

Basic Statistics Workshops

Spring 2024

The **Center for Statistical Computing** (CSC) welcomes all graduate students, staff, and faculty to participate in our statistics workshops. These sessions are held on **Zoom** or/and in **Green Labs** on the upper level (UL) of Healey Library. This semester, our workshops cover SPSS, SAS, Stata, R, RStudio and Python. Descriptions for each workshop, along with the schedule and Zoom links, are provided below.

Statistics Workshop Descriptions:

SPSS 1 is a hands-on workshop designed to empower attendees with the skills to conduct meaningful data analysis using SPSS for Windows. Topics covered include entering and reading data, documenting variable and value labels, examining frequency and crosstab tables for individual and group data, recoding variables, performing independent sample *t*-tests, and conducting simple linear regression.

SPSS 2 delves into advanced data management and statistical procedures, encompassing case selection, combining cases from two files, and linking files with diverse information. Statistical procedures covered include the chi-square test, one-way ANOVA, repeated measurement analysis, non-parametric statistics, multiple regression, and logistic regression.

SAS 1 provides an introduction to the SAS system, focusing on the SAS DATA STEP with an emphasis on data input, manipulation, output, and summary. Topics covered include creating SAS working data sets and data files, importing data from SPSS and Excel files, formatting variable and value labels, and conducting simple statistical procedures such as PROC FREQ and PROC MEANS.

SAS 2 explores the analysis of designed experiments with PROC ANOVA and PROC GLM, along with linear and non-linear regression techniques using PROC REG and PROC GENMOD. Topics covered encompass one-way and two-way analysis of variance, simple and multiple linear regression, regression diagnostics, and logistic regression.

Stata 1 serves as an introduction to Stata, encompassing both the graphic user interface and intuitive command syntax approaches. It aims to efficiently teach fundamental Stata operations. Topics covered include browsing data, data management, descriptive statistics, independent samples *t*-test, and simple linear regression models.

Stata 2 delves into advanced data management topics, including data transformation, recoding variables, and constructing new variables. Additionally, it covers the use of log files, do files, and explores further statistical procedures such as the Chi-square test, one-way ANOVA, multiple linear regression, along with regression diagnostics and logistic regression.

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Statistical Analysis Using Excel provides valuable tips for enhancing efficiency in data analysis with Excel. Topics covered include entering data, organizing data and performing descriptive statistics, examining frequencies and crosstab tables, conducting independent and paired sample t -tests, correlation analysis, and linear regression.

Introduction to R emphasizes conducting fundamental statistical analyses, including descriptive statistics, frequency distributions, Chi-square tests, independent sample t -tests, one-way ANOVA, and linear and logistic regressions. Additional topics cover downloading and installing R packages, reading and writing data files, and creating R graphs. Notably, R is a free, open-source software supported by a strong user community.

Introduction to RStudio with SAGE Campus provides an overview of RStudio and SAGE Campus platform. RStudio, is a user-friendly integrated development environment for the R language, is explored alongside SAGE Campus, a learning platform offering online courses for skills and research methods. This workshop covers key R concepts, including elementary data structures, atomicity, plotting using ggplot2, regression plotting, and logistic regression. The content is based on the course offered by SAGE Campus.

An Introduction to SAGE Campus courses: SAGE Campus is a learning platform that offers designed online courses for skills and research methods. These fully self-paced courses feature an engaging mix of video content, interactive elements, and formative assessments. This workshop provides an overview of SAGE Campus courses and guides students in setting up an account to enroll in SAGE Campus courses. The session will use SAGE online course “Introduction to R” as an example.

Introduction to Python with SAGE Campus combines content from two consecutive SAGE Campus Course: *Introduction to Python* and *Intermediate Python Skills*. This is a beginner-level workshop that requires no prior experience. It introduces the fundamental concept of the Python programming language, focusing on practical applications in statistical analyses using practical examples in the social sciences. The workshop starts with the basics of Python programming, delving into various data types and methods encountered in statistical analyses. Topics covered encompass analysis of variance, linear regression, and logistic regression.

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Spring 2024 Basic Statistical Workshop Schedule:

<i>Topic</i>	<i>Date</i>	<i>Day</i>	<i>Time</i>	<i>Registration</i>
Intro. To SAGE Campus	Jan. 25	Thursday	11:00-12:00 P.M.	In-Person Register --- Virtual Register
SPSS 1	Jan. 29	Monday	10:00-12:00 P.M.	Virtual Register
SAS 1	Jan. 31	Wednesday	10:00-12:00 P.M.	Virtual Register
SPSS 2	Feb. 05	Monday	1:00-3:00 P.M.	In-Person Register --- Virtual Register
Intro. To R	Feb. 07	Wednesday	1:00-3:00 P.M.	Virtual Register
Intro. To SAGE Campus	Feb. 09	Friday	11:00-12:00 P.M.	Virtual Register
Stata 1	Feb. 13	Tuesday	10:30-12:30 P.M.	Virtual Register
Excel	Feb. 15	Tuesday	10:30-12:30 P.M.	In-Person Register --- Virtual Register
Intro. To RStudio with SAGE Campus	Feb. 21	Wednesday	1:00-3:00 P.M.	Virtual Register
Intro. To Python with SAGE Campus	Feb. 27	Tuesday	1:00-3:00 P.M.	Virtual Register
SPSS 1	Mar. 04	Monday	1:00-3:00 P.M.	In-Person Register --- Virtual Register
SAS 2	Mar. 06	Wednesday	1:00-3:00 P.M.	Virtual Register
Stata 1	Mar. 20	Wednesday	1:00-3:00 P.M.	In-Person Register --- Virtual Register
Stata 2	Mar. 27	Wednesday	1:00-3:00 P.M.	In-Person Register --- Virtual Register

Registration Procedures:

Seats and handouts are limited. Please register in advance.

1. Click the 'In-person Register' or 'Virtual Register' under Registration.
2. Fill up all the information request and submit your registration.
3. Join the workshops via Zoom link in the confirmation email or attend in-person session for hybrid workshops.

All Hybrid workshops will be held in the Green Lab on the upper level (UL) of Healey Library.

Please contact Mr. Zihan Li at zihan.li001@umb.edu for any questions regarding the workshops.

Web: https://www.umb.edu/academics/graduate/info_for_graduate_students/center_for_statistical_computing

Location: **Healey Library, Green Lab.** (From the main elevators in Healey Library, take the Upper level (UL). Turn right out of elevator, and you'll find Green Lab on the left in the hallway)