

**Syllabus: EXST 4087****Introduction to SAS® Programming – Summer Session A 2006**

**Class Meets: Tuesday and Thursday from 1:40 to 4:10 in rooms 248 with lab session in room 11 on Thursday.**

**Professor: JAMES P. GEAGHAN**

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**Grading:** Grading will be based on attendance (10%), homework scores (50%) and a SAS® programming practicum (40%).

Letter grade assignment	Guaranteed minimum grade
90 - 100 % points, minimum grade of	A
80 - 89.9 % points	B
70 - 79.9 % points	C
60 - 69.9 % points	D

**TEXT:** None. Notes are available at “Copies Too”.

**EXST 7087 Advanced Topics in Statistics (1-3) V Prereq.:** consent of instructor. May be repeated for credit when topics vary. Lectures on advanced topics in statistics not covered in other experimental statistics courses.

To obtain SAS® software see [[http://stat.lsu.edu/html/sas\\_stat\\_software.html](http://stat.lsu.edu/html/sas_stat_software.html)]. The cost is \$25 for students (by check payable to “Department of Experimental Statistics”). The license year runs from March 15 through March 14, but SAS will continue to function for 90 days after it expires, or until mid-June.

A tip on SAS® installation. Follow instructions, but **do not install the ‘online docs’ CD.**

**SAS® Programming I: Essentials**

- Chapter 1 Introduction
  - 1.1 An Overview of the SAS System
- Chapter 2 Getting Started with the SAS® System
  - 2.1 Introduction to SAS Programs
  - 2.2 Running SAS Programs
  - 2.3 Mastering Fundamental Concepts
  - 2.4 Diagnosing and Correcting Syntax Errors
  - 2.5 Exploring Your SAS Environment (Self-Study)
  - 2.6 Solutions to Exercises
- Chapter 3 Getting Familiar with SAS® Data Sets
  - 3.1 SAS Data Libraries
  - 3.2 Solutions to Exercises
- Chapter 4 Producing List Reports
  - 4.1 Getting Started with the PRINT Procedure
  - 4.2 Sequencing and Grouping Observations
  - 4.3 Identifying Observations (Self-Study)
  - 4.4 Special WHERE Statement Operators (Self-Study)
  - 4.5 Solutions to Exercises
- Chapter 5 Enhancing Output
  - 5.1 Customizing Report Appearance
  - 5.2 Formatting Data Values
  - 5.3 Creating HTML Reports
  - 5.4 Solutions to Exercises
- Chapter 6 Creating SAS® Data Sets
  - 6.1 Reading Raw Data Files: Column Input
  - 6.2 Reading Raw Data Files: Formatted Input
  - 6.3 Examining Data Errors
  - 6.4 Assigning Variable Attributes
  - 6.5 Changing Variable Attributes (Self-Study)
  - 6.6 Reading Excel Spreadsheets (Self-Study)
  - 6.7 Solutions to Exercises
- Chapter 7 DATA Step Programming
  - 7.1 Reading SAS Data Sets and Creating Variables
  - 7.2 Conditional Processing
  - 7.3 Dropping and Keeping Variables (Self-Study)
  - 7.4 Reading Excel Spreadsheets Containing Date Fields (Self-Study)
  - 7.5 Solutions to Exercises
- Chapter 8 Combining SAS® Data Sets
  - 8.1 Concatenating SAS Data Sets
  - 8.2 Merging SAS Data Sets
  - 8.3 Combining SAS Data Sets: Additional Features (Self-Study)
  - 8.4 Solutions to Exercises
- Chapter 9 Producing Summary Reports
  - 9.1 Introduction to Summary Reports
  - 9.2 Basic Summary Reports
  - 9.3 The REPORT Procedure
  - 9.4 The TABULATE Procedure (Self-Study)
  - 9.5 Solutions to Exercises
- Chapter 10 Introduction to Graphics (Optional)
  - 10.1 Producing Bar and Pie Charts
  - 10.2 Enhancing Output
  - 10.3 Producing Plots
  - 10.4 Solutions to Exercises

**SAS® Programming II: Manipulating Data with the DATA Step**

## Chapter 1 Introduction

- 1.1 Overview
- 1.2 Review of SAS Basics
- 1.3 Review of DATA Step Processing
- 1.4 Review of Displaying SAS Data Sets
- 1.5 Working with Existing SAS Data Sets
- 1.6 Prerequisite Syntax (Self-Study)
- 1.7 Navigating the SAS Windowing Environment (Self-Study)

## Chapter 2 Controlling Input and Output

- 2.1 Outputting Multiple Observations
- 2.2 Writing to Multiple SAS Data Sets
- 2.3 Selecting Variables and Observations
- 2.4 Writing to an External File
- 2.5 Solutions to Exercises

## Chapter 3 Summarizing Data

- 3.1 Creating an Accumulating Total Variable
- 3.2 Accumulating Totals for a Group of Data
- 3.3 Solutions to Exercises

## Chapter 4 Reading and Writing Different Types of Data

- 4.1 Reading Delimited Raw Data Files
- 4.2 Controlling When a Record Loads
- 4.3 Reading Hierarchical Raw Data Files
- 4.4 Solutions to Exercises

## Chapter 5 Data Transformations

- 5.1 Introduction
- 5.2 Manipulating Character Values
- 5.3 Manipulating Numeric Values
- 5.4 Manipulating Numeric Values Based on Dates
- 5.5 Converting Variable Type
- 5.6 Solutions to Exercises

## Chapter 6 Debugging Techniques (Self-Study)

- 6.1 Using the PUT Statement
- 6.2 Using the DEBUG Option

## Chapter 7 Processing Data Iteratively

- 7.1 DO Loop Processing
- 7.2 SAS Array Processing
- 7.3 Using SAS Arrays
- 7.4 Solutions to Exercises

## Chapter 8 Combining SAS® Data Sets

- 8.1 Match-Merging Two or More SAS Data Sets
- 8.2 Simple Joins Using the SQL Procedure (Self-Study)
- 8.3 Solutions to Exercises

## Chapter 9 Learning More

- 9.1 Where Do I Go From Here?
- 9.2 SAS Resources