As announced on the course syllabus, 20% of your grade in Stat 544 will be based on a Final Project. This is to be a serious/complete Bayes data analysis associated with a real problem of your choosing. You may work in teams of as many as three people if you like.

Ideally, the subject of your work will be a problem of real independent interest to you. It could come from a consulting project, a subject-matter paper you have read, something from your work as an RA, or from subject-matter work of a friend in another department. If you don't have anything of this type available to you, I can probably help you find something related to engineering or physical science. Or, I'm willing to let you take a substantial problem/example from a non-Bayesian statistical methods text and do a complete Bayes analysis (and make comparisons to what the non-Bayes analysis yields). In any case, the subject-matter problem should be more substantial than any treated on one of Mini-Projects (for example involving more than one factor potentially influencing the response or involving non-normal responses).

You will report on your work in two forms:

1) You will write a professional quality technical report describing the real problem, your data analysis, and what your analysis reveals about the real problem (and potentially, how your analysis and conclusions compare to non-Bayesian results). As indicated on the course syllabus, this must follow academic standards for attribution and clarity of exposition. A reader must be able to start with no knowledge of your subject-matter problem and get a complete understanding of exactly what you've done and learned about the problem through the analysis, AND know exactly what parts of what you've written are yours and what (if any) parts are essentially borrowed from (exactly what) other sources.

Limit what you type up to turn in to a cover page plus at most 15 typewritten pages (including whatever figures you want to include and a reference section). Use at least 11 point fonts and 1 inch left and right margins. Also include an Appendix with "commented" WinBUGS and/or R code that you have used. (This Appendix does not count in the above "15 typewritten pages" limit.) If you do not put the entire data set in the main body of the report, include another Appendix.

This paper/technical report is due in my office at 5 PM Monday April 24. (And I'll be grateful if you can get it to me earlier than that!)

2) You will give a professional quality presentation on your project in class on April 25 or April 27 (we'll "draw straws" to see who presents when). The length of these presentations will depend upon how many projects in total are adopted by the class, but I'm guessing that they will be either 15 or 20 minute presentations. (I'll let you know
exactly what to plan for when I know how many projects there will be.) In the case of group projects, all group members will take part in the presentation. You will make professional quality "slides" to project through the system in the classroom. ("Powerpoint" or other .pdf slides are needed unless you bring your own computer and are sure that it can be connected and used in the room.)

If you get your slides to me far enough ahead of time for me to turn them around, I'll mark them and make suggestions in time for you to revise before your oral presentation. A paper copy of the set of final slides is to be given to me as you begin your presentation.

While most of your grade on this project will come from my assessment of your written report, if your oral presentation is either stellar or awful, I will also take its quality into account in arriving at a mark for the project.

As soon as you have settled on how you intend to organize this project (whether you will work alone or with others) please send me an e-mail stating your intentions (so that I can get together a plan for the last week of class, and let you know how long to plan for on the presentations). At the very latest, send me this e-mail by March 31.

I will keep the written reports (you'll be able to see my mark-up, but I want to end up with them).

Have fun!