The purpose of this project assignment is to provide MATH 4452 students an opportunity to be familiar with real applications of the modeling and analysis approaches that we studied in the course.

Your main goal is to discuss an application of mathematical modeling or of any one of the specific topics covered in class this semester. (Look ahead in the syllabus for the topics). The application can be in any fields or areas of your interest. You are required to write a report and give an oral presentation on this topic.

First, you have to decide on a particular topic or application you would like to discuss. There are two methods that you can do so.

- Go to the Briggs library and browse through any journals or books related to mathematical modeling or any specific topics that we covered in this course. Then come up with a topic to discuss.
- Or you can initiate an application project related to any topics that we covered in this course.

Whichever option you choose, you must make up your mind and have the topic ready by March 9, 2012. And I need to know which option and what topic you choose by that date.

Regardless of the types you choose, you will be graded in the same manner.

Your Project’s Grade: Your project consists of two parts, namely, a written report and an oral presentation in class, each of which is graded on a basis of 50 points.

Your Written Report: Of the total of 50 points, 10 points will be for neatness and organization of your written presentation, with the rest for substance. Your report should address the following issues/questions:

- Description of the problem, including some motivation as to why the problem is worth looking at (according to you or others). What was the problem being modeled? Briefly tell the story.
- The approach to solving the problem. For instance: What type of models or techniques were considered? What are the decision variables, and the objective function or cost matrix?
- Some results, analysis or conclusions. What methods were used to analyze the model? If a special analytic procedure was created for the study, briefly explain it.
- What results or conclusions came (could come) from application of the model and method? For example, was a million dollars saved by implementing the results? If it was not implemented in a real organization, are results provided for a case example, etc?

Format: Your final report should consist of several (≈ 15 – 20) neat pages, with text typed. You may hand write mathematics, tables and figures if they are neat. (The paper will be judged on its quality, not just the quantity or lack thereof.)

If you wish to retain a copy of your report, make one before you turn it in. All reports become part of the course’s archive within the Math Discipline for assessment purposes, and only a “Scoring and Comments” sheet will be returned.

Bibliography or references must be used and they can be in any format as long as they are well-documented with authors, dates and the source. (WWW URL alone is NOT sufficient.)

The skeleton of the report should contain at least these sections:

- Introduction, i.e. statement of problem, motivation.
- Approach to solve or model the problem.
- Results and analysis.
- Conclusion.
- References or bibliography
Oral Presentation: You will be responsible for preparing a 23±2 minutes talk in class about your project. This talk is intended to give you a chance to present some complicated ideas in such a way that your audience (who may or may not be knowledgeable in this area) will at least be able to grasp the big picture of the topic you worked on.

Your oral presentation should be prepared with the following attributes and outline in mind:

- Introduction
- Description of Problem/Project
- Substance & quality of mathematical level used, and connections between the project and the contents of the course.
- Organization & Clarity
- Enthusiasm
- Communication

Any presentation tools is acceptable; you will be judged on how effectively you used the tools and not on the type of tools you use.

A postscript note: The project must be done in an independent manner, i.e., the instructor will not be directly involved in your write-up of your report. (However, she is more than happy to give you suggestions, comments and feedback on what you have done at any stage of your project and before your final report is due. The instructor is also more than willing to give you suggestions concerning the oral presentations.)

Cooperation: Please be responsible in your use of the library