

Statistical Packages (Spring 2023)

STAT 1301/2300

- Instructor: Junshu Bao, Teaching Associate Professor, Department of Statistics
 - Email: jub69@pitt.edu
 - Office: Posvar 1806; Office Phone: 412-624-9033
 - Office Hours: Tuesday 11 AM - 12 PM, Wednesday 10 AM - 11 AM
 - Webpage: <https://sites.pitt.edu/~jub69/>
- TA: Wenlong Jiang
 - Email: wej24@pitt.edu
 - Office Hour: TBD
- Meeting times and location: M/W 4:30 - 5:45 PM (1501 Wesley W Posvar Hall)

Course Description and Learning Objectives

This course is an introductory course on two fundamental statistical packages, SAS and R. Upon completing this course students will be able to

- Use statistical software (SAS and R) to handle data
- Choose correct methods of data analysis
- Perform data analysis
- Interpret results correctly and effectively

Course Logistics

Prerequisites

STAT 1221 or any course which mostly emphasize regression and includes an elementary statistical package such as MINITAB. No advanced programming experiences required.

Required Textbook

- Peter Dalgaard, *Introductory Statistics with R*, Second Edition, Springer, New York, NY (ISBN: 978-0387790534).
The e-book of this book is available through Pitt Library:
https://pitt.primo.exlibrisgroup.com/permalink/01PITT_INST/e8h8hp/alma9998557195106236
- Geoff Der and Brian S. Everitt, *A Handbook of Statistical Analyses using SAS*, Third Edition, Chapman and Hall/CRC, London, UK, (ISBN: 978-1584887843).
The e-book of this book is available through Pitt Library:
https://pitt.primo.exlibrisgroup.com/permalink/01PITT_INST/t5l303/alma9998678678206236
If you use the links from off campus, you will be routed through Pitt Passport to log in there before the e-book displays.

Computing:

We will use the statistical software packages SAS and R.

- **SAS** is available on the PCs at all campus computing labs, such as Cathedral, Posvar, Forbes Quad and Benedum. If in addition you would like to have SAS on your PC, Pitt's Software Download Service offers SAS for free. SAS can only be installed on Windows or Unix environments (No Mac OS). If you use MacBook, I recommend you to use Pitt's virtual lab.
- **R** is a free, open-source software package/programming language for statistical computing, and is available on the PCs at all campus computing labs, such as Cathedral, Posvar, Forbes Quad and Benedum. If in addition you would like to have R on your PC/Mac/Unix, it can be downloaded for free at <http://www.r-project.org/>.

Course Management System: Canvas

Assignments are submitted and graded electronically through Canvas. Many links and material will be made progressively available on Canvas:

- Lecture slides
- Reading material
- Homework assignments and tests
- Data sets

Grading components

- Homework 50%
- Exam I 30%
- Exam II 20%
- Attendance Bonus 2%

Attendance is encouraged. Attendance will be recorded from January 23, 2023. Students who attend at least 20 out of 24 lectures will receive a 2% bonus.

Course Grades:

Grade	Percentage
A+	[97%,100%]
A	[93%,97%)
A-	[90%,93%)
B+	[87%,90%)
B	[83%,87%)
B-	[80%,83%)
C+	[77%,80%)
C	[73%,77%)
C-	[70%,73%)
D+	[67%,70%)
D	[63%,67%)
D-	[60%,63%)
F	[0,60%)

Online Resources

On Statistical Procedures:

- Handbook of Biological Statistics by John H. McDonald

On SAS:

- *The little SAS book: a primer*, 4th edition by Delwiche, Lora D; Slaughter, Susan J 2008 (eBook available at Pitt library)
- SAS Customer Support
- UCLA idre SAS help page
- SAS/STAT User's Guide

On R

- *A Beginner's Guide to R* by Alain F. Zuur, Elena N. Ieno, Erik Meesters 2009 (Springer), eBook available at <https://link.springer.com/>
- The official intro, *An Introduction to R*, available online in HTML and PDF
- John Verzani, *simpleR*, in PDF
- Google R Style Guide offers some rules for naming, spacing, etc., which are generally good ideas.
- Quick-R. This is primarily aimed at those who already know a commercial statistics package like SAS, SPSS or Stata, but it's very clear and well-organized, and others may find it useful as well.
- Patrick Burns, The R Inferno. "If you are using R and you think you're in hell, this is a map for you."
- Thomas Lumley, R Fundamentals and Programming Techniques.
- Paul Torfs & Claudia Brauer, A very short intro to R
- UCLA idre R help page
- Avril Coghlan, A Little Book of R for Multivariate Analysis

University Policies:

Academic Integrity

Students in this course will be expected to comply with the University of Pittsburgh's Policy on Academic Integrity. Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. Furthermore, no student may bring any unauthorized materials to an exam, including dictionaries and programmable calculators.

To learn more about Academic Integrity, visit the Academic Integrity Guide for an overview of the topic. For hands-on practice, complete the Understanding and Avoiding Plagiarism tutorial.

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Statement on Classroom Recording

To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use.

Diversity and Inclusion

The University of Pittsburgh does not tolerate any form of discrimination, harassment, or retaliation based on disability, race, color, religion, national origin, ancestry, genetic information, marital status, familial status, sex, age, sexual orientation, veteran status or gender identity or other factors as stated in the University's Title IX policy. The University is committed to taking prompt action to end a hostile environment that interferes with the University's mission. For more information about policies, procedures, and practices, see: <http://diversity.pitt.edu/affirmative-action/policies-procedures-and-practices>.

I ask that everyone in the class strive to help ensure that other members of this class can learn in a supportive and respectful environment. If there are instances of the aforementioned issues, please contact the Title IX Coordinator, by calling 412-648-7860, or e-mailing titleixcoordinator@pitt.edu. Reports can also be filed online: <https://www.diversity.pitt.edu/make-report/report-form>. You may also choose to report this to a faculty/staff member; they are required to communicate this to the University's Office of Diversity and Inclusion. If you wish to maintain complete confidentiality, you may also contact the University Counseling Center (412-648-7930).

Disability Services

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services (DRS), 140 William Pitt Union, (412) 648- 7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users, as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

Accessibility

The Canvas LMS platform was built using the most modern HTML and CSS technologies, and is committed to W3C's Web Accessibility Initiative and Section 508 guidelines. Specific details regarding individual feature compliance are documented and updated regularly.