Overall plan

There are 41 class sessions and 14 laboratory sessions in the Spring term. 6 sessions are reserved for two midterm exams and four reviews. So there will be 35 substantive sessions. The term is divided into three phases, each phase culminating in a review session and an examination.

**Phase I Functions and their Derivatives**
Begin: Monday January 5th  
End: Friday February 6th  
14 sessions, 5 labs.  
Review I, Wednesday February 4th  
**Exam I**: Friday February 8th.

**Phase II Motion, Vectors and Parametric Equations**
Begin: Monday February 11th  
End: Friday 19th March  
15 sessions, 5 labs.  
Review II, Wednesday 17th March.  
**Exam II**: Friday 19th March.

**Phase III Applications of the Derivative**
Begin: Monday March 22nd  
End: Friday April 16th  
12 sessions, 4 labs.  
Review III, Wednesday 14th April and Friday 16th April.  
**Final Examination**:  
Week beginning Monday 19th April; place and date to be set; two hours.
• Classes

**CRN 00643 George Sparling sparling@twistor.org**
Three classes a week in BE621: Mondays, Wednesdays and Fridays: 12.00-12.50pm.

• Recitations

**CRN 00718: Marie Hufford mahst61@pitt.edu**
Each Monday: 1.00-1.50pm in BE621.

• Laboratories: Sparling, Hufford
Each Friday: 2.00-2.50pm in BE621.

**Grading**

Your grade will be curved and based on your total score only, if you pass the Final Exam, except that the Mathematics Department’s one-letter grade rule will be in effect:

- Your final grade cannot be better than your grade in the final by more than one letter grade.
  So, for example, if you get a C on the final, the best grade you could get would be a B+.

- If you pass the Final (i.e. C or better), you can expect a grade in the range A+ to B-.

- If you fail the Final (i.e. C- or worse), you can expect a grade in the range C+ to F.

**Grading scheme**

<table>
<thead>
<tr>
<th>Category</th>
<th>Detail</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team and Personal Dossiers</td>
<td>3 phases at 100 points per phase</td>
<td>300</td>
</tr>
<tr>
<td>Graded Homework assignments</td>
<td>Best 12 of 14 at 25 points each</td>
<td>300</td>
</tr>
<tr>
<td>Quizzes:</td>
<td>Best 5 of 6 quizzes at 30 points each</td>
<td>150</td>
</tr>
<tr>
<td>Midterm exams:</td>
<td>2 at 125 points each</td>
<td>250</td>
</tr>
<tr>
<td>Final exam:</td>
<td>1 at 200 points</td>
<td>200</td>
</tr>
<tr>
<td>Maximum possible score:</td>
<td></td>
<td>1200</td>
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Guiding Principles

At all stages the development of your intuition will be fostered: use of pictures, relation to the real world, extrapolation from simple examples to the general case. Rigor will be maintained, but at a reasonably informal level (no $\epsilon - \delta$s). Numerical approximations will be discussed and used. Whenever possible, the errors in such approximations will be analyzed.

Problem solving skills will be developed. Word problems from real life and connected to the other courses in the integrated curriculum.

At least four kinds of technology will be available to you: graphing calculators, Microsoft Excel, Maple and Matlab. You will be encouraged to be selective in your use of technology, learning to use the right tool (or no tool at all) to achieve the desired result. Every effort will be made to ensure that you are comfortable with the various calculational aids. However at the same time, we are determined to provide a solid grounding in mathematics: we will try not to confuse the tool and the theory.

Throughout the term, you will be required to maintain a dossier of computer workbook files, together with written work, containing the results of projects completed in class and at home, either individually, or as part of a team. Some projects will be returned to as more theoretical tools or more data become available for the student to use. You should submit your dossier at the end of each Phase and at the end of term, for grading.

Typically, computer assignments for each class will be carried out in teams of three. Some provision will be made for rearranging teams, if necessary, at the end of each Phase of the term.

The course material will be written up in HTML and be available on the Web. All computer and homework assignments will be written up for the Web, so as to be available at all times.