Lecture 1

Class overview

STAT 8020 Statistical Methods II
August 21, 2019

Whitney Huang
Clemson University

Agenda

1. Who are the instructors?
2. Syllabus
3. Who you are?

Who are the instructors?

Who are the instructors?

- **William C. Bridges Jr.**
  - Alumni Distinguished Professor and has been here 35 years!!
- **Whitney Huang**,
  - First year Assistant Professor
  - Born in Wyoming, grew up in Taiwan, got my Ph.D. at Purdue University

How to reach us?

- **Email:** wbrdgs@clemson.edu and wkhuang@clemson.edu
- **Office**: O-117 and O-221 Martin Hall
- **Office Hours**: 2:30pm – 3:30pm Tues., Weds., Thurs. and by appointment

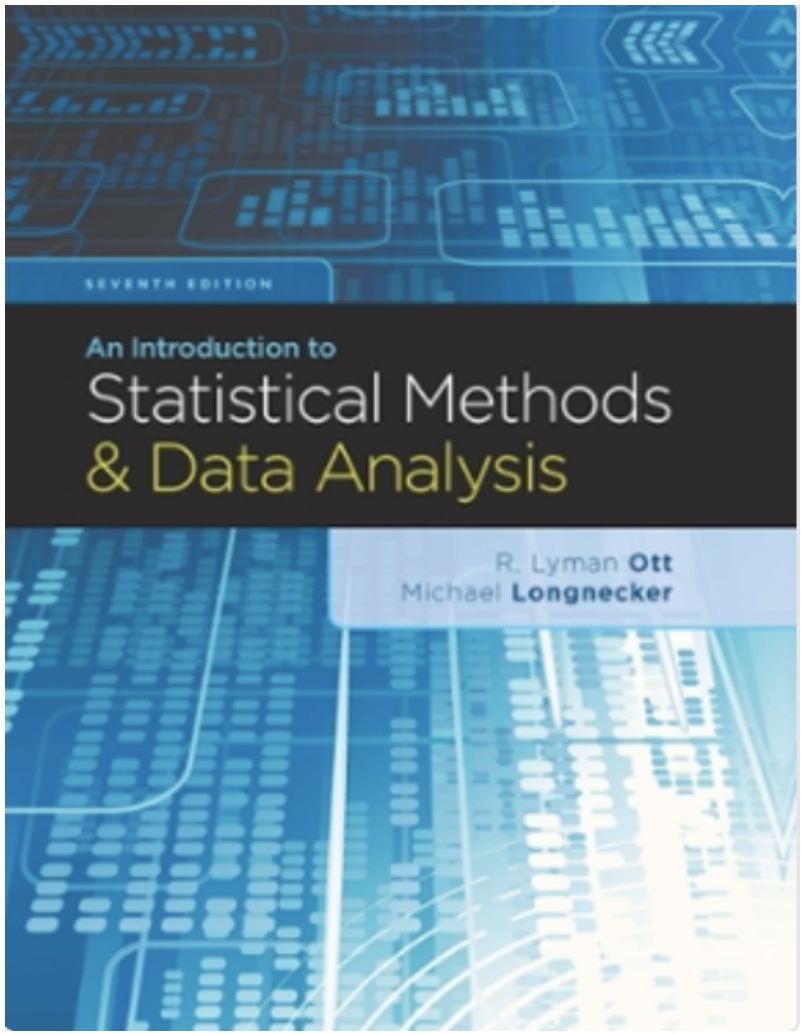
Syllabus

When and where

- We will meet MWF 12:20pm – 1:10pm at M-104 Martin
- We will have 4 exams (including Final), some homework assignments and quizzes
- No classes on Oct. 14 (Fall break) and Nov. 27, 29 (Thanksgiving)

Recommended Textbook

An Introduction to Statistical Methods and Data Analysis, 6th Edition. **Lyman Ott and Micheal T. Longnecker, Duxbury, 2010**; **ISBN-13:** 978-1305269477



Exam Information

There will be three in-class exams. The (tentative) dates for the three exams are:

1. **Exam 1**: September 20
2. **Exam 2**: October 18
3. **Exam 3**: November 15

The **Final Exam (Exam 4)** will be given on Monday, December 9, 8:00 am - 10:30 am.

