**BIOS 841: Principles of Statistical Consulting**  
**Spring 2017**  
**Tuesdays and Thursdays, 12:30 - 1:45**

**Summary**  
The goal of this course is to develop in each student the skills necessary for being a statistical collaborator / consultant of the highest caliber. Emphasized topics include written and oral communication with collaborators, teamwork, leadership, and best practices in study design, data management, data analysis and reporting, and ethical conduct. In-class activities include a brief lectures on consulting topics, guest lectures of consultants practicing in different environments, group activities and role-playing, and student presentations of projects.

**Class Attendance and Participation is Essential.**  
Out-of-class activities include homework and three major consulting projects. As part of two major consulting projects, health research investigators will attend class and answer questions about their research in preparation for the project assignments. A third major consulting project will be arranged and conducted by each student.

**Professors**  
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**Prerequisites**  
Instructor consent. Familiarity with SAS and/or R will be assumed. Students must have completed all courses required for their degree program or be currently enrolled in remaining required courses.

**Recommended Texts** (Optional)  

**Course Components**  
- **Class participation (30%)**: Attendance and participation in class activities are essential parts of this course, particularly since we have so many in-class group activities.

- **Assignments on best practices and skills (20%)**: A number of assignments will be due throughout the semester. Some assignments will be completed during class. Details on assignments will be given as they are assigned. Take-home assignments need to be turned in on SAKAI prior to the beginning of class. Many of the assignments will need to be used in class on the same day they are due, and we will inform you if so that you bring a printed copy as well.

- **Project #1 and Project #2 (40%)**: Two in-class consulting projects will be organized by the instructors. For each of these projects, the project (either a study design project or a data analysis project) will be given to the students; a researcher will be interviewed by the entire class; and each student will complete the necessary work and write a final report. Each of these projects will comprise 20% of the final grade. Some components of the project may be collaborative, but students are required to do all work independently unless collaboration is specifically assigned.

- **Project #3 (10%)**: A final individual project will be organized by each student (or pairs of students) and will consist of actual consulting of the same magnitude as done in the first two major projects. The students are responsible for finding researchers with whom to collaborate on this project. Project #3 must be different from anything you are working on as a research assistant, employee, or teaching assistant. Your work should be statistical and not trivial (e.g. data entry). The researcher should provide you with a complete set of specific aims if the work is design-related, or provide a ready-to-use dataset if analysis related. **Individual oral presentations to the class will be poster presentations**. All students will turn in their complete written reports on the day the presentations begin. A copy of the final report must also be given to the researcher. You need to make sure that you can finish this project about a week before presentations begin so that you will have sufficient time to prepare your presentation and report. Students may work in pairs and must explain their individual contributions in the final report. **Students that prefer to “opt out” of Project #3 can receive a final grade of “P”.**

**Final grade**:  
- **H** = (90%, 100%),  
- **P** = [70%, 90%),  
- **L** = [50%, 70%),  
- **F** = [0%, 50%).

Note that students who “opt out” of any of the projects or assignments cannot achieve a final grade of “H”.

**Stay calm and carry on**: If your laptop dies, the dog eats your homework, or other disasters occur, remain calm. We will work with you to help you recover, catch up, and complete the work.