COURSE OUTLINE
Revision: Frank Post and Heidi Lyman, December 2008

DEPARTMENT: Academic Programs

CURRICULUM: Mathematics

COURSE TITLE: Elementary Statistics

COURSE NUMBER: MATH& 146

TYPE OF COURSE: Academic Transfer
    Special Requirement Met: QSR

AREA(S) OF KNOWLEDGE: The Natural World: Science Technology, and the Environment/ The Language of Science; Basic Requirement: Math

COURSE LENGTH: 1 quarter

CREDIT HOURS: 5

LECTURE HOURS: 55

LAB HOURS: 0

CLASS SIZE: 35 (25 online)

PREREQUISITES: Math 098 with a 2.0 or better or appropriate placement score.

COURSE DESCRIPTION:

The course is designed to give an introduction to the basic statistical techniques for descriptive and inferential data analysis and to show how these techniques are useful as an aid in the decision making process. The emphasis is on the use and application of techniques in business and social sciences.
MATH 109 Elementary Statistics
December 2008

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Computation – Use arithmetic and other basic mathematical operations as required by program of study. Apply quantitative skills for personal, academic and career purposes.
2. Communication – Read and listen actively to learn and communicate.
4. Technology – Select and use appropriate technological tools for personal, academic and career tasks.
5. Information Literacy – Access and evaluate information. Use information to achieve personal, academic, and career goals, as well as to participate in a democratic society.

GENERAL COURSE OBJECTIVES:
At the end of the course the student will:

1. Describe a broad overview of the subject of statistics and its application.
2. Demonstrate data collection and preparation for descriptive summarization, tabular and chart presentation, analysis and interpretation.
3. Communicate (oral and written) an understanding of the characteristics or properties of quantitative data and the various descriptive summary measures as an aid to data analysis and interpretation.
4. Organize, summarize and effectively present collected data using calculators and word processing.
5. Demonstrate the software abilities to assist in descriptive analysis.
6. Understand the basic concepts of probability.
7. Show how certain types of discrete data may be represented by particular kinds of mathematical models. (i.e. uniform, binomial, hyper-geometric, and Poisson probability distribution).
8. Show how the normal probability density function can be used to approximate various discrete models.
9. Develop the concept of sampling distribution for both quantitative and qualitative data.
10. Develop confidence intervals to apply these procedures to finite populations.
11. Develop testing procedures techniques for quantitative and qualitative variable.
12. Understand and use linear regression and correlation.
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TOPICAL OUTLINE:

I. Introduction to descriptive statistics
II. Introduction to probability and distributions
III. Statistical inferences and hypothesis testing
IV. Linear regression and correlation

APPROX. HOURS 55

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DATE: December 2008
### MATH 109 Elementary Statistics
December 2008

<table>
<thead>
<tr>
<th>SLO #</th>
<th>Included in Course Objective Number</th>
<th>SCC Student Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLO 1.1</td>
<td>1 – 12</td>
<td>Communication - Read and listen actively</td>
</tr>
<tr>
<td>SLO 1.2</td>
<td>1 – 12</td>
<td>Communication - Speak and write effectively</td>
</tr>
<tr>
<td>SLO 2.1</td>
<td>1 – 12</td>
<td>Computation - Use mathematical operations</td>
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<tr>
<td>SLO 2.2</td>
<td>1 – 12</td>
<td>Computation - Apply quantitative skills</td>
</tr>
<tr>
<td>SLO 2.3</td>
<td>1 – 12</td>
<td>Computation - Identify, interpret, and utilize higher level mathematical and cognitive skills</td>
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<tr>
<td>SLO 3.1</td>
<td>1 – 12</td>
<td>Human Relations - Use social interactive skills to work in groups effectively</td>
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<tr>
<td>SLO 3.2</td>
<td>1 – 12</td>
<td>Human Relations - Recognize the diversity of cultural influences and values</td>
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<tr>
<td>SLO 4.1</td>
<td>1 – 12</td>
<td>Critical Thinking and Problem Solving -</td>
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<tr>
<td>SLO 5.1</td>
<td>1 – 12</td>
<td>Technology - Select and use appropriate technological tools</td>
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<tr>
<td>SLO 6.1</td>
<td>1 – 12</td>
<td>Personal Responsibility - Be motivated and able to continue learning and adapt to change</td>
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<tr>
<td>SLO 6.2</td>
<td>1 – 12</td>
<td>Personal Responsibility - Value one's own skills, abilities, ideas and art</td>
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<tr>
<td>SLO 6.3</td>
<td>1 – 12</td>
<td>Personal Responsibility - Take pride in one's work</td>
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<tr>
<td>SLO 6.4</td>
<td>1 – 12</td>
<td>Personal Responsibility - Manage personal health and safety</td>
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<td>SLO 6.5</td>
<td>1 – 12</td>
<td>Personal Responsibility - Be aware of civic and environmental issues</td>
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<tr>
<td>SLO 7.1</td>
<td>1 – 12</td>
<td>Information Literacy - Access and evaluate information</td>
</tr>
<tr>
<td>SLO 7.2</td>
<td>1 – 12</td>
<td>Information Literacy - Use information to achieve personal, academic, and career goals, as well as to participate in a democratic society</td>
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