Alabama

Department of

Postsecondary Education

Representing Alabama's Public Two-Year College System

Jefferson State Community College

MTH 265
Elementary Statistics

I.   **MTH 265 Elementary Statistics - 3 Semester Hours**

II.   **Course Description**

This course provides an introduction to methods of statistics, including the following topics: sampling, frequency distributions, measures of central tendency, graphic representation, reliability, hypothesis testing, confidence intervals, analysis, regression, estimation, and applications. Probability, permutations, combinations, binomial theorem, random variables, and distributions may be included.

III.   **Prerequisite**

Prerequisite: MTH 100 or appropriate mathematics placement score

IV.   **Textbook**

Brase, Brase. <u>Understanding Basic Statistics</u>. 6th ed. Brooks/Cole, Cengage Learning. 2010

V. **Course Objectives**

The objective of this course is to provide an understanding of concepts, develop competent skills, and demonstrate applications in the following areas:
1. basic probability.
2. statistical parameters and probability distribution.
3. statistical tests, predictions, and decisions in realistically stated situations, and to choose the appropriate tests according to the situation.

Revised on **Date Adopted: July 1, 1998**

VI. **Course Outline of Topics**

A. This course shall include the following topics as a minimum.
1. The nature of probability and statistics
2. Descriptive and inferential statistics
3. Variables and types of data
4. Data collection and sampling techniques
5. History of probability and statistics
6. Organizing data
7. Histograms, frequency polygons, and ogives
8. Other types of graphs
9. Measures of central tendency
10.   Measures of variation
11.   Tree diagrams
12. The multiplication rules for counting
13. Properties of the normal distribution
14. The standard normal distribution
15. Applications of the normal distribution
16. The Central Limit Theorem
17. The normal approximation to the binomial distribution
18. Confidence intervals for the mean (σ known or n > 30) and sample size
19. Confidence intervals for the mean (σ Unknown and n < 30)
20. Confidence intervals and sample size for proportions
21. Steps in hypothesis testing
22. The z test
23. The t test
24. Test for proportions
25. Testing the difference between two means: z test
26. Testing the difference between two means: t test, independent samples
27. Testing the difference between two means: t test, dependent samples
28. Testing the difference between proportions
29. Scatter plots
30. Correlation
31. Regression
32. Chi-square distribution
33. Test for a single variance

B. Optional topics may include the following
    1. Measures of position (optional)
    2. Permutations Combinations
    3. Sample spaces and probability rules
    4. The addition rules for probability
    5. The multiplication rules for probability
    6. Complementary events

VII. **Evaluation and Assessment**

Evaluation and assessment techniques may include any or all of the following.

Exams

Projects

Homework

Computer assignments

Participation

Grades will be given based upon A = 90 – 100%, B = 80 – 89%, C = 70 – 79%, D = 60 – 69%, and F = below 60%.

VIII. **Attendance**

Students are expected to attend all classes for which they are registered. Students who are unable to attend class regularly, regardless of the reason or circumstance, should withdraw from that class before poor attendance interferes with the student's ability to achieve the objectives required in the course. Withdrawal from class can affect eligibility for federal financial aid.

IX. **Statement on Discrimination/Harassment**

The College and the Alabama State Board of Education are committed to providing both employment and educational environments free of harassment or discrimination related to an individual's race, color, gender, religion, national origin, age, or disability. Such harassment is a violation of State Board of Education policy. Any practice or behavior that constitutes harassment or discrimination will not be tolerated.

X. **Americans with Disabilities**

The Rehabilitation Act of 1973 (Section 504) and the Americans with Disabilities Act of 1990 state that qualified students with disabilities who meet the essential functions and academic requirements are entitled to reasonable accommodations. It is the student's

responsibility to provide appropriate disability documentation to the College. The ADA

Accommodations office is located in FSC 300 (205-856-7731).