BRANDMAN University Chapman University System

School of Arts & Sciences Course Syllabus

Course Number/Title/Credits: MATU 203/Introduction to Statistics (3 credits)

Catalog Course Description: Prerequisite: MATU 099 or higher. Not recommended for the student who has taken a statistics course in another department or for mathematics majors. Students study probability, analysis of data, parametric and non-parametric statistics, with examples from the social sciences and the natural sciences.

LEARNING OUTCOMES and ASSESSMENT:

Learning Outcomes are statements that specify what learners will know, understand, or be able to demonstrate at the end of a learning experience.

Types of Learning Outcomes include:

- ✓ Course Learning Outcome – Result of finishing a course.
- ✓ Program Learning Outcome – Result of finishing a program.
- ✓ Institutional Learning Outcome – Result of finishing a degree at an institution, reflecting the core learning values and experiences of all graduates.

A Signature Assignment is an assignment used to measure a student's mastery of a program or institutional learning outcome. If a course you are taking includes a Signature Assignment, it will be clearly marked (**SIGNATURE ASSIGNMENT**).

Access the following link(s) for information on the Program Learning Outcomes (PLOs) and Curriculum Map related to this course:

Click Here for BA, Bachelors of Business Administration - PLO

Click Here for BS, Computer Technology - PLO

Access the following link(s) for information on the Institutional Learning Outcomes (ILOs) and Curriculum Map related to this course:

Click Here for Learning Outcomes

Prerequisites: MATU 099 or higher

Restrictions: None

Essential Equipment and Facilities: By the end of the first week of class, students must have the ability to access MyBrandman, the Blackboard portal to their class site, and other key locations necessary to meet course requirements. Individual browser preferences vary, and, at times, some work with Blackboard better than others. Therefore, if you try one browser, such as Firefox, and you have difficulty, try another browser, such as Google Chrome. Since versions of Microsoft Office vary, students who do not use the most recent version may need the free conversion software available via the Microsoft.com website. Java is also required for courses. Students who do not have Java may download it for free at java.com.

Academic Integrity: As a learning community of scholars, Brandman University emphasizes the ethical responsibility of all members to seek knowledge honestly and in good faith. Students are responsible for doing their own work. Academic dishonesty of any kind will not be tolerated. Violations of academic integrity include, but are not limited to, cheating, plagiarism, or misrepresentation of information in oral or written form. Plagiarism means presenting someone else's idea or writing as if it were your own. If you use someone else's idea or writing, be sure the source is clearly documented. Further information may be found in the *Brandman University Catalog* available under Academic Resources in MyBrandman.

Americans with Disabilities Act Statement: According to the Americans with Disabilities Act (ADA) of 1990, an individual with disability is defined as having functional limitations resulting from a diagnosed disability and applies to an individual who has a physical or mental impairment that substantially limits one or more of the individual's major life activities; has a record of such an impairment; or is regarded as having such an impairment. In compliance with ADA guidelines, students who have any condition, either permanent or temporary, that may impair or impact their ability to successfully complete assignments, tasks or satisfy course criteria are requested to notify their Advisor or Campus Director in order to understand how to apply for Student Disability Services. If and when the student is granted formal approval by the Director of ADA Services, both the student and professor will be notified. It is highly suggested that the student contact their professor to discuss the accommodations during the first week of the session. The granting of accommodations will not be retroactive and cannot jeopardize the academic standards or integrity of the course.

University Policies: Students are responsible for complying with university policies including, but not limited to: incompletes, course drops, and student conduct. Information may be found in the *Brandman University Catalog* available under Academic Resources in MyBrandman.

Online Brandman Library Resources: Click on red "Library" button in Blackboard.

Texts are available at the Brandman Online Bookstore: See "Bookstore" under Academic Resources in MyBrandman.

Required Text:

Triola, M. F., Triola, M. F., & Humphrey, P. (2017). Elementary Statistics. Boston, MA: Pearson Learning Solutions.

Hardback – Triola 13 th Edition Elementary Statistics w/ MyStatLab ISBN-13: 978-0134462455
There is a "Loose Leaf" version–30% less expensive, also with the required MyStatLab access
A Digital copy of the book comes automatically with the required MyStatLab access code, which can be purchased directly at the MyStatLab website once the student receives the correct Course ID from their instructor.

Note: You MUST have MyStatLab. If you buy a used book, make sure you get this with an unused MyStatLab access code or you will have to pay for the access code separately.

Course Learning Objectives:

The purpose of this course is to familiarize you with the process of gathering and interpreting data. Statistical procedures are the necessary tools for evaluating research hypotheses. You will be presented with theory behind both probability and statistics and you will be required to compute statistics using various statistical tools.

Upon completion of this course, students will be able to:

1. Define and interpret basic statistical concepts.
2. Calculate and analyze descriptive statistics including: measures of central tendency (mean, median, mode) and measures of dispersion (range, variance, standard deviation, percentiles, five number summary) of a population or sample.
3. Create and understand graphs and charts (histograms, frequency distributions, boxplots, pie charts, normal curves, and contingency tables).
4. Understand the basic probability theory.
5. Compute and analyze confidence intervals.
6. Use the binomial, normal, t, F, and chi-square probability distributions.
7. Understand hypothesis testing (null/alternative hypothesis, one/two tailed tests, significance levels, significance test, p-values).
8. Calculate and interpret inferential statistics including: z-test, t-test, chi-square, contingency tables, correlation, and regression.
9. Determine which statistical procedure to use and interpret statistical outcomes.
10. Apply knowledge of statistics to a cumulative final project.

