

MATH 2101 (Ng/Fall 2008)
Applied or Discovery Project
September 8, 2008
Report Due: December 3, 2008.

This main purpose of this assignment is to provide Math 2101 students an opportunity to familiarize with a few real-world applications of Multivariate Calculus.

Your main goal is to discuss one of the following *applied* or *discovery projects* listed below from the text. You are required to write a report of your results.

First, choose another person you would like to work with on this project.

Second, you and your group partner have to decide on one particular *applied* or *discovery projects* from the list below. Browse ahead in your text and see which specific topic interests you the most.

1. Geometry of a tetrahedron - pg 830
2. *Kepler's Laws* - pg 884
3. Designing a dumpster - pg 969
4. Rocket Science - pg 977
5. Hydro-Turbine Optimization - pg 979
6. The intersection of three cylinders - pg 1041
7. Roller Derby - pg 1048

You **must** have your working partner(s) and your topic selected by **September 12**. To avoid duplication of projects on the same topic, I need to know what you are planning to do and who your group partner is by that date; please **email** me that information by September 12. Whoever emails me first will get her or his first choice of the topic.

Your Project's Grade: Your project is worth *50 points*, which is the same as half an exam.

Evaluation of 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 of content especially on the quality of the mathematical level of the project.

Your report **MUST** address the questions raised in the description of the topic. You should also think of additional issues related to your specific topic as well, and include them in your report. Also, the problem(s) or application(s) you are dealing with should be clear in your report.

Format: Your report should consist of a few neat pages, with text typed. You may hand write mathematical formulations, tables and figures if they are neat. (The paper will be judged on its **quality**, not just the **quantity** or lackthereof.)

If you wish to retain a copy of your report, make one before you turn it in.

If you use any references from other sources, then the bibliography or references **must** be included and cited with the name(s) of authors, the dates and the source. (WWW URL alone is **NOT** sufficient.)

P/S: Based on prior data and experiences, it is a **BAD** idea to wait until a few days before the due date to start on your project.