STAT 5302: Intermediate Data Analysis II

Autumn 2019

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Office Hours: W 11:30am-12:30pm

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Lecture Hours: MWF 10:20-11:15am, Hitchcock Hall 306

Prerequisites: 5301 or permission of instructor.

Text: *The Statistical Sleuth – A Course in methods of data analysis,* 3rd Edition, by Ramsey and Schafer, Duxbury Press, 2012. The textbook is on reserve in the 18th Avenue Library.

Course Description: Statistics 5302 is the second course in a two semester sequence in Intermediate Data Analysis. We assume that students are familiar with organizing and summarizing data, the nature of relationships between variables, sampling distributions and the underlying rationale for hypothesis tests and confidence intervals. We also assume that students are comfortable with a variety of models and inferential procedures. Specifically, the material in 5302 relies heavily on the additive model (see the early part of the text for a description of this model) and one-way ANOVA. The course will cover (simple and multiple) linear regression and ANOVA designs beyond the one-way layout. For each of the common statistical methods covered in the course, we will focus on generation of appropriate models for data, estimation of the model parameters and their inference, and model diagnostics. Applications of the methods will be illustrated with data analysis.

This course satisfies the General Education (GE) requirement in Data Analysis.

Expected Learning outcomes: Students understand basic concepts of statistics and probability, comprehend methods needed to analyze and critically evaluate statistical arguments, and recognize the importance of statistical ideas.

Website: Many course materials will be available on Canvas, including important announcements, homework assignments and solutions, and some data examples.

Statistical Computing: You will be required to do some basic statistical analyses on the computer using the statistical software package R for your assignments. Information on R will be given on the course website.

Grading:

Homework	30%
Midterm	30%
Comprehensive Final	40%

Homework: Homework will be collected approximately bi-weekly. **NO late homework will be accepted.** When you put together your homework solutions, be sure to include computer output as part of your answer. Computer output alone without proper interpretation of the result would not be considered a complete answer either and you may lose points. You don't need to include R script itself in your homework unless it is necessary to justify your answer.

Exams: There will be one midterm and one final exam.

   Midterm (tentative): October 14, Monday, in class

   Final (Comprehensive): December 10, Tuesday, 10-11:45am

- Both exams will be in-class, close-book/closed-notes; however, you will be allowed a calculator and double-sided 8.5"×11" formula sheets (one page for the midterm and two pages for the final).
- There will be NO makeup exams. The only excuses for missing an exam are a serious illness or a major family crisis. Proof must be provided in the form of an official document. A note from a family member alone is not sufficient.
- You have until one week after receiving your grades on the exams to dispute the grade; the same applies to any homework grade. Note that when asking for a question to be re-graded, the entire assignment/exam may be re-graded, and so you run the risk of losing more points than you gain back.

Academic Misconduct: Although students are encouraged to work together on assignments, each student must submit their own written work in his or her own words. Academic misconduct will not be tolerated and will be dealt with procedurally in accordance with University Rule (http://oaa.osu.edu/procedures).

Special Accommodations: The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. You are also welcome to register with Student Life Disability Services to establish reasonable accommodations. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. **SLDS contact information**: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.