

Northern Marianas College
CURRICULUM ACTION REQUEST

Effective Semester / Session: Spring 2015

Type of Action:

- New
- Modification
- Move to Inactive (Stop Out)
- Cancellation

Course Alpha and Number: MG 303

Course Title: Business Statistics

Reason for initiating, revising, or canceling:

This course is designed to introduce Business students to the concepts and principles of Statistics. The course is designed to enable students to think and act rationally by using Statistical Applications and Reasoning in making business decisions and solving problems.

Chavel Green

Proposer

10/24/14
Date

Chavel Green

Department Chair

10/24/14
Date

Barbara K. Merfalen

Dean of Academic Programs and Services

11.5.14
Date

Northern Marianas College

Course Guide

Course: MG 303 Business Statistics

1. **Department**
Business

2. **Purpose**

This course is designed to introduce the student to the principles of business statistics and probability theory, guide the student through a wide range of statistical applications, and give the student an introduction to the use of technology in the effective processing and analysis of statistical information. The course also provides the necessary material needed for an understanding of statistical distributions, estimation, hypothesis testing, and linear regression; and is designed to prepare the student for success in further courses in applied statistics.

3. **Description**

A. Required/Recommended Textbook(s) and Related Materials

Required:

Essentials of Modern Business Statistics with Microsoft® Office Excel®, David Anderson, Dennis Sweeney, and Thomas Williams, 5th ed. Mason, OH: South-Western, 2012, 751 pp.

Readability Level: College Level

B. Contact Hours

1. **Lecture:** 3 hours per week / 45 hours per semester
2. **Lab:** None
3. **Other:** None

C. Credits

1. **Number:** 3
2. **Type:** Regular degree credits

D. Catalogue Course Description

This course is designed to introduce the student to the principles of descriptive and business statistics, as well as the basic probability theory needed for an understanding of statistical distributions, estimation, hypothesis testing, and linear regression. The course provides the student with the basic skills necessary to succeed in further courses in business statistics, as well as an appreciation of the critical interpretation of statistical data, the ranges of application of statistics and an introduction to the use of technology in the effective processing and analysis of information.

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Prerequisite: must complete 60 credit hours to maintain junior level.
English Placement Level: EN 202. Math Placement Level: MA 161.
(Offered: Fall and Spring).

E. Degree or Certificate Requirements Met by Course

A "C" grade or better in this course satisfies a core course requirement in Northern Marianas College Bachelor of Science in Business Management.

F. Course Activities and Design

Course activities include lectures, discussions, homework assignments, tests, quizzes, and a final exam.

4. Course Prerequisite(s); Concurrent Course Enrollment; Required English/Mathematics Placement Level(s)

Prerequisites: Must complete 60 credit hours to maintain junior level.
English Placement Level: EN 202
Math Placement Level: MA 161

5. Estimated Cost of Course; Instructional Resources Needed

Cost to the College: Instructor's salary;

Cost to the Student: Tuition for a 3-credit hour course and the cost of the textbook and graphing calculator.

Instructional resources needed for this course include overhead projector, TV/VCR, videotaped programs, library books, photocopy machine, photocopy paper, dry-erase board.

6. Method of Evaluation

Student's grades will be based on the regular letter grade system as described below:

A: Excellent-grade points:	4.0
B: Above average-grade points:	3.0
C: Average-grade points:	2.0
D: Below average-grade points:	1.0
F: Failure-grade points:	0.0

NMC's grading and attendance policies will be followed.

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7. Course Outline

This is a topical outline and does not necessarily indicate the sequence in which the material will be presented.

- 1.0 The Nature of Probability and Statistics
 - 1.1 Introduction
 - 1.2 Descriptive and Inferential Statistics
 - 1.3 Variables and Types of Data
 - 1.4 Data Collection and Sampling Techniques
 - 1.5 Observational and Experimental Studies
 - 1.6 Computers and Calculators

- 2.0 Frequency Distributions and Graphs
 - 2.1 Introduction
 - 2.2 Organizing Data
 - 2.3 Histograms, Frequency Polygons, Ogives
 - 2.4 Other Types of Graphs
 - 2.5 Paired Data and Scatter Plots

- 3.0 Data Description
 - 3.1 Introduction
 - 3.2 Measures of Central Tendency
 - 3.3 Measures of Variation
 - 3.4 Measures of Position
 - 3.5 Exploratory Data Analysis

- 4.0 Counting Techniques
 - 4.1 Introduction
 - 4.2 Tree Diagrams and the Multiplication Rule for Counting
 - 4.3 Permutations and Combinations

- 5.0 Probability
 - 5.1 Introduction
 - 5.2 Sample Spaces and Probability
 - 5.3 The Addition Rules for Probability
 - 5.4 The Multiplication Rules and Conditional Probability

- 6.0 Discrete Probability Distribution
 - 6.1 Introduction
 - 6.2 Probability Distributions
 - 6.3 Mean, Variance, and Expectation
 - 6.4 The Binomial Distribution

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- 7.0 The Normal Distribution
 - 7.1 Introduction
 - 7.2 Properties of the Normal Distribution
 - 7.3 The Standard Normal Distribution
 - 7.4 Applications of the Normal Distribution
 - 7.5 The Central Limit Theorem
 - 7.6 The Normal Approximation to the Binomial Distribution
 - 7.7 Hypothesis Testing and Estimation of Parameters

8. Instructional Goals

This course will introduce students to:

- 1.0 The nature of statistical knowledge and how to assess the strengths and weaknesses of statistical arguments;
- 2.0 The basic principles of descriptive statistics and summary statistics, and the use of descriptive statistics in describing data sets;
- 3.0 Probability distributions, sampling distributions and the applications in a variety of contexts;
- 4.0 Statistical inference in regard to single-variable populations, and to articulating an understanding of the result;
- 5.0 The applications of critical thinking skills to statistical concepts;
- 6.0 The differences between samples and populations;
- 7.0 Histograms, scatter plots, stem-and-leaf displays, box-and-whisker plots, and other graphical modes of presentation;
- 8.0 The basic rule of probability and counting techniques;
- 9.0 Normal and Binomial probability distributions;
- 10.0 Confidence intervals and their significance in making inferences about a population; and
- 11.0 The role of technology in processing information.

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9. Student Learning Outcomes

Upon successful completion of this course, students will be able to:

- 1.0 Demonstrate an understanding of the nature of statistical knowledge and assess the strength and weaknesses of statistical arguments;
- 2.0 Define the basic principles of descriptive statistics and summary statistics, and use descriptive statistics and summary statistics to describe data sets;
- 3.0 Compute probability distributions and sampling distributions, and give examples of their applications in a variety of contexts;
- 4.0 Articulate an understanding of the results of statistical inference in regard to single-variable populations;
- 5.0 Apply critical thinking skills to statistical concepts such as data description, counting techniques, probability distributions, confidence intervals, and hypothesis testing;
- 6.0 Identify the differences between samples and populations;
- 7.0 Render and interpret histograms, scatter plots, stem-and-leaf displays, box-and-whisker plots, and other graphical modes of presentation;
- 8.0 Demonstrate knowledge of the basic rules of probability and counting techniques;
- 9.0 Use the Normal and Binomial probability distributions;
- 10.0 Compute confidence intervals and know their significance, and make inferences about a population in a variety of contexts; and
- 11.0 Use hand-held technology and computers in basic statistical investigations.

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10. Assessment Measures

Assessment of student learning may include, but not be limited to, the following:

- 1.0 Tests and Exams;
- 2.0 Research assignments;
- 3.0 Class Participation; and
- 4.0 Oral presentations.