

Statistical Computing with SAS®

M21-503, Summer 2019

Course Structure and Syllabus

Course Dates and Times

Dates: July 11-19, 2019

Weekdays M-F: 9:00 a.m. to 12:00 p.m. and 1:00 p.m. to 5:00 p.m.

Division of Biostatistics MSIBS Computer Lab: Becker Library, 5th Floor, Room 501

Instructor and Lab Assistants

Instructor - Karen Schwander

Lab Assistants – Jyoti Arora and Yizhe Song

Course Objectives:

1. To introduce and familiarize students with the SAS programming language.
2. To teach students how to create and manipulate SAS datasets.
3. To instruct students in basic exploratory data analysis using SAS.
4. To guide students on how to become effective, self-reliant SAS users.

Textbooks (Optional, not required)

The Little SAS® Book: A Primer, 5th edition, by Lora Delwiche & Susan Slaughter, The SAS® Institute, 2013. Kindle edition also available.

Learning SAS® by Example: A Programmer's Guide, 2nd edition, by Ron Cody, The SAS® Institute, 2018.

Both books are available for use in the MSIBS library and Becker Library, and available for purchase on Amazon.

Office Hours and Contact Information

Before or after class, or by appointment:

Karen Schwander

(314) 747-4613

Becker Library, 5th Floor, Room 524

email: karen2@wustl.edu

Syllabus (Topics Covered)

- Introduction to SAS
 - *What is SAS?*
 - *Types of SAS Files*
- SAS Datasets and Variables
 - *Temporary and Permanent Datasets*
 - *Character and Numeric Variables*
- SAS Basic Syntax
 - *Procedures and Data Steps, and Semicolons*
 - *PROC PRINT and PROC CONTENTS*
- Characteristics of SAS Variables
 - *Lengths, Labels, and Formats*
- Creating SAS Datasets
 - *Reading Raw Data*
 - *Reading External Files into SAS*
- Sorting and Combining SAS Datasets
- Examining Your Data
 - *Continuous and Categorical Variables*
 - *Common Procedures for Examining Data*
- Changing and Manipulating the Contents of SAS Datasets
 - *Creating and Changing Variables*
 - *Conditional Processing*
 - *Automatic SAS Variables*
- SAS Functions
 - *Purpose of Functions*
 - *Types of Functions*
- Outputting Data and Results in SAS
 - *Exporting a SAS Dataset*
 - *Output Deliver System (ODS)*
- SAS Macros
 - *Macro Statements*
 - *Macro Programs*
 - *CALL Routines*
- Graphics in SAS
 - *ODS Graphics*
 - *Choosing the Appropriate Graphic for your Data*
- Brief Introduction: Do Loops and Arrays in SAS
- Brief Introduction: Reports and Tables in SAS
- Brief Introduction: PROC SQL
- Brief Introduction: Biostatistics in SAS
 - *Comparing Means: PROC TTEST and PROC ANOVA*
 - *Categorical Tests with PROC FREQ*
 - *Correlations with PROC CORR*
 - *Regression Analysis with PROC REG and PROC GLM*