

**STAT 6750**

**Statistical Consulting**

**FALL 2019**

**Instructor:** Steve MacEachern

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**Office Hours:** Monday, 9:00 - 10:00, and by appointment

**Grader:**

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**Lectures:** Monday and Wednesday 8:00 - 8:55. Cockins Hall 232.

**References:** There are many good texts on the various aspects of statistical consulting. We have listed a few below.

- Boen and Zahn, *The Human Side of Statistical Consulting*, I
- Cabrera and McDougall, *Statistical Consulting*, I
- Chatfield, *Problem Solving: A Statistician's Guide*, A
- Cox and Snell, *Applied Statistics*, A
- Derr, *Statistical Consulting: A Guide to Effective Communication*, I
- Knuth, Larrebic and Roberts, *Mathematical Writing*, P
- Madansky, *Prescriptions for Working Statisticians*, A
- Polya, *How to Solve It: A New Aspect of Mathematical Method*, A
- Polya, *Mathematics and Plausible Reasoning*, vols. 1 and 2, A
- Tufte, *The Visual Display of Quantitative Information*, P

These books can loosely be divided into three groups—those which focus on the interpersonal aspects of consulting (e.g., how to deal with a difficult client), those which focus on good, solid applied statistics (e.g., how to handle imperfections in an experiment; how to look for patterns in the world), and presentation of results (e.g., how to write!). The code letters following the books above (I, A, P) indicate the main thrust of each. The list could be greatly expanded. During the course, we will draw material from these sources and others.

**Course Description:** Statistics 6750 is a course on statistical consulting. As the texts mentioned above indicate, there are many aspects to consulting. There is, quite decidedly, no single route to effective consulting. Rather, different environments place more or less emphasis on one aspect or another of performance. Academics and government tilt toward a focus on applications and techniques; corporate environments tilt toward slick presentations. What is “best” is situation dependent. We will cover a variety of styles of consulting.

**Course Policies:** Given the material covered by the course, the format will be interactive rather than traditional lecture. Be prepared to discuss examples and course material as it arises. As part of the course, I will call on you (yes, you!) to provide brief descriptions of reasonably standard statistical techniques. The descriptions may be tied to a description of a client—for example, a client who is scientifically sophisticated but who has little sophistication when it comes to statistical analysis. For these, you will have no warning beforehand.

**Course requirements:** To receive a satisfactory grade in this course, you must

1. Attend at least 80% of the class meetings
2. Participate in the discussions in class
3. Turn in satisfactory written assignments
4. Have satisfactory performance on in-class presentations
5. Turn in (and present) a satisfactory final report

**Final reports and presentations:** The final report will be much grander than the homework exercises that you will turn in during the course.

1. A statistical consulting project in which you are involved
2. A set of data that you have collected and analyzed
3. A critical review of the statistics in a journal article that you have read
4. A statistical topic that is new to you
5. A specialized piece of software or specialized statistical routine that is new to you

The length of the written report will depend on your choice of topic, but it should be in the neighborhood of six to eight pages. For reports that make heavy use of descriptive and inferential statistics and those that contain appendices, the total length of the report will naturally be longer.

In addition to the written report, you will give a presentation to the class. The length and style of the presentations will be determined once registration issues are settled. In addition to the presentation, expect a short question and answer period to follow. The presentations will take place during the last class meetings and the scheduled final exam period. You are expected to attend other students' presentations and to participate in the question and answer sessions.

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term academic misconduct includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

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. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. 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](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12th Avenue.

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting [ccs.osu.edu](http://ccs.osu.edu) or calling 614-292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273-TALK or at [suicidepreventionlifeline.org](http://suicidepreventionlifeline.org).

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at [titleix@osu.edu](mailto:titleix@osu.edu)

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.