COLLEGE OF MICRONESIA – FSM
P.O. Box 159, Pohnpei FM 96941
COURSE OUTLINE COVER PAGE

APPLIED STATISTICS   **BU/MS 310**
_____   _____
Course Title   Department and
                                                          Number

COURSE DESCRIPTION

This course is designed to build on the fundamental statistics concepts developed in the introductory statistics course. The student will learn statistical methods to make point estimates of the population parameters, construct confidence intervals for sample statistics, perform hypothesis testing to support decisions, make inferences about populations from sample data, use samples to make inferences about the general population, use linear regression to recognize trends and make forecasts. As in the introductory course, this course incorporates the use of a computer software package (e.g. MS Excel, Minitab, SSSP) for both data analysis and presentation.

Course Prepared by: Division of Business Administration   **State**   COM-FSM National Campus

	Hours per Week		No. of Week		Total Hours		Semester Credits
Lecture	3	x	16	x	48/16	=	3
Laboratory		x		x		=	
Workshop		x		x		=	

Total   Semester   Credits   3

Purpose of Course: Degree Requirement   _____
                                      Degree Elective   _____
                                      Certificate – 3rd Yr   ✓ _____
                                      Other   _____

Prerequisite Course(s):   **MS 150 – Introduction to Statistics**

_____   _____
Signature, Chairperson, Curriculum Committee   Date Approved by Committee

_____   _____
Signature, President, COM-FSM   Date Approved by President

A: **GENERAL OBJECTIVES:**

The course builds on the fundamental statistics concepts developed in the introductory statistics course. Generally, the student is expected to:
1) develop an understanding of statistical methods of sampling and estimating population statistics.
2) develop and demonstrate competence in using excel to calculate point estimates and confidence intervals.
3) be able to use statistical methods to test hypothesis, recognize trends and make forecasts to support decisions in the business/economics environment.

B: **SPECIFIC OBJECTIVES:**

By the end of the course, the student will be able to:

1. explain the difference between a population and a sample.
2. discuss different methods of sampling and choose the best for an application.
3. calculate point estimators of a population from sample data.
4. determine if a point estimator is unbiased, efficient and consistent.
5. construct interval estimates of a population mean for a large sample and a small sample.
6. determine an appropriate sample size.
7. develop null and alternative hypothesis for testing research hypothesis, testing validity of claims and testing decision making situations.
8. describe Type I and Type II errors
9. use test statistics for one and two-tailed test for large and small samples.
10. perform one and two-tailed test for large and small samples using *p-values*.
11. make estimates of the difference between means for two populations.
12. perform hypothesis test about the difference between means of two populations
13. identify independent samples, dependent samples, and matched samples.
14. make inferences about the variance of a population.
15. describe goodness of fit test and test of independence using appropriate statistical distributions.
16. read an ANOVA table and use analysis of variance test statistics to test Between-treatment and Within-treatment variances.
17. discuss experimental design and describe randomized designs and block designs.
18. use linear regression to recognize trends and make forecasts.
19. determine when to add or delete variables in model building.
20. apply trend, cyclical, seasonal, and irregular components.
21. apply smoothing methods in forecasting problems.
22. recognize and make adjustments for trends and seasonal differences.

C: **COURSE CONTENT:**

- Selecting samples and estimating population parameters.
- Using interval estimation for large and small samples.
- Conducting hypothesis testing.

- Making inferences about means and proportions with two populations.
- Making inferences about population variances in one and two populations.
- Tests of goodness of fit and independence.
- Using experimental designs and ANOVA tables for modeling decisions.
- Using linear regression to recognize trends and make predictions.
- Using regression analysis for model building

D: <u>**TEXTBOOK:**</u>

Statistics for Business and Economics, 8th Edition, by Anderson, Sweeney & Williams: Southwestern Publishing, 2002.

E: <u>**METHODS OF INSTRUCTION:**</u>

Lectures, demonstration, projects, homework, classroom exercises, and various individual and group assignments. Microsoft Excel or other available statistical software will be used to enhance instruction and learning.

F: **EVALUATION/ASSESSMENT:**

Assessment will be in the form of projects, quizzes, homework, individual and group assignments, and exams given throughout the semester. Grades will be assigned based on the following percentage of total points received from the aforementioned assessment activities:

90 -100% = A; 80 - 89% =B; 70 - 79% = C; 60 - 69% = D; 59 and below =F

G: <u>**CREDIT BY EXAMINATION AVAILABLE FOR THE COURSE:**</u>

None.

H: <u>**ATTENDANCE POLICY:**</u>

The College attendance policy shall be applied.

I: <u>**ACADEMIC HONESTY POLICY:**</u>

The College's academic honesty policy shall be applied.