

Bemidji State University

MATH 3067: Data Investigations, Probability, and Statistics for Teachers

A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: *.*

Lab Hours/Week: *.*

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course explores data investigations and concepts of randomness and uncertainty. The collection, display, analysis, and interpretation of data are studied. Additional topics include randomness, sampling, probability in simple and compound events, the prediction of outcomes using a variety of techniques, and the comparison of theoretical and empirical results of experiments. Prerequisite MATH 1011 or equivalent or consent of instructor.

B. COURSE EFFECTIVE DATES: 01/13/2014 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Data recording, collection, organization and storage.
2. Descriptive statistics including measures of central tendency, measures of variation and the use of tables, graphs, and summary statistics.
3. Analysis and interpretation of data to evaluate arguments, predictions, recommendations or decisions.
4. Inference and the role of randomness and sampling in statistical claims about populations.
5. Probability as a way to describe chance or risk in simple and compound events.
6. Predicting outcomes based on exploration of probability through data collection, experiments, simulations, and theoretical probabilities.
7. Evaluating hypotheses by comparing mathematical expectations with experimental results.
8. Random variables, probability distributions, and expected value.

D. LEARNING OUTCOMES (General)

1. Understand the fundamental concepts and methods of data collection, analysis and interpretation.
2. Analyze data collection to answer questions or to formulate hypotheses.
3. Apply creative and analytic thinking to devise data collection models or create simulations to answer questions or hypotheses.
4. Communicate probabilistic and statistical ideas and understanding effectively.
5. Appreciate the beauty, structure and power of probability and statistics to evaluate information, make predictions and make decisions.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted