

**OHLONE COLLEGE**  
**Ohlone Community College District**  
**OFFICIAL COURSE OUTLINE**

**I. Description of Course:**

1. **Department/Course:** CS - 133A

2. **Title:** Data Analysis Using SAS

3. **Cross Reference:**

4. **Units:** 3

**Lec Hrs:** 3

**Lab Hrs:**

**Tot Hrs:** 54.00

5. **Repeatability:** No

6. **Grade Options:** Letter Grade, May  
Petition for Pass/No Pass (GP)

7. **Degree/Applicability:**

Credit, Degree Applicable, Transferable  
- CSU (T)

8. **General Education:**

9. **Field Trips:** Not Required

10. **Requisites:**

**Prerequisite**

CS 133 Introduction to SAS  
Programming

12. **Catalog Description:**

This course focuses on the following key areas: statistical inference, analysis of variance, multiple regression, categorical data analysis, and logistic regression.

13. **Class Schedule Description:**

Interpretation of statistics produced by SAS.

14. **Counselor Information:**

This course is designed for students who have some experience in SAS programming or have taken an introductory SAS course. The students will learn to analyze results produced by SAS.

**II. Student Learning Outcomes**

The student will:

1. Fit simple and multiple linear regression models using the REG procedure.
2. Perform and analyze one-way analysis of variance using the GLM procedure.
3. Demonstrate knowledge of the statistical concepts of normal distribution, sampling distributions, hypothesis testing, and estimation.
4. Describe and explain statistical inference, analysis of variance, regression, categorical data analysis, logistic regression.
5. Design and write computer programs to generate descriptive statistics and explore data with graphs.

**III. Course Outline:**

A. Paired *t*-Tests

B. Two-Sample *t*-Tests

C. Nonlinear Regression

- D. Linear Regression
- E. Multiple Regression
- F. Regression Diagnostics
- G. Categorical Data Analysis: describing, association, logistic, and multiple
- H. Nonparametric ANOVA
- I. Generalized Linear Models
- J. Model Selection
- K. Model Building and Interpretation
- L. Common Statistical Methods in Pharmaceutical Industry
- M. Common Statistical Methods for Clinical Research
- N. Sampling from SAS Data Sets

#### IV. **Course Assignments:**

##### A. Reading Assignments

1. Weekly reading assignments consist of relevant online and printed information.

##### B. Projects, Activities, and other Assignments

1. A final project will be used to assess students' understanding of the topics.

##### C. Writing Assignments

1. Weekly programming assignments to assess the student's ability to apply the techniques learned.

#### V. **Methods of Evaluation/Assessment:**

- A. Discussions of reading material in class and online via discussion board
- B. Exams to review and highlight important concepts
- C. Analysis of programming assignments to verify technique assimilation
- D. Final exam for comprehensive review of programming syntax
- E. Final project for general assessment of the course

#### VI. **Methods of Instruction:**

- A. Lecture
- B. Discussion
- C. Demonstration
- D. Seminar
- E. Computer Assisted Instruction
- F. Collaborative Learning

#### VII. **Textbooks:**

### Recommended

1. Jack Shostak *SAS Programming in the Pharmaceutical Industry* 1 Edition, SAS Publishing, 2005 ISBN: 1590477936
2. Ron P. Cody *Applied Statistics and the SAS Programming Language* 5 Edition, Prentice Hall, 2005 ISBN: 0131465325

### Supplemental

#### **VIII. Supplies:**

A. None

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