SAS Programming II: Advanced DATA Step Programming Syllabus

Course Number: CSE-41183 Section ID: 116262
Course Start Date: 6/20/2016 Course End Date: 8/21/2016

Instructor Information

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You may contact me by email and I will respond within 24 hours.

Welcome

Hello everyone! Thank you for your interest in taking this advanced DATA step programming course. There are different types of programming languages in SAS software, such as DATA step programming, SAS macro programming, SAS SQL, IML, etc. The focus of this course will be on DATA step programming, which serves as a foundation for learning more advanced programming languages/techniques in SAS.

Course Purpose and Prerequisites

A common befuddlement often facing beginning SAS programmers is that the SAS data set that they create is not what they intended to create; i.e. there are more or less observations than intended or the value of the newly-created variable was not retained correctly. These types of mistakes are most commonly committed because programming novices learn SAS language syntax without understanding the fundamental SAS programming concepts. The course provides an in-depth theoretical aspect of how SAS DATA step processes during the DATA step compilation and execution phases. In this course, the students will learn how DATA step programming operates, step by step, by way of providing various examples. The main topics of this course include understanding how the program data vector (PDV) works, BY-group processing, writing loops in the DATA step, and array processing. In addition, some data cleaning techniques, various ways of combining data sets, and some useful SAS procedures that relate to data management are also introduced in this course.

The prerequisite for taking this course is either having one year programming experience in SAS or having completed the “SAS® Programming” class.

Course Goal and Objectives

This course will serve as a bridge between SAS beginners and those that are at the advanced level. By the end of this course, students should feel comfortable with managing and manipulating different types of data, such as clinical data and longitudinal data to satisfy the programming requirements as a SAS programmer or junior statistician across different types of industries.

Course Materials/Textbooks

Handbook of SAS® DATA Step Programming
Chapman and Hall/CRC.
ISBN-10: 1466552387

Software: SAS is the only software used in this class. SAS OnDemand for Academics, Enterprise Guide, will be provided for this class and an email with instructions will be sent out.

Course Overview

This course has 8 sessions. The topics are as follows:

Session 1: Review SAS
Session 2: Creating Variables Conditionally
Session 3: Understanding How the PDV (Program DATA Vector) Works
Session 4: BY-Group Processing in the DATA Step
Session 5: Writing Loops in the DATA Step
Session 6: Array Processing
Session 7: Combining Data Sets
DATA Step Functions (Self Study)
Session 8: Useful SAS Procedures

Online Course Structure

The course is organized using the course menu (left side of your screen):

Announcements	This is the first page you see upon entering your course. Your instructor will post weekly announcements and reminders here.
Syllabus	Contains the course outline, learning objectives, weekly assignments and course details.
Lessons	If it's a fully online course, this section will have the instructor's weekly audio/image lectures. The lectures are self-paced and can be replayed like a video movie (start, pause, rewind, etc.).
Discussion Board	Questions pertaining to each lesson are posted weekly for you and your classmates to discuss and answer.
Assignments	Assignments, quizzes, Course Evaluation, and the Final Exam are available here.
Contacts	Instructor, student services and online learning support contact information is listed here.

Course Schedule

Date	Topic	Assignments Assigned	Assignments Due	Points
6/20	Review SAS (Ch 1)			
6/27	Creating Variables Conditionally (Ch 2)			
7/04	Understanding How the PDV Works (Ch 3)			
7/11	BY-Group Processing in the DATA Step (Ch 4)			
7/18	Writing Loops in the DATA Step (Ch 5)	Assignment 1		30
7/25	Array Processing (Ch 6)		Assignment 1	
8/01	Combining Data Sets (Ch 7) DATA Step Functions (Self Study Ch 9)	Assignment 2		30
8/08	Useful SAS Procedures (Ch 10)		Assignment 2	
8/15		Assignment 3		40
8/22			Assignment 3	
		TOTAL POINTS POSSIBLE		**100**

Discussion Board and Extra Credit

Since this is an online course, discussions relating to lectures need to be posted to the discussion board. For each lecture, I will create a discussion forum relating to the current lecture. Instead of emailing me your questions relating to lectures, you need to post your question(s) on the discussion board. I will provide my feedback within 24 hours, **excluding Sundays**.

Students who know the solution are welcome to provide the answers as well. The first student who provides the correct solution before I provide my feedback will receive 1 point extra credit.

I will also provide a discussion forum for each assignment. You can only ask questions for clarification purposes. That is to say, you can't ask questions about how to answer a specific question.

Emails

You can email me administrative questions, such as submitting late assignments due to family emergencies, etc. Questions that are related to the course materials need to be posted on the discussion board. Lastly, please do not email me to check whether your assignment solution is correct before you submit it.

Requirements

In order to satisfy course requirements, class participants must participate in discussions, complete all course assignments on time (on or before the due date), and use graduate level writing/presentation for all written assignments.

IMPORTANT! Late assignments (anything posted or sent after the due date) will not be accepted unless due to a verifiable medical or family emergency. Late assignments will be accepted at the discretion of the instructor and cannot be accepted more than 1 week late.

Assignments

Most of the assignment questions require you to write SAS codes. There are total of three assignments. You will receive clear instructions for writing each assignment. You will have one week to complete each of the assignments.

Assignment #1—30 points
This assignment will be based on the materials from Chapter1 – Chapter4 of the text book.

Assignment #2—30 points
This assignment will be based on the materials from Chapter5 – Chapter6 of the text book.

Assignment #3—40 points
This assignment is comprehensive. It will be based on the materials from Chapter1 – Chapter7, Chapter 9 and Chapter 10 of the text book.

Grades

Grades are based on points and the letter grades are given as follows:

A+	97-100
A	94-96
A-	90-93
B+	87-89
B	84-86
B-	80-83
C+	77-79
C	74-76
C-	70-73
D+	67-69
D	65-66
F	0-64

Student Resources

On any Blackboard screen, there are tabs across the top and one is called the Student Tab. There is information on how to get started as a student and who to contact if you encounter any problems. There are also videos and written instructions on how to do some of the most common things in Blackboard.
Another one of these tabs is called FAQ (Frequently Asked Questions). If you click on the Students Category (on the left), you can find step-by-step directions for everything from sending email to uploading your assignments to posting a reply on the discussion board.

Code of Conduct

All participants in a course at UC San Diego Extension are bound by the University of California Code of Conduct, found at
http://www.ucop.edu/ucophome/coordrev/ucpolicies/aos/uc100.html.

Academic Honesty Policy

The University is an institution of learning, research, and scholarship predicated on the existence of an environment of honesty and integrity. As members of the academic community, faculty, students, and administrative officials share responsibility for maintaining this environment. It is essential that all members of the academic community subscribe to the ideal of academic honesty and integrity and accept individual responsibility for their work. Academic dishonesty is unacceptable and will not be tolerated at the University of California. Cheating, forgery, dishonest conduct, plagiarism, and collusion in dishonest activities erode the University's educational, research, and social roles.

If students who knowingly or intentionally conduct or help another student perform dishonest conduct, acts of cheating, or plagiarism will be subject to disciplinary action at the discretion of UC San Diego Extension.