STAT 8000 — Supervised Statistical Consulting
Course Syllabus — Spring 2005

Instructor: Dan Hall
Office Hours: M&W:2:30–3:30PM, and by appointment
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Scheduled Class Hours: M,W,F, 3:35–4:25PM, Rm. 306, Statistics Building.

Prerequisite: STAT 8260

This prerequisite deserves some explanation. The most useful background for this course is some course-work in applied statistics. The heart of applied statistics is the linear model (linear regression, analysis of variance, analysis of covariance). STAT 8260 is our required course on linear models. However, it is oriented toward the theory of linear models, and doesn’t provide much instruction in the practical application of the linear model. A much more useful course for consulting is STAT 8200, Design of Experiments for Research Workers. STAT 8200 is much more application orientated; however, it is not a required course in either the statistics Master’s or Ph.D. degree program. Hence, the STAT 8260 prereq. However, if you haven’t had 8260, you may substitute 8200. If you’ve had neither, I recommend that you drop, and take one or both of those courses before enrolling in this course.

Required Text:


Other Sources:

There will be readings from the required textbook throughout the term. In addition, I may assign readings from other books and articles. I will generally distribute these sources as handouts in class. I list some of the other books on statistical consulting below.


In addition, there are a large number of articles on the topic of statistical consulting, some of which we’ll read for this course. The book by Derr has a CD-ROM associated with it which contains some video presentations that include dramatizations of good and bad consulting interactions. I will assign readings from the Derr book and then we’ll view some of the associated video clips in class and discuss them.

**Course Description:**

STAT 8000 is an introduction to statistical consulting. The primary activity of the course is for students to participate in real consulting projects. The idea is for you to learn by doing. In addition, however, there is a textbook and there will be readings throughout the term from the book and from various articles on the topic of statistical consulting. There will also be lectures and class discussions.

*Consulting Projects:* Each student will work individually on a real problem from a real client. Potential clients will be scheduled to come to our class and present the research backgrounds, study objectives, data collection methods, etc. of their projects. These client presentations will occur as early in the term as can be arranged, so that a student can be assigned to each project and work can begin.

Once client presentations are finished, we will continue to meet regularly. We will discuss readings and we’ll also discuss specific projects. I will expect students to update me and the rest of the class on the projects that they are engaged in. In return, the class and I will help solve problems encountered by suggesting appropriate statistical methodology, and giving advice to the consultant teams.

The specific outcomes expected of each consulting project are (1) a written report describing the problem and its statistical solution; and (2) an in-class presentation of the highlights of the written report. Of course, the clients will receive a copy of the final written report, and it will be necessary for each team to (orally) report their results directly to the client. Remember, the clients have real research questions that they need answered. By taking on a client’s problem, you have made a commitment to help him or her. Your professional reputation and personal integrity depend upon how well you live up to this commitment. This should provide a much stronger motivation for you to do a good job than your desire for a good grade in the course.

**Due Dates:** A first draft of the written report will be due on April 8. I will make comments, suggestions, and corrections and return them to you by April 15. The final draft will then be due on April 29. At this point, I still may ask for improvements before the report is done. The report will only be finalized when it is satisfactory. Hopefully, this will happen by April 29, but I will not hesitate to force you to revise the report beyond this date. In-class presentations of projects will be scheduled for the last few class periods and (possibly) the final exam date (May 4).

**Readings and Quizzes:** Each week (on Monday) we will have a quiz based on assigned
readings. The quizzes will be short, simple, and easy. Their only purpose is to keep you honest (to ensure that you actually do the readings).

**Lectures:** In addition to quizzes, client presentations, oral reports, and discussion of specific projects, the remaining class time will be devoted to a variety of topics that I will lecture on and/or we will discuss as a class. These topics may include:

- An overview of statistical methods and their domains of application
- Sample size/power analysis
- Regression
- ANOVA
- ANCOVA
- Linear mixed models
- Repeated measures and their analysis
- The Statistical Consulting Center at UGA
- Statistical Software
- The consultant-client interaction
- Statistical graphics
- Exploratory data analysis
- Other topics determined by the nature of the projects we have this term and/or the students’ interests

**Evaluation:**

Grades will be based on quizzes (10%), class participation (10%), and your written (60%) and oral report (20%).

**E-mail:**

Finally, I will use e-mail to contact you and I encourage you to contact me via e-mail if you have questions, comments, etc., that are more easily conveyed in this manner than directly in class or in office hours. So, please provide me with an e-mail address that you check regularly.