General Information

1.1 Important Dates, Times, & Materials
- This class is dual listed as both MATH 4820, CRN 95164 and CSCI 4820, CRN 95377.
- Time & Location: Tuesday & Friday, 8:00 - 9:50 AM; Sage 4101
- Office Hours: My office is in 311 Amos Eaton. My office hours are 10:00 - 11:00 AM Monday-Thursday. I am also available by appointment.
- Course Materials: Our textbook is “Introduction to Computation and Modeling for Differential Equations” by Lennart Edsberg. I will also use material out of “Introduction to Numerical Methods in Differential Equations” by our own Mark Holmes and “Finite Difference Methods for Ordinary and Partial Differential Equations” by Randall LeVeque.

1.2 Communication
I will periodically send out messages through Blackboard. You are required to check Blackboard regularly for any class information sent this way. The best way to contact me is by email or in person.

1.3 Prerequisites
The formal prerequisite for this class is NUMCOM (MATH 4800). While the material presented in this course does not directly build upon 4800’s material, general familiarity with the issues in floating point arithmetic is assumed, as is a certain level of mathematical maturity.

1.4 Enrollment Policy
If you are not on the official class roll then you are not in the class. It is your responsibility to ensure proper enrollment in the class section you attend. For no foreseeable reason will you be allowed to stay in the wrong section. Your work will not be graded if you are not on the class roll. Simply attending a section will not entitle you to be placed on its roll.

2 Assignments and Grading

2.1 Grading Policy
Grading will be done by either myself or my grader. I may, for longer assignments, not grade every assigned problem. Please address all concerns about grading promptly. I will not consider requests submitted any later than two weeks after an assignment is returned.
2.2 Homework

I will assign homework throughout the semester. Homework will usually be due on Fridays and will be posted on the course Blackboard page. I provide homework assignments in “worksheet” format for your convenience but you may work on your own paper (or type the assignment) if you prefer.

Homework in this course will be given as a mix of programming and “pencil and paper” assignments. I currently plan on running all student submitted codes on a workstation. I expect submitted code to meet the following requirements:

- I will accept code written in either MATLAB or Python. Please use version 2.7 of Python (that is the version I have available on my workstation). If you choose to use Python, then I will expect you to use the matplotlib, scipy, and numpy libraries. Any recent version of MATLAB (last five years) should be fine.

- Code should be indented according to the standards of the respective language (i.e., whatever MATLAB’s editor does when calling the ‘indent’ function, and what is specified by pep8 for Python).

- Code should not raise a large number of lint warnings (i.e., results of the pylint program should be above 7.0/10.0, and MATLAB should not show lots of yellow flags.).

- Code should not contain commented out lines. If you wish to compare multiple versions of your program then please use version control.

- Code should use reasonable variable names (descriptive, but not verbose).

- Code should perform reasonably well. Test cases provided by the assignment should run in just a few seconds unless otherwise noted.

- MATLAB code should not use functions like system, unix, or eval for reasons of security. Similarly, Python code should not use input, eval, or any of the subprocess functionality.

I will take off points for egregious violations of the style guides above (e.g., do not use i, ii, iii, and iiii as local variables. Yes, someone did that.)

I will not accept late homework assignments, but I will drop your two lowest homework scores when calculating your final grade. In particular, if programming assignments are due at midnight, I will not consider work submitted at 12:01 AM. It is your responsibility to turn in such assignments at a reasonable hour. I will always accept homework early.

I recommend collaborating with other students on homework assignments. However, you must submit your own, original work that accurately reflects your own understanding of the material. I consider violations of this policy to be the highest breaches of academic integrity and such violations will land you in the office of the Dean of Students with the recommendation that you be expelled from the class with a failing grade.

2.3 Exams

You must take exams on the specified date. In general, makeup exams will not be given. If you miss an exam for reasons that are serious, unavoidable, and beyond your control, I may allow for you to take a makeup exam.

The final exam is a required class meeting that will not be rescheduled for discretionary reasons, including conflicts with work schedules, conflicts with other classes and exams at other colleges, and travel plans.

I will give two in class exams and one final exam. The grade on the final exam will replace your lowest exam grade if that is to your benefit.

You may not use any sort of textbook, notes, or electronic calculators on the exams. I will permit the use of mechanical calculators (slide rules, abacii, etc.) on exams but these should not be necessary.
2.4  Grading Percentage Summary

- Exams: 40% (two exams weighted equally)
- Final Exam: 25%
- Homework: 35%

3  Special Accommodations & Class Conduct

3.1  Special Accommodations

If you need adaptations or accommodations because of a documented disability, have emergency medical information to share with me, or need special arrangements in case the building must be evacuated, then please talk with me as soon as possible.

3.2  Class Conduct

You and your classmates are entitled to learn in an atmosphere of mutual respect and freedom from distractions and disturbances. The following guidelines are in effect for this class: students are expected to arrive on time and stay until the class is dismissed (with the exception of a short break halfway through the lecture). If you know ahead of time that you will be late or leave early, then you should let me know in advance, sit near the exit, and leave (or enter) quietly.

Talking to classmates (apart from group assignments) is disruptive to the class as a whole. Please direct questions to me and not your neighbor. Reading magazines, newspapers, or books while in class is inappropriate. Cell phones must be turned off or silenced (not set to vibrate) before entering the classroom. You should be respectful of other students when they ask questions; if one student has a question, then typically many other students silently have the same question.

3.3  Honor Code

You may find it useful to read http://homepages.rpi.edu/~laynel/pdf/articles/cheating_oped.pdf. I recommend reviewing the relevant parts of http://www.rpi.edu/dept/doso/resources/judicial/docs/2014-2016RPIHandbookofStudentRightsandResponsibilitiesAUGUST2014.pdf as well. As a summary, I provide this compatible statement as the 4820 honor code:

The Rensselaer Academic Integrity policies apply to this course. You are responsible for understanding these policies. All assignments, exams, and quizzes submitted will be considered graded work and must be completed (with a slight exception for homework; see subsection 2.2 of this document) on an individual basis. Copying solutions or parts of solutions from any source is a violation of the honor code, as is sharing your solution with such intent with others. Specifically, this policy prohibits the revising, rephrasing, or inclusion of work from any source prepared by anyone other than yourself. If you have any questions about how these policies apply to a particular solution, then it is your responsibility to ask.