Math 11 (59664) Elementary Statistics Fall 2018

Instructor: Scott Bucher

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Class Meeting Time and Place: CCI 206 T Th 6 – 7:50

Text: Elementary Statistics - Picturing the World (6th Edition). Hardcopy or Digital Book. MyMathLab required.

Access Code for MyMathLab is bucher21635. Student must have joined MyMathLab by 9/1 or they will be dropped by the instructor

Technology - The student needs to have a calculator that can do statistics. Any calculator is acceptable, but it is strongly recommended that the student use a TI-83 or TI-84 the instructor knows how to use the TI-83 and TI-84 and the book has instructions as well. If you use any other calculator YOU ARE ON YOUR OWN to figure out how to use it.

Basic Skills Advisories: English 125 and English 126

Subject Prerequisites: Math 103 or Equivalent

Behavioral Standards: Your classmates and I would greatly appreciate that you take care of any personal needs (i.e., using the restroom, getting a drink, sharpening a pencil) before class begins. Please turn your phone off, put it out of sight, and remove any earbuds when you come into class. You may not use your phone as a calculator. I would appreciate that you not bring guests to class.

Important Dates.
>   8/24 **Last day to drop for full refund**
>   8/31 **Last day to drop to avoid a "W" (in person)**
>   9/2 **Last day to drop to avoid a "W" (web advisor)**
>   11/22 **No class - Thanksgiving**
>   12/11 **- Final**

Course Description: This course is an introduction to statistical methods and techniques with applications in the fields of business, behavioral and social science, as well as in science, technology, engineering, and mathematics. Topics include descriptive measures of central tendency and variability, probability, binomial and normal distributions, random variables, sampling, estimating, hypothesis testing (parametric and nonparametric), correlation and regression.

Course Objectives:
1. Summarize and describe given data sets.
2. Apply the methods of descriptive statistics to determine the measures of central tendency and variability to a variety of problems.
3. Apply basic principles of probability to determine probabilities of a variety of events.
4. Analyze discrete and continuous probability distributions.
5. Explore the basics of sampling theory.
6. Estimate population parameters through studying confidence intervals.
7. Examine hypothesis testing for small and large samples and multiple populations. Determine if a relationship exists between quantitative variables
8. Describe and test the significance between two variables when the data are presented as orderer pairs

Course Outline:

A. Introduction to Statistics
     1. Statistical data
     2. Frequency distributions
     3. Graphs
B. Population Parameters and Sample Statistics
     1. Measures of central tendency.
          a. Mean
          b. Median
          c. Mode
     2. Measures of Variability
          a. Standard deviation
          b. Quartiles
          c. Range
C. Probability
     1. Rules of probability, random variables, and expected value.
     2. Discrete and continuous probability distributions.
          a. Binomial Distribution
          b. Geometric Distribution
          c. Poisson Distribution
D. Sampling Theory
     1. Simple random sample
     2. Central Limit Theorem
E. Estimating Population Parameters
     1. Estimating from a small or large sample.
     2. Sample size.
F. Hypothesis Testing (Parametric/Nonparametric)
     1. One population, one and two sided tests. z-test for means and proportions. t-test for means (independent and dependent samples)
     2. Two populations, sampling distributions
     3. Chi-squared (Goodness of Fit and Contingency Tables)
     4. Analysis of Variance (ANOVA) (as time permits)

G. Correlation and Simple Linear Regression (as time permits)
   1. Correlation coefficient
   2. Regression coefficient
   3. Test of hypothesis about the value of correlation/regression coefficient.

Attendance: Elementary Statistics is a course that builds each class session on the session before it. If you miss a class, it is very difficult to not fall behind. If you cannot make it to a class meeting, please notify the instructor ahead of time. If you miss a class without notification, it will be considered an unexcused absence. You will be dropped from the class after 3 consecutive unexcused absences or 6 total absences. (If there is no communication with the teacher.)

Homework: Homework will be assigned for each section we cover. (Approximately 40 sections) You will not master the material if you do not do the assignments. The assignments will be done on MyMathLab. The class access code is bucher29746

Tests. A test will be given at the end of each chapter. Every test will be worth 100 points. You must be in class on the night of an exam. No make-ups.

Final Exam: A comprehensive final will be given on the last day of class.

Special Needs Requests: If you have special needs as addressed by the Americans with Disabilities Act (ADA) including alternate media requests, please notify your course instructor immediately. Reasonable efforts will be made to accommodate your special needs.

Grading: Your final grade will be calculated using categories

Homework:	35%
Chapter Tests:	50%
Final Exam	15%

Letter grades will be based upon your percentage
A	>90%
B	80% to 89.9%
C	70% to 79.9%
D	60% to 69.9%
F	<60%