Major Study Units:

First Study Unit: Descriptive Statistics

a. Variables and Measurement
b. Summarizing and Graphing Data
c. Measures of Central Tendency
d. Measures of Variation
e. Probability & Discrete Probability Distributions
f. The Normal Distribution & Central Limit Theorem

Second Study Unit: Inferential Statistics

a. Confidence Intervals
b. z-tests and t-tests
c. χ^2 and F tests
d. Correlation and Regression
e. Goodness of Fit
f. Contingency Tables

Instructional Strategies: This class includes readings, text and video instruction, threaded discussions, exercises, final exam, and projects. Instructional Strategies are further explained in the Blackboard site for this course.

Attendance Policy:

Requirements for students' attendance and participation will be defined by each instructor based on the following policy:

- Monday of the first week is considered the first day of class for online and blended instruction. This includes instruction for fully online classes and online instruction supporting blended classes.
- Regular onsite attendance is expected for student success. If a student misses more than one onsite class or one week of engagement in an online class, the student may, at the discretion of the instructor, fail the course. Students are expected to attend all classes, particularly the first night of class.
- Students should consider withdrawing from a course if they will be absent more than once. Instructors may, but are not obligated to, accommodate students under extraordinary circumstances, but the student must request accommodation and provide requested supporting documentation. Students enrolled in blended courses must attend at least one class during the first two weeks of classes.
- If a student misses a portion (e.g., arriving late or leaving early) of an onsite course, the student's grade may be adversely affected. Students who are not in attendance for at least 75 percent of any scheduled class may be considered absent for that class. Students should discuss missing portions of a class with their instructor to determine how their grade may be affected.
- Regular online attendance/participation and engagement is expected for student success in both fully online and blended courses. Online participation is evident through posting to a discussion board, blog, completing assignments including journal entries, or taking quizzes and exams.
- Schools and programs may have different attendance policies. Refer to school and program specific information for additional attendance policies.

Letter Grade/Percentage Equivalents:

Grade Point System (Rounded up at 0.5 and up)			
A = 93%-100%	B = 83%-86%	C = 73%-76%	D = 63%-66%
A- = 90%-92%	B- = 80%-82%	C- = 70%-72%	D-= 60%-62%
B+ = 87%-89%	C+ = 77%-79%	D+ = 67%-69%	F=59% and below

Methods of Evaluation for Determining Grades for Blended and Online Course:

Assignments for Blended course	**Points**	**Quantity**	**Total Possible Points**
Discussion Board As part of the participation grade, weekly discussions will be posed. Students will be required to answer the initial post by the instructor, as well as respond to three other classmates each week. Real examples using statistics will be discussed.	25	8	200
Technology Assignments Assignments utilizing statistical software will be due every week, other than Week 8. Students will use a statistical software package (Statcrunch, Statdisk, or Excel) to generate statistics and graphs in order to answer questions.	25	7	175

Homework Math problem-set homework assignments are found by going to www.mystatlab.com. There is one homework assignment each week, and an additional orientation assignment in Week 1. Each homework assignment, including the orientation, is worth 25 points. You may repeat each question on the homework until you get the correct answer.	25	9	225
Final Project: Parts 1 and 2 (Class project analyzing a given set of data)	100	1	100
Final Project	200	1	200
Final Exam A 100-point, 50-question, multiple choice cumulative final exam based upon the cumulative material learned in class will be completed in Week 8. The final exam is open book and technology may be used.	100	1	100
			Total: 1000

Class by Class Outline for Blended Course and Online Course (note: Blended Courses may use class time to work on any of the weekly assignments, at the instructor's discretion):

Week	Topics	Assignments
Week 1	Overview- Collecting, Summarizing and Graphing Data	Read Chapters 1 and 2 MyStatLab Orientation Assignment MyStatLab Homework #1 Online Threaded Discussion Topic #1 Online Technology Assignment #1
Week 2	Describing and Comparing Data	Read Chapter 3 MyStatLab Homework #2 Online Threaded Discussion Topic #2 Online Technology Assignment #2
Week 3	Introduction to Probability; Discrete Probability Distributions;	Read Chapters 4 and 5 MyStatLab Homework #3 Online Threaded Discussion Topic #3 Online Technology Assignment #3
Week 4	The Normal Probability Distribution; Central Limit Theorem	Read Chapter 6 MyStatLab Homework #4 Online Threaded Discussion Topic #4

		Online Technology Assignment #4 ***Final Project – Parts 1 and 2***
Week 5	Confidence Intervals, Estimates, and Sample Size	Read Chapter 7 MyStatLab Homework #5 Online Threaded Discussion Topic #5 Online Technology Assignment #5
Week 6	Hypothesis Testing; Inferences from One Sample and Two Samples	Read Chapters 8 and 9 MyStatLab Homework #6 Online Threaded Discussion Topic #6 Online Technology Assignment #6
Week 7	Correlation and Regression; Goodness of Fit; Contingency Tables	Read Chapters 10 and 11 MyStatLab Homework #7 Online Threaded Discussion Topic #7 Online Technology Assignment #7
Week 8	Review	Review Chapters 1-11 Online Threaded Discussion Topic #8 ***Final Project Due – Parts 1-4*** Final Exam