COLBY COLLEGE
Department of Mathematics
and Computer Science

MA332 **Allen B. Downey**
Fall 1998

Syllabus

- Professor: Allen B. Downey (abdowney)
- Office: Mudd 417, x3672
- Class time: TR 2:30–3:45, Mudd 416
- Textbook: Faires and Burden, *Numerical Methods*, 2nd edition, Brooks-Cole, 1998. This text is available in the bookstore.
- Additional Text: Monagan, Geddes, Heal, Labahn and Vorkoetter, "Maple V Release 5 Programming Guide." This text is not in the bookstore, but it is available from both Amazon and Barnes and Noble.
- Mailing list: the mailing list for the class is ma332@colby.edu As soon as possible, you should send email to majordomo@colby.edu with the following text in the body of the message: subscribe ma332.

  You should receive confirmation that you have been added to the list. I will use the mailing list to distribute some class information, especially last-minute corrections and things like that. I also encourage students to use the mailing list to contact each other, ask questions, make suggestions, or anything else, as long as it pertains to the course.
- Class-related email: I don't use a Macintosh or a Windows NT machine, so please don't send me attached documents in formats other than plain text.
- Web page: The handouts that I produce (as opposed to the ones I photocopy from other sources) will be available from the class web page. The URL is http://rocky.colby.edu/ma332

1 Coursework

Work in this class will include readings from the textbook and from additional sources I provide, weekly assignments, two one-hour exams, a final exam, and in-class activities including collaborative exercises and written quizzes.

The total course load is intended to be 12 hours per week (including class time); the load should be spread evenly across the semester.

- Grading: Final grades are determined by the weighted average of exam scores (15% for the two one-hour exams, 30% for the final) and homeworks (40%). I reserve the right to adjust final grades based on in-class participation, quizzes and other factors.

- Exams: The two midterm exams are scheduled for Thursday 8 October and Thursday 12 November. The final exam is scheduled for exam slot 5. There will be no makeup exams for any reason. If you miss a midterm for an extremely legitimate reason, your final grade will be based on the other exams. If you miss a midterm without a legitimate reason, you will receive a zero. If you miss two midterms for any reason, you cannot pass the class. If you miss the final exam for an extremely legitimate reason we might be able to work something out.

- Assignments: We will have weekly assignments that are meant to give you an opportunity to apply and practice the material we cover in lecture. You will get the most benefit from these assignments if you work on them alone, although you are of course free to discuss the problems with other students and me.

In any class like this, it is difficult to draw a sharp line between accceptable and unacceptable forms of collaboration. Here are some guidelines that might help:

Plagiarism: It is never acceptable to present someone else's work as if it were your own. Unless stated otherwise, I will assume that all work you hand in is yours and yours alone. If you ever find yourself in a gray area, it is always safest to acknowlege the people you worked with.

Self-deception: If you get a lot of help with an assignment, it is easy to convince yourself that you are learning the material when you are not. Be careful.

2 Approximate calendar of topics

We will be following the order of presentation in the book for the most part, covering about one topic per week.

Topic 1: Solving equations of one variable.
Topic 2: Splines and parametric curves.
Topic 3: Numerical integration.
Topic 4: Numerical differentiation.
Topic 5: Initial-value problems.
Topic 6: Systems of linear equations.
Topic 7: Least-squares curve fitting.
Topic 8: Eigenvalues and eigenvectors.
Topic 9: Systems of non-linear equations.
Topic 10: Boundary-value problems.
Topic 11: Random-number generation.
Topic 12: Fourier transforms.

We might do Fourier transforms earlier, just to make sure we get to them, cause they're pretty cool.