



Course Syllabus

Math 1342 Elementary Statistical Methods

Catalog Description: Collection, analysis, presentation and interpretation of data, and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals and hypothesis testing. Use of appropriate technology is recommended.

Lecture hours = 3, Lab hours = 0

Prerequisites: TSI Math Complete.

Semester Credit Hours: 3

Lecture Hours per Week: 3

Lab Hours per Week: 0

Contact Hours per Semester: 48

State Approval Code: 27.0501.51 19

Alternate Operations During Campus Closure: In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Panola College to move to altered operations. During this time, Panola College may opt to continue delivery of instruction through methods that include, but are not limited to: online learning management system (CANVAS), online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor Panola College's website (www.panola.edu) for instructions about continuing courses remotely, CANVAS for each class for course-specific communication, and Panola College email for important general information.

Core Components and Related College Student Learning Outcomes

This course counts as part of the academic requirements of the Panola College Core Curriculum and an Associate of Arts or Associate of Science degree. Yes No: If no, skip to Instructional Goals.

The items below marked with an X reflect the state-mandated outcomes for this course **IF this is a CORE course:**

- Critical Thinking Skills – to include creative thinking, innovation, inquiry and analysis, evaluation and syntheses of information
 - CT1: Generate and communicate ideas by combining, changing, or reapplying existing information
 - CT2: Gather and assess information relevant to a question
 - CT3: Analyze, evaluate, and synthesize information
- Communication Skills – to include effective development, interpretation, and expression of ideas through written, oral, and visual communication
 - CS1: Develop, interpret, and express ideas through written communication
 - CS2: Develop, interpret, and express ideas through oral communication

- CS3: Develop, interpret, and express ideas through visual communication
- Empirical and Quantitative Skills – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
 - EQS1: Manipulate and analyze numerical data and arrive at an informed conclusion
 - EQS2: Manipulate and analyze observable facts and arrive at an informed conclusion
- Teamwork – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
 - TW1: Integrate different viewpoints as a member of a team
 - TW2: Work with others to support and accomplish a shared goal
- Personal Responsibility – to include the ability to connect choices, actions, and consequences to ethical decision-making
 - PR1: Evaluate choices and actions and relate consequences to decision-making
- Social Responsibility – to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities
 - SR1: Demonstrate intercultural competence
 - SR2: Identify civic responsibility
 - SR3: Engage in regional, national, and global communities

Instructional Goals and Purposes:

The purpose of this course is to develop critical thinking skills, help students learn to analyze and interpret different charts and graphs that they might encounter in newspapers, magazines, and online information sites, and help students improve their decision making skills. Since many degree plans call for “College Algebra or higher”, Statistics (Math 1342) will work as the math requirement in many degree plans.

Learning Outcomes: *[from the ACGM catalog]*

After studying all materials and resources presented in the course, the student will be able to:

1. Explain the use of data collection and statistics as tools to reach reasonable conclusions.
2. Recognize, examine and interpret the basic principles of describing and presenting data.
3. Compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics.
4. Explain the role of probability in statistics.
5. Examine, analyze and compare various sampling distributions for both discrete and continuous random variables.
6. Describe and compute confidence intervals.
7. Solve linear regression and correlation problems.
8. Perform hypothesis testing using statistical methods.

Course Content:

A general description of lecture/discussion topics included in this course are listed in the Learning Objectives / Specific Course Objectives sections of this syllabus.

Students in all sections of this course will learn the following content:

1. Define and/or explain the concepts of vocabulary, terminology, and notation used in this course.
2. Create a frequency distribution from a set of data, and draw a histogram from this table. Perform analysis of histograms.
3. Create a pie graph, a pareto chart, a scatter-plot, and a stem and leaf plot from a set of data, either by hand or using statistical software. Perform analysis of different charts constructed.
4. Compute mean, median, mode, midrange, variance, and standard deviation of data sets. Compare and contrast the measures of center.
5. Compute the z-score and percentile of a given score of data sets.
6. Compute the probabilities of simple and compound events. Use critical thinking to interpret the results.
7. Summarize the results of a probability procedure in a probability distribution. Calculate the mean, variance, and standard deviation of a probability distribution.
8. Find the probabilities associated with binomial distributions. Find the mean, variance, and standard deviation of a binomial distribution.
9. Find the probabilities associated normal distributions.
10. Construct a confidence interval for mean, proportion, and standard deviation and use critical thinking to interpret the results. Determine the sample size necessary to estimate the mean, proportion, and variance.
11. Test a hypothesis about a mean, proportion, and standard deviation and use critical thinking to interpret the results.
12. Find the linear correlation coefficient, perform a hypothesis test for linear correlation, and find the equation of the regression line of a linearly correlated set of data. Use critical thinking to interpret the results.

Methods of Instruction/Course Format/Delivery:

Methods of Instruction/Course Format/Delivery: Methods employed will include Lecture/demonstration, discussion, problem solving, analysis, and reading assignments. Homework will be assigned. Faculty may choose from, but are not limited to, the following methods of instruction:

1. Lecture
2. Discussion
3. Internet
4. Video
5. Television
6. Demonstrations
7. Field trips
8. Collaboration
9. Readings

Major Assignments/Assessment:

Faculty may assign both in- and out-of-class activities to evaluate students' knowledge and abilities. Faculty may choose from – but are not limited to -- the following methods attendance, class preparedness and participation. Collaborative learning projects, exams/tests/quizzes, homework, internet, library assignments, readings, research papers, scientific observations, student-teacher conferences, and written assignments.

Assessment(s):

1. Participation/Attendance
2. Homework/Quizzes
3. Exam per two or three Chapters
4. Comprehensive Final Exam

All assignments must be turned in on time. Late assignments will not be accepted unless student shows proof of extenuating circumstances. A default score of 0 will be entered for non- submission of assignments. Exams must be taken with the class during scheduled exam times. If a student does not take an exam a default score of 0 will be given.

Course Grade:

Assignment Weights	
Participation/Attendance	10%
Homework/Quiz Average	20%
Exams	50%
Comprehensive Final Exam	20%

Letter Grades for the Course will be assigned as follows:

- A: $90 \leq \text{Average} < 100$
- B: $80 \leq \text{Average} < 90$
- C: $70 \leq \text{Average} < 80$
- D: $60 \leq \text{Average} < 70$
- F: $0 \leq \text{Average} < 60$

Texts, Materials, and Supplies:

- Textbook: Introductory Statistics by OpenStax, 2016, iBook ISBN-13: 978-1-938168-29-1
The free OpenStax Introductory Stat eBook is accessible to students through Canvas.
- Canvas Access
- StatCrunch Access
StatCrunch is a Web-based statistical software application from Pearson Education. Pay for access to StatCrunch is included with course fees.
- Scientific Calculator

Other:

- Courses conducted via video conferencing may be recorded and shared for instructional purposes by the instructor.
- For current texts and materials, use the following link to access bookstore listings:
<https://www.panolacollegestore.com>
- For testing services, use the following link: <https://www.panola.edu/elearning/testing.html>
- If any student in this class has special classroom or testing needs because of a physical learning or emotional condition, please contact the ADA Student Coordinator in Support Services located in the Charles C. Matthews Student Center or go to <https://www.panola.edu/student-success/disability-support-services/> for more information.
- Withdrawing from a course is the student's responsibility. Students who do not attend class and who do not withdraw will receive the grade earned for the course.
- Student Handbook, *The Pathfinder*:
https://panola.edu/documents/2020springpathfinderupdated_832020.pdf