

Minnesota State College Southeast

MATH 1230: Introduction to Statistics

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: *.*

OJT Hours/Week: *.*

Prerequisites:

This course requires any of these four prerequisite categories

1. Statistics College Level

Or

2. MATH 1025 - Algebra

Or

3. MATH 1020 - Special Topics in Mathematics

Or

4. MATH 1015 - Geometry

Corequisites: None

MnTC Goals: Goal 04 - Mathematical/Logical Reasoning

This course emphasizes the concepts and methods of statistics. Statistics is the study of how to collect, organize, analyze, and interpret numerical information from data. Statistical methods will be presented with a focus on understanding both the suitability of the method and the meaning of the result. Statistical methods and measurements will be studied in the context of a broad range of practical applications that require decision making. (MnTC Goal 4) (Prerequisite: MATH1025 or MATH1020 or MATH1015 or Algebra College Level Placement or Statistics College Level Placement) (3 credits: 3 lecture/0 lab)

B. COURSE EFFECTIVE DATES: 07/20/2016 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Collect, analyze, organize, and interpret numerical information from data
2. Understanding statistical methods
3. Suitability of statistical methods and meanings of results
4. Practical applications involving decision making

D. LEARNING OUTCOMES (General)

1. Develop an understanding of the importance of statistics
2. Analyze the purposes for descriptive statistics and inferential statistics
3. Understand the nature of data
4. Draw random samples/use sampling techniques
5. Design ways to collect and organize and label data
6. Select graphs appropriate for given data sets
7. Use graphics such as histograms, ogives, and other graphs
8. Understand common distribution shapes, order data and reveal distribution shapes
9. Learn commonly used measures of central tendency including mode, median, and average
10. Use variance and standard deviation to measure and understand data spread
11. Learn elementary probability theory and binomial probability distributions
12. Analyze processes from discrete and continuous probability distributions
13. Learn characteristics of normal distribution
14. Use standard normal distribution/standard deviation/probability
15. Use sampling distributions for decisions based on incomplete information
16. Estimate the expected value of a random variable and construct estimates from sample data
17. Use a scatter diagram for estimation
18. Learn and apply the concepts of hypothesis testing, correlation, and regression

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

Goal 04 - Mathematical/Logical Reasoning

1. Illustrate historical and contemporary applications of mathematical/logical systems.
2. Clearly express mathematical/logical ideas in writing.
3. Apply higher-order problem-solving and/or modeling strategies.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

This course was previously MATH 2530.