring to class, including exams if instructed, either a laptop computer with a spreadsheet program (e.g., Excel) or a calculator that can perform statistical functions.

Grading

Your course grade will be based on homework, in-classes quizzes and tests, and a comprehensive final exam.
Homework

• All homework assignments are completed by logging into www.webassign.net.
  
  o Each part of each exercise can be attempted up to 10 times. For example, answers can be submitted to part (a) of Exercise #1 up to 10 times, and then you can move on to attempt part (b).
  o The last submission will count as your final answer.
  o You can save your work without using a submission.
  o Some exercises are randomized so that each student will be presented a slightly different question with a correspondingly different answer.

• For full credit, homework will be due the Friday after it is assigned by 11:59 pm.
• If requested no more than a week after the original due date (i.e., by the following Friday at 11:59 pm), you can receive an automatic extension on homework through Enhanced WebAssign. Any work done after the automatic extension request can be submitted for half credit as long as it completed within 24 hours of the request.
• No other extensions or late assignments will be accepted.

Two homework grades will be dropped before your homework average is computed for your course grade. Your homework average will count towards 10% of your course grade.

Quizzes

Approximately 6 in-class quizzes will be given (~every other week). The quizzes will review in-class and homework material and help prepare you for demonstrating your knowledge of the material on the tests.

One quiz grade will be dropped before your quiz average is computed for your course grade. Your quiz average will count towards 10% of your course grade.

Tests

Three in-class tests will be given. Tentatively, the tests will be presented:
Test 1 – Week 5 of the semester,
Test 2 – Week 9 of the semester,
Test 3 – Week 14 of the semester.

Exact test dates will be announced in class.

No test grade will be dropped. Each test counts 20% toward your course grade.

Final Exam

The final exam is comprehensive, covering material from the entire semester. The final exam counts 20% toward your final grade.

The final exam is scheduled for December 8, 2015, 8:00 am – 10 am.

You are required to provide an official written verification of any authorized absence if you miss a test or the final exam. Otherwise, if you miss a test or the final exam, you will receive a 0 for that test/final exam.

Course Grade

A  100% – 90% average of tests, final exam, quizzes and homework.
B  >90% – 80% average of tests, final exam, quizzes and homework.
C  >80% – 70% average of tests, final exam, quizzes and homework
D  >70% – 60% average of tests, final exam, quizzes and homework
F  >60%    average of tests, final exam, quizzes and homework

Quizzes, tests and the final exam measure your mastery of course material. Cheating will be will be met by an appropriate penalty up to and including an F for the course (see http://ypaa.unt.edu/academic-integrity.htm for the UNT academic dishonesty policy).

Attendance is not required for this class. However, you are responsible for all material presented in class. Topics covered in lecture will be part of quizzes, tests and the final exam.

A grade of "I" is designed for students who are unable to complete the course and currently passing. Guidelines for received an “I” are provided in the UNT Student Handbook.

Expectations and Accommodations

You are expected to behave professionally and maturely in all instructional settings. Behavior that interferes with an instructor’s ability to conduct a class or other students’ opportunity to learn will result in dismissal from the classroom. Disruptive students may be referred to the Center for Student Rights and Responsibilities.

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the Office of Disability Accommodation website at http://www.unt.edu/oda. You may also contact them by phone at 940.565.4323.

Course Topics

The following chapters and sections of the textbook will be covered. The first test will (approximately) include material from Chapters 1 – 3, the second test will include (approximately) material from Chapters 4 – 7, the third test will include (approximately) material from Chapters 8 – 9, 12, and the final exam will include material covered from Chapters 1 – 14.

• Chapter 1: Overview and Description Statistics
  o  1.1 Populations, Samples and Processes
  o  1.2 Pictorial and Tabular Methods in Descriptive Statistics
  o  1.3 Measures of Location
  o  1.4 Measures of Variability

• Chapter 2: Probability
  o  2.1 Sample Spaces and Events
  o  2.2 Axioms, Interpretations, and Properties of Probability
  o  2.4 Conditional Probability
  o  2.5 Independence

• Chapter 3: Discrete Random Variables and Probability Distributions
  o  3.1 Random Variables
  o  3.2 Probability Distributions for Random Variables
  o  3.3 Expected Values
  o  3.4 The Binomial Probability Distribution
  o  3.5 Hypergeometric and Negative Binomial Distributions
• Chapter 4: Continuous Random Variables of Probability Distributions
  o 4.1 Probability Density Functions
  o 4.2 Cumulative Distribution Functions and Expected Values
  o 4.3 The Normal Distribution
  o 4.6 Probability Plots
• Chapter 5: Joint Probability Distributions and Random Samples
  o 5.4 The Distribution of the Sample Mean
  o 5.5 The Distribution of a Linear Combination
• Chapter 7: Statistical Intervals Based on a Single Sample
  o 7.1 Basic Properties of Confidence Intervals
  o 7.2 Large-Sample Confidence Intervals for a Population Mean and Proportion
  o 7.3 Intervals Based on a Normal Population Distribution
• Chapter 8: Test of Hypotheses Based on a Single Sample
  o 8.1 Hypotheses and Test Procedures
  o 8.2 Tests About a Population Mean
  o 8.3 Tests Concerning a Population Proportion
  o 8.4 P-Values
• Chapter 9: Inferences Based on Two Samples
  o 9.1 z Tests and Confidence Intervals for a Difference Between Two Population Means
  o 9.2 The Two Sample t Test and Confidence Interval
  o 9.3 Analysis of Paired Data
  o 9.4 Inferences Concerning a Difference Between Population Proportions
• Chapter 12: Simple Linear Regression
  o 12.2 Estimating Model Parameters
  o 12.5 Correlation
• Chapter 13: Nonlinear and Multiple Regression
  o 13.2 Regression with Transformed Variables
• Chapter 14: Goodness-of-Fit Tests and Categorical Data Analysis
  o 14.1 Goodness-of-Fit Tests When Category Probabilities Are Completely Specified
  o 14.3 Two-Way Contingency Tables