

University of Wisconsin-Milwaukee
Joseph J. Zilber College of Public Health

PH 718 — Data Management and Visualization in R

Spring 2025

Course Details

Course Number & Title: PH 718 Data Management and Visualization in R
Course Schedule: Tue/Thu, 16:00 – 17:15, via Zoom.
Prerequisites: Graduate students and [PH711(P)] or the consent of instructor.

Instructor Contact Information

Instructor: Zhiyang Zhou
Office Location: Zilber 376
Email: zhou67@uwm.edu
Homepage: <https://zhiyanggeezhou.github.io/>
Office Hours: By appointment

Course Materials and Technology

References: [R4DS] H. Wickham, M. Cetinkaya-Rundel, & G. Grolemund. (2023). *R for Data Science: Import, Tidy, Transform, Visualize, and Model Data*, 2nd Ed. Sebastopol: O'Reilly Media. (Accessible at <https://r4ds.hadley.nz/>)
[ISL] G. James, D. Witten, T. Hastie, & R. Tibshirani. (2021). *An Introduction to Statistical Learning: with Applications in R*, 2nd Ed. New York: Springer. (Accessible at <https://www.statlearning.com/>)

Notes/Slides: To be regularly posted at the instructor's homepage and Canvas.

Software: The course focuses on R (<http://cran.r-project.org/>) and RStudio (<https://www.rstudio.com/products/rstudio/download/#download>). Additionally, R Markdown (<https://rmarkdown.rstudio.com/lesson-1.html>) is a valuable tool for drafting manuscripts that integrate numerical outputs and source code. All three tools are freely available for Linux, macOS, and Windows platforms.

Course Description

This course provides a thorough introduction to the fundamental concepts and techniques of programming with R. The curriculum emphasizes practical applications in data management and visualization, enabling participants to develop essential skills for efficiently handling and presenting data using a wide range of R tools. By the end of the course, learners will:

- Create multiple publication-quality graphical displays that effectively communicate quantitative information;
- Manipulate various file types for input and output to solve diverse problems requiring statistical analysis;

- Apply best practices for entering, transferring, and sharing data to ensure accuracy and reproducibility.

Course Assessment

- Assignments:** You are encouraged to discuss questions (but not answers) with peer students, whereas you must submit the written work individually. Copying, in whole or in part, the work of another will not be tolerated and will result in disciplinary action. Assignment due dates will be specified as soon as questions are released. NO late submission will be accepted. Punctual submissions will be graded and returned within TWO weeks.
- Final Project:** There is going to be NO final exam. Instead, you will be required to hand in a report after analyzing a recently collected dataset. Detailed guidelines about the final project will be provided in class.
- Final Grading:** For each attendee of this course, the assignments and final project contribute to the final percentage score with proportions 60% and 40%, respectively. Final letter grades will be assigned based on final percentage grades per the following thresholds.

Letter Grade	Percentage Score	Letter Grade	Percentage Score
A	[93, 100]	C	[73, 77)
A-	[90, 93)	C-	[70, 73)
B+	[87, 90)	D+	[67, 70)
B	[83, 87)	D	[63, 67)
B-	[80, 83)	D-	[60, 63)
C+	[77, 80)	F	[0, 60)

Important Dates

The following schedule is a copy of UWM's Important Dates by Term. Please note that dates and deadlines are subject to change by the Registrar's Office.

Date	Information
Jan. 20	Last Day to Withdraw with Full Refund
Jan. 21	First Day of Classes
Jan. 27	Add Deadline
Feb. 17	Last Day to Drop without W
Mar. 16–23	Spring Break
Apr. 6	Drop Deadline
May. 8	Last Day of Classes
May 10, 12–17	Final Exam period

Expectations and Policies

- Attendance:** Though there is no penalty on absence, it is better to be present in the designated lecture room punctually. Since the course will be delivered without any forms of recording, there is no alternative way of attendance.
- Class Communication:** Students are required to use UWM email accounts for all communication with the university (including all instructors).
- Student Accessibility Services:** The Accessibility Resource Center (ARC) offers academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g., mental illness, learning, medical, hearing, injury-related, visual) are invited to contact ARC to arrange a confidential consultation. Also, students will be allowed to complete examinations or other requirements that are missed because of a religious observance or call to active military duty.
- Recording of Lectures:** No audio or video recording of this material, lectures, or presentations is allowed in any format, openly or surreptitiously, in whole or in part, without permission of the instructor.
- Sharing of Course Materials:** Course materials are for participants' private study and research, and must not be shared. They must be used in a responsible, efficient, ethical and legal manner for educational purposes only.

Academic Integrity

Academic integrity is taking responsibility for and being honest with your work and respecting the work of others. Since you are a member of the university community, I want you to learn what that responsibility and honesty entails and how to respect the work of others. The Joseph J. Zilber College of Public Health continues to uphold high standards of academic integrity. I count on each of you to do your part. Impersonation, plagiarism, and using unauthorized materials are all very serious offenses. When in doubt, do not hesitate to contact me to discuss what is and what is not allowed. Asking is a sign of integrity instead of a signal that you are planning to cheat. Useful resources can be found at UWM information on academic misconduct and CETL's tips on academic integrity in online learning for instructors and students.

Generative Artificial Intelligence

In this course, it is permitted to use Generative Artificial Intelligence (GenAI) tools, such as Copilot, to help you better understand of content, develop ideas, and edit drafts of your work. However, your submissions (including assignments and projects) should not be entirely completed by GenAI. When you do use GenAI, you must properly cite it. For guidance on how to do this, please refer to the resource on using and citing GenAI provided by UWM Libraries. Taking credit for any work that is not your own original work constitutes academic misconduct and is subject to disciplinary action under UWS Chapter 14. While GenAI can be a useful tool, it is important to be aware of its limitations and use it both responsibly and ethically. AI-generated content may be biased,

inaccurate, incomplete, or otherwise unreliable. It is your responsibility to critically evaluate any responses produced with GenAI.