

# Basic Statistics Workshops

Spring 2025

The **Center for Statistical Computing** (CSC) welcomes all graduate students, staff, and faculty to participate in our statistics workshops. These sessions are held either on **Zoom** or in the **GREEN Lab** on the upper level (UL) of Healey Library. This semester, our workshops cover SPSS, SAS, Stata, R, RStudio, Python and ChatGPT. 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.

**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.

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**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 in Statistics** 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.

**Statistics using ChatGPT** offers a hands-on guide to effectively conducting statistical tests with the help of ChatGPT. The workshop covers the fundamentals of ChatGPT and demonstrates its utility in assisting researchers with statistical analysis, including programming and interpreting results. Topics include the use of *t*-tests, one-way ANOVA, chi-square tests, and linear regression. This comprehensive guide aims to equip participants with the knowledge and skills to leverage ChatGPT's capabilities in various statistical scenarios.

## Spring 2025 Basic Statistical Workshop Schedule:

<b>Topic</b>	<b>Date</b>	<b>Day</b>	<b>Time</b>	<b>Registration</b>
Intro. To SAGE Campus	Feb. 04	Tuesday	2:00-3:00 P.M.	<a href="#">In-Person Register</a>
SAS 1	Feb. 05	Wednesday	12:30-2:30 P.M.	<a href="#">In-Person Register</a>
SPSS 1	Feb. 06	Thursday	12:30-2:30 P.M.	<a href="#">In-Person / On-Zoom</a>

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SPSS 2	Feb. 11	Tuesday	11:00-1:00 P.M.	<a href="#">On-Zoom Register</a>
Intro. To R	Feb. 13	Thursday	1:00-3:00 P.M.	<a href="#">In-Person / On-Zoom</a>
Statistics with ChatGPT	Feb. 18	Tuesday	1:00-3:00 P.M.	<a href="#">In-Person Register</a>
SAS 2	Feb. 19	Wednesday	11:00-1:00 P.M.	<a href="#">On-Zoom Register</a>
Stata 1	Feb. 20	Thursday	1:00-3:00 P.M.	<a href="#">In-Person Register</a>
Stata 2	Feb. 27	Thursday	11:00-1:00 P.M.	<a href="#">On-Zoom Register</a>
Intro. To SAGE Campus	Feb. 28	Friday	12:00-1:00 P.M.	<a href="#">On-Zoom Register</a>
Statistics using Excel	Mar. 05	Wednesday	12:30-2:30 P.M.	<a href="#">In-Person / On-Zoom</a>
Intro. To Python in statistics	Mar. 11	Tuesday	1:00-3:00 P.M.	<a href="#">In-Person Register</a>
Intro. To RStudio with SAGE Campus	Mar. 25	Tuesday	1:00-3:00 P.M.	<a href="#">On-Zoom Register</a>
Statistics with ChatGPT	Apr. 03	Thursday	1:00-3:00 P.M.	<a href="#">On-Zoom Register</a>
Intro. To R	Apr. 08	Tuesday	1:00-3:00 P.M.	<a href="#">On-Zoom Register</a>
Statistics using Excel	Apr. 15	Tuesday	1:00-3:00 P.M.	<a href="#">On-Zoom Register</a>
SPSS 1	Apr. 18	Friday	1:00-3:00 P.M.	<a href="#">On-Zoom Register</a>

## Registration Procedures:

Seats and handouts are limited. Please register in advance.

1. Click the 'In-person Register' or 'On-Zoom Register' under Registration.
2. Fill out all required information and submit your registration.
3. Join the workshops via Zoom link in your confirmation email or attend in person at the scheduled time.

*All in-person 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](mailto: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](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, go to the Upper level (UL). Turn right upon exiting the elevator, and you'll find the Green Lab down the hallway on the right.)