Evaluation

- Grade Distribution:

Quizzes and Homework	10%
Exam 1	22.5%
Exam 2	22.5%
Exam 3	22.5%
Exam 4	22.5%

- Letter Grade:

>= 90.00	A
80.00 $\sim$ 89.99	B
70.00 $\sim$ 79.99	C
<= 69.99	F

- Extra credit assignments will not be given.
- Grades are not expected to be curved.
- Late assignments will not be accepted.

Course Objectives

1. Summarize and interpret research data.
2. Draw appropriate conclusions and inferences from data.
3. Use several useful statistical techniques and know when and how to apply them.
4. Select and implement several basic experimental designs.
5. Use some standard statistical computing packages
6. Demonstrate an awareness of the power and capability of statistical software

An example of software output

```
Call:
lm(formula = maxHeartRate ~ age)

Residuals:
    Min      1Q  Median      3Q     Max
-8.9258 -2.5383  0.3879  3.1867  6.6242

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) 210.04846    2.86694   73.27  < 2e-16 ***
age          -0.79773    0.06996  -11.40 3.85e-08 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 4.578 on 13 degrees of freedom
Multiple R-squared:  0.9091,    Adjusted R-squared:  0.9021
F-statistic:   130 on 1 and 13 DF,  p-value: 3.848e-08
```

Key Dates

- **August 27**: Last day to register or add a class or declare audit
- **September 3**: Last day to drop a class or withdraw from the University without a W grade
- **October 29**: Last day to drop a class or withdraw from the University without final grades

Academic Integrity Statement

"As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a 'high seminary of learning.' Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree.".

Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form. In instances where academic standards may have been compromised, Clemson University has a responsibility to respond appropriately to charges of violations of academic integrity.

Disability Access Statement

It is university policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities. Students with disabilities requesting accommodations should make an appointment with Disability Services blue(656-6848), to discuss specific needs within the first month of classes. Students should present a Faculty Accommodation Letter from Student Disability Services when they meet with instructors. Accommodations are not retroactive and new Faculty Accommodation Letters must be presented each semester.

Title IX Statement

Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran's status, genetic information or protected activity (e.g., opposition to prohibited discrimination or participation in any complaint process, etc.) in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. The policy is located at http://www.clemson.edu/campus-life/campus-services/access/non-discrimination-policy.html.
Alesia Smith is Clemson University Title IX Coordinator. She is also the Executive Director of Equity Compliance, Her office is located at 223 Holtzendorff Hall, (864) 656-3181 (voice).

Inclement Weather

Any exam that was scheduled at the time of a class cancellation due to inclement weather will be given at the next class meeting unless contacted by the instructor. Any assignments due at the time of a class cancellation due to inclement weather will be due at the next class meeting unless contacted by the instructor. Any extension or postponement of assignments or exams must be granted by the instructor via email or Canvas within 24 hours of the weather related cancellation.

Tentative Topics and Dates

1. **Unit I Regression Analysis** (Aug. 21 – Sept. 20)
   - Simple linear regression
   - Regression diagnostics and remedial measures
   - Non-linear and non-parametric regression
   - Multiple linear regression
2. **Unit II Categorical and Non-normal Data** (Sept.23 – Oct. 18)
   - Inference about proportions
   - Contingency table
   - Nonparametric tests
3. **Unit III Design of Experiments** (Oct.21 – Nov. 15)
   - Experimental Design Principles and Techniques
   - Experimental Designs with a single factor
   - Experimental Designs with multiple factors
4. **Unit IV Multivariate Analysis** (Nov.18 – Dec. 6)
   - Principle Components Analysis (PCA)
   - Discrimination and Classification
   - Cluster analysis

CLEMSON UNIVERSITY

Tell us a bit about yourself

- Your name
- Degree program
- Anything you want to share

  E.g., Goals for the semester, fun facts, your expectations for this course