Syllabus
MATH/
BSAD 2170
Applied Statistics
2022

Committee Members:

Doug Holt, Central Community College
Rachel Neurath, Metropolitan Community College
Micah Marvin, Mid-Plains Community College
Stacey Aldag, Northeast Community College
Eric Smith, Southeast Community College
Nancy Resseguie, Western Nebraska Community College
Jody Wingert, Little Priest Tribal College
Al Widrowicz, Nebraska Indian Community College
Facilitator: Eric Smith

The Institution agrees to the contents in this syllabus including course prefix, number, course description and other contents of this syllabus.

04/06/2022	Chief Academic Officer, Central Community College	Adopt
Loretta Broberg 03/28/2022	Chief Academic Officer, Little Priest Tribal College	Adopt
Tom McDonnell 03/28/2022	Chief Academic Officer, Metropolitan Community College	Decline
Jody Tomanek 03/28/2022	Chief Academic Officer, Mid-Plains Community College	Adopt
04/04/2022	Chief Academic Officer, Nebraska Indian Community College	Adopt
Michele Gill 03/28/2022	Chief Academic Officer, Northeast Community College	Adopt
Joel Michaelis 04/04/2022	Chief Academic Officer, Southeast Community College	Adopt
Grant Wilson 03/28/2022	Chief Academic Officer, Western Nebraska Community College	Adopt

I. CATALOG DESCRIPTION

Course Number: MATH2170 or BSAD2170
Course Title: Applied Statistics
Prerequisite(s): Intermediate Algebra or equivalent test score

Catalog Description: The course is an introduction to basic probability and statistical methods that are used in a wide variety of disciplines. Topics include descriptive statistics, probability foundations, probability distributions, sampling distributions, methods of statistical inference, and bivariate relationships.

Credit Hours: 3.0 semester or 4.5 quarter
Contact Hours: 45

II. COURSE OBJECTIVES / COMPETENCIES

Course will:

1. Develop student awareness of various sampling methods.
2. Examine methods of gathering, organizing, and summarizing data.
3. Investigate and illustrate measures of central tendency, dispersion, and position.
4. Demonstrate the application of probability and probability distributions.
5. Introduce and analyze sampling distributions and their application.
6. Examine inferential statistics through confidence intervals and hypothesis testing.
7. Develop analysis and presentation of bivariate data.

III. STUDENT LEARNING OUTCOMES

Students will be able to:

1. Use technology to perform statistical calculations and create pictorial displays of data.
2. Differentiate between appropriate and inappropriate sampling methods.
3. Distinguish between sample statistics and population parameters.
4. Classify data as quantitative or categorical/qualitative.
5. Construct and interpret frequency distributions, histograms, and other methods of organizing data.
6. Calculate and interpret measures of central tendency.
7. Calculate and interpret measures of dispersion.
8. Calculate and interpret measures of position.
9. Utilize appropriate probability procedures.
10. Apply various probability distributions to find probabilities and identify unusual outcomes.
11. Apply the concepts of the Central Limit Theorem.
12. Distinguish between the distribution of a data set and a sampling distribution.
13. Use sample data to estimate parameters by calculating and interpreting confidence intervals.

14. Use sample data to test statistical hypotheses about parameters.
15. Interpret the relationship between two variables using linear correlation coefficients.
16. Draw inferences and make predictions from linear regression equations when appropriate.

IV. COURSE CONTENT / TOPICAL OUTLINE

1. Sampling methods.
2. Gather, organize, and summarize data.
3. Measures of central tendency, dispersion, and position.
4. Probability and probability distributions.
5. Sampling distributions.
6. Confidence intervals and hypothesis testing.
7. Bivariate data.

V. INSTRUCTIONAL MATERIALS

A. Required Text(s) Suggested

1. Triola, M., *Essentials of Statistics*, 6th edition (or later), Pearson, 2018
2. Triola, M., *Elementary Statistics*, 13th edition (or later), Pearson, 2018
3. Larson and Farber, *Elementary Statistics – Picturing the World*, 7th edition (or later), Pearson, 2018
4. De Veaux, Velleman, and Bock, *Intro Stats*, 6th edition (or later), Pearson, 2022
5. Dana Center, University of Texas-Austin, *Statistical Reasoning*, 1st edition (or later), Pearson, 2016
6. Bluman, Allan, *Elementary Statistics – A Step By Step Approach*, 8th edition (or later), McGraw Hill, 2019
7. *Introductory Statistics* – OpenStax
8. Warren, Denley, & Atchley, *Beginning Statistics*, 3rd edition (or later), Hawkes Learning Systems, 2021
9. Weiss, *Introductory Statistics*, 10th edition (or later), Pearson, 2020

VI. METHOD OF PRESENTATION / INSTRUCTION

1. Lecture
2. Discovery learning
3. Small group exploration and discussion
4. Technology applications
5. In-class activities
6. Collaborative projects

VII. METHODS OF EVALUATION

1. Course grades, at the determination of the instructor, will be based on class and group participation, daily work, exams, presentations, projects, papers, and/or a portfolio.
2. Instructor will distribute and discuss the evaluation process and grading policies with students at the beginning of the term.

VIII. INSTITUTIONAL DEFINED SECTION