Statistics 5301
Intermediate Data Analysis I
Spring Semester 2017

Class Meetings: Watts Hall, Room 395, TR 8:00am – 9:50am
Instructor: Nicole Kelbick, PhD
Contact: (614)-292-0293, kelbick.1@osu.edu
Office Hours: 435 Cockins Hall (CH), T/W/Th, 2:00pm-3:00pm or by appointment

Grader:

Name	Shugi Zhou
Email	Zhou.2239@osu.edu

Prerequisites: Prerequisites: Math 1075 (104) or equivalent, or Math Placement Level of R, or permission of instructor.

Enrollment: ADD and SECTION CHANGES will be processed, contingent upon availability, starting at 7am on Tuesday January, 17th through Tuesday, January 18th. This will be on a first-come first-served basis in 408A Cockins Hall. **The instructor does not sign any Add or Section Change forms.** Check out www.stat.osu.edu/node/1643 for more detailed information regarding Add and Section Changes.

Closed Section Strategy: If the section you wish to take is closed, consider enrolling into another section that is still open. It is much easier to do a section change (and there are no late add fees either) if a space opens up. It is more complicated to do a late enrollment and the chance of succeeding is not great.

Textbook:

(1) *Introduction to the Practice of Statistics* (8th edition)
by David S. Moore, George P. McCabe, and Bruce A. Craig.

This text is NOT required and should only be used as a reference for the first half of the course. We will only cover Chapters 1 – 9 of the book for this course. Would recommend buying an earlier edition.

(2) *The Statistical Sleuth: A Course in Methods of Data Analysis* (3rd edition)
by F. L. Ramsey and D. W. Shafer.

This text is required for the second half of the course and also used in STAT 5302, the second course in the Intermediate Data Analysis sequence.

Chapters 1 – 6 will be covered for this course; they encompass topics in Drawing Statistical Conclusions, Inference Using t-Distributions, A Closer Look at Assumptions, Alternatives to t-Tools, Comparisons Among Several Samples, and Linear Combinations and Multiple Comparisons of Means.

The textbooks are on reserve in the 18th Ave and Thompson's libraries.

Website: The course has a web page on Carmen (http://www.carmen.osu.edu). Homework assignments, solutions, class schedule, and other relevant material and announcements will be posted on the web page. Please check it on regular basis. **Lectures will be posted (hopefully) the day before by 9pm.**

Course Description: Stat 5301 is the first course in a two-semester non-calculus sequence in data analysis covering descriptive statistics, design of experiments, probability, statistical inference (one-sample and two-sample problems, goodness of fit, and one-way ANOVA). This course is a GE Data Analysis Course.

Goals: Develop the skills to draw sound statistical conclusions by critically evaluating data-based results.

Expected Learning Outcome: 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.

Students in Statistics 5301 are expected to be able to identify an appropriate analysis for data collected in a study, carry out such an analysis, examine whether the assumptions behind the analysis are reasonable, and recognize the strengths or weaknesses of the study based on how the data were collected.

Doing so requires understanding basic concepts in statistics and probability; the ability to create graphical and numerical summaries of data; understanding how the design of a study affects the conclusions that can be made; and the ability to carry out basic statistical analyses (by hand or using statistical software). Students will conduct analyses of data, including a discussion (in plain English) of what conclusions can be drawn.

Important Dates:

Date	**Reason**
January 16th	MLK Day (no classes)
February 16th	Midterm 1 (Thursday in class)
March 13th-17th	Spring break (no classes)
March 23rd	Midterm 2 (Thursday in class)
April 24th	Last day of classes (Monday)
April 26th	Final Exam (Wednesday 8:00am – 9:45am)

Grading: Your grade will be based on homework assignments, two midterms, and a comprehensive final exam. The relative point-worth of these components are as follows:

Homework	25%	Approximately weekly
Midterm I	25%	Thursday, Feb. 16th, in class
Midterm II	25%	Thursday, Mar. 23rd, in class
Final	25%	Wednesday, Apr. 26th 8:00am - 9:45am
	100%	

Homework: There will be approximately weekly assignments. Homework problems and solutions will be posted on Carmen.

Computing: You will be required to do some basic statistical analyses on the computer using the statistical software package R for your assignments. Download for free from https://www.r-project.org/. A more user-friendly interface can be downloaded for free from https://www.rstudio.com. **INSTALL R FIRST**, **then RStudio.**

Exams: All exams will be closed book and closed notes. The final exam will emphasize new material but some prior material will still be fair game if used in the current material (e.g. use of normal distributions). For the first midterm you are allowed to bring one standard size (8.5 × 11 inch) sheet containing formulae. The second midterm you are allowed one new formula sheet as well as the one from the 1st midterm. For the final exam, you are allowed one new formula sheet (standard sized (8.5 × 11 inch) as well as the formula sheets from the first two midterms.

NOTE: I am not going to require a certain calculator for exams. HOWEVER, you will be expected to show your work. Only partial credit will be given for correct answers that do not. Exam rules will be announced in class. I like to avoid makeup exams as much as possible. If there is a potential for a conflict, please contact me WELL IN ADVANCE.

Exam	Date	Chapters Covered
Midterm I	Thursday, Feb. 16th, in class	TBA
Midterm II	Thursday, Mar. 23rd, in class	TBA
Final	Wednesday, Apr. 26th, 8:00am-9:45am	TBA

Office Hours: While questions are welcome during class sessions, all students should feel free to visit during office hours for individual assistance with the course material. Questions regarding grades or scores will only be answered during office hours. Students unable to attend office hours may easily make an appointment to see the instructor at another time.

Communication Devices: Cell phones, PDAs and other communication devices must be either turned off or put on vibrate during class. Please refrain from texting during class as a courtesy to those sitting around you. All electronic devices other than a calculator must be shut off and put away during examinations.

Academic Misconduct: Although you are encouraged to work together, you are expected to produce independent work for homework and exams. Academic misconduct for any sort will not be tolerated. If students are caught indulging in dishonest activities during exams, they will be reported immediately, without any exception. Please review OSU's policies at http://studentaffairs.osu.edu/csc/.

Special Accommodation: Students with ADA-documented physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. All accommodations are coordinated through the Office of Disability Services (ODS) in Room 150 of Pomerene Hall, (614) 292-3307. Please contact the ODS as early in the semester as possible. You can also contact the instructor privately to discuss your specific needs.

Disclaimer: The schedule and procedures contained in this syllabus should be taken as a fairly reliable guide for the course content and policies. They are, however, subject to change at the instructor's discretion. Any changes will be announced in class as well as posted on Canvas.