

Thursday projects

Thursdays for the weeks two through ten will be individual project day. Each Thursday you will be given a project to do by the following Tuesday. You will hand in your written solution, preferably written using LaTeX at the end of class, and during the class you will be randomly chosen to present your solutions on the board, with normally two or three people taking a turn. As you are presenting your classmates will help us all reach the optimal solution (there may not always be a “correct” solution.) You will then go away and write up solutions again, with the complete set of nine solutions due to be handed in on the Tuesday before thanksgiving, November 24th. The first solution you hand in will not be graded; it is more of a check that you are along the right lines, so you may consider this a draft. Of course, you may be asked to present your solution on any given day, so that is good motivation to answer as well as you can.

As with many parts of this course, a large part of the grade isn't just on the accuracy of the mathematics, but on how it is presented. You are not to consider your presentation to be given to a professor, but rather to an intelligent person to whom you are explaining your solutions. A good guide is to think if another math major/minor who hadn't attempted the questions would be able to understand the solutions.

These projects are designed to provide a bridge between the type of short answer math question with an “answer” you are used to and the larger more open-ended questions that typify mathematical modeling. Some questions will have an answer, some are more interpretive. You should consider more than just the answer however. What assumptions are we making? What errors are, or could be present? These are all things to consider as you work through the problems.

If you have got this far in mathematics you should know by now that shutting yourself away and working alone is rarely the best way to do it, and this class is no exception. However, as always you are responsible for your own solution. Given that you may be required to present your solution on the board you should be happy that you understand what you have written.

The topics we will cover are as follows; navigation, Greek astronomy, Medical problems, heredity, population growth, insects, supply and demand, gambling and ranking tournaments. I have tried to match up a little with the majors of those of you in this class, so you will notice a few biological type problems, while the last couple are more business/economics related.

If you have any questions about this portion of the class, please let me know.

Grading Rubric for individual projects

As noted in the syllabus 30% of your final grade is based upon your work in the individual projects. This 30% is in turn broken up as follows.

5% will be based upon the initial work your hand in. This is more a check that you are doing the work than a graded assignment. As long as you are honestly working away on the projects each week, this is the easiest part of the grade to obtain. Remember you are responsible for the work you hand in. If I believe it is not your own work you will not receive credit for the assignment and an academic honor case may result.

10% will be based upon your in-class participation. This in itself is made up of two pieces. The first will be the quality of your actual presentations. The accuracy and appropriateness of the mathematics that is used will be judged and the quality and clarity of the presentation. Further the level of interaction you display when your peers are presenting will also be graded. This means asking questions and holding each other accountable for your work at the board. If another student is at the board and says “It is obvious that...” but it is not obvious, say so. Your experience in seminar should have prepared you for this. Just because you spoke does not mean you contributed to the discussion. However asking good questions and holding each other accountable does.

15% will be based on your final write-up. This is due to be handed in on November 23rd, the last class before thanksgiving. This should be a complete set of solutions to the nine worksheets, neatly presented in some kind of binder. Keep in mind that this will be an extensive piece of work and therefore you should not wait until the weekend before to work on it. The grading will look at the neatest and accuracy of presentation and the accuracy and appropriateness of the mathematics. This is a significant proportion of your overall grade and should be approached as such.