Course Syllabus

MATH 0342 – Statistics Foundations

Catalog Description: This course focuses on developing fundamental mathematical skills necessary for successful completion of an elementary statistics course. Topics covered will include fractions, percentages, statistical formulas and graphs, solving simple linear equations in one variable, and graphing linear equations in two variables.

This course is designed for students who are co-enrolled in MATH 1342 Elementary Statistical Methods.

Prerequisites: Placement score

Semester Credit Hours: 3
Lecture Hours per Week: 3
Lab Hours per Week: 0
Contact Hours per Semester: 48

State Approval Code: Not Applicable

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 increase academic proficiency in expression of mathematical solutions, mathematical reasoning and mathematical understanding.

Learning Outcomes:

Upon successful completion of this course, students will:

1. Use appropriate symbolic notation and vocabulary to communicate, interpret, and explain mathematical concepts.

2. Define, represent, and perform operations on real numbers, applying numeric reasoning to investigate and describe quantitative relationships and solve real world problems in a variety of contexts.

3. Use algebraic reasoning to solve problems that require ratios, rates, percentages, and proportions in a variety of contexts using multiple representations.

4. Apply algebraic reasoning to manipulate expressions and equations to solve real world problems.

5. Use graphs, tables, and technology to analyze, interpret, and compare data sets.

6. Construct and use mathematical models in verbal, algebraic, graphical, and tabular form to solve problems from a variety of contexts and to make predictions and decisions.

Course Content:

Students in all sections of this course will learn how to:

1. Identify variables in context.

2. Classify data as a type of number.

3. Evaluate exponents.

4. Translate between scientific notation and standard form and vice versa.

5. Identify the number of significant digits.

6. Round decimals.

7. Write fractions in lowest term and apply operations to fractions.

8. Apply operations to decimals.

9. Convert between decimals, fractions, and percentages.

10. Calculate relative frequencies.

11. Find the percentage of a number.

12. Plot points.

13. Interpret basic statistical graphs.

14. Apply the order of operations.

15. Evaluate square roots.

16. Evaluate expressions and formulas.

17. Apply summation notation.

18. Evaluate factorials.

19. Determine the intersection, union, and complement of two sets.

20. Evaluate formulas for probability distributions.

21. Evaluate the binomial probability formula.

22. Find the area of a rectangle.

23. Interpret inequality notation.

24. Evaluate formulas for normal probability distributions.

25. Find the middle value for an interval written either as an inequality or in interval notation.

26. Find the distance from the middle value of an interval to its endpoints.

27. Write and interpret three different forms of intervals (as used for confidence intervals).

28. Evaluate formulas used for confidence intervals.

29. Evaluate formulas for hypothesis testing.

30. Find and interpret slope.

31. Find and interpret the y-intercept of a line.

32. Find values from a linear equation or graph.

33. Graph a linear equation.

34. Find and interpret a linear model ($y = mx + b$).

Methods of Instruction/Course Format/Delivery: Methods employed will include lecture/demonstration, discussion, problem solving, and analysis. Homework will be assigned.

Major Assignments / Assessments:

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: Attendance and participation, exams/tests/quizzes, homework, and written assignments.
The following major items will be assigned and assessed during the semester and used to calculate the student's final grade.

1. Unit and Topic Homework/Quiz Assignments
2. Exams coverings 2 to 3 Units per exam.
3. Comprehensive Final Exam

Assignment Weights:

- Class Participation: 5%
- Homework/Quizzes: 25%
- Exams: 50%
- Comprehensive Final Exam: 20%

Letter Grades for the Course will be assigned as follows:

A: 90 ≤ Average ≤ 100

B: 80 ≤ Average < 90

C: 70 ≤ Average < 80

D: 60 ≤ Average < 70

F: 0 ≤ Average < 60

Texts, Materials, and Supplies:

The text and resources for this course are provided by the NROC Developmental Mathematics Program. Panola College is a member of NROC; use of this program is free to the students.

- NROC access
- Canvas access
- 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