

Lecture 0

Course Information

DSA 8070 Multivariate Analysis
August 9-13, 2021

Whitney Huang
Clemson University

About the Instructor

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- **Third-year** Assistant Professor of Applied Statistics and Data Science
- Born in Laramie, WY, grew up in Taiwan



- Obtained a B.S. in Mechanical Engineering, switched to Statistics in graduate school



- Got a Ph.D. (Statistics) in 2017 at Purdue University.



How to reach me?

- **Email:** wkhuang@clemson.edu
- **Office:** O-221 Martin Hall
- **Office Hours:** Tue. and Wed. 8:30pm - 9:15pm ET via Zoom and by appointment

Class Policies

- There will be [three projects](#). The due dates are:
 - **Project I:** Sep. 30, Thursday
 - **Project II:** Nov. 4, Thursday
 - **Project III:** Dec. 9, Thursday
- There will be weekly R Labs:
 - To be uploaded to Canvas by 11:59 pm ET on the due dates
 - Worst grade will be dropped
- No lectures during [Thanksgiving week](#) (Nov. 22-26)

- [Course syllabus / Announcements](#)
- [Lecture slides/notes/videos](#)
- [R Labs/Projects](#)
- [Data sets for lectures and labs](#)

- *Methods of Multivariate Analysis*, 3_{rd} Edition, **Alvin Rencher and William Christensen**, 2012 [\[Link\]](#)
- *Applied Multivariate Statistical Methods*, 6_{th} Edition, **Richard Johnson and Dean Wichern**, 2008 [\[Link\]](#)
- *Applied Multivariate Statistics with R*, **Daniel Zelterman**, 2015 [\[Link\]](#)

Evaluation

Grades will be weighted as follows:

R Labs	25%
Project I	25%
Project II	25%
Project III	25%

Final course grades will be assigned using the following grading scheme:

≥ 90.00	A
88.00 ~ 89.99	A-
85.00 ~ 87.99	B+
80.00 ~ 84.99	B
78.00 ~ 79.99	B-
75.00 ~ 77.99	C+
70.00 ~ 74.99	C
68.00 ~ 69.99	C-
≤ 67.99	F

We will use software to perform statistical analyses.

Specifically, we will be using R/Rstudio   Studio

- a **free/open-source** programming language for statistical analysis
- available at <https://www.r-project.org/> (R);
<https://rstudio.com/> (Rstudio)

Week	Dates	Topic
1	8/18-20	Introduction
2	8/23-27	Characterizing and Displaying Multivariate Data
3	8/30-9/3	A Short Review of Matrix Algebra
4	9/6-10	Multivariate Normal Distribution and Copula
5	9/13-17	Inferences about a Mean Vector
6	9/20-24	Comparisons of Several Mean Vectors
7	9/27-10/1	Multivariate Linear Regression
8	10/4-8	Repeated Measures Analysis
9	10/11-15	Principal Components Analysis
10	10/18-22	Factor Analysis
11	10/25-29	Canonical Correlation Analysis
12	11/1-5	Discrimination and Classification
13	11/8-12	Cluster Analysis
14	11/15-19	Multidimensional Scaling
15	11/22-26	No Class—Thanksgiving
16	11/30-12/3	Review