Syllabus for Honors Calc 2, MAC3473, of 1995

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Entrance. (In 1995, the main Math Dept. was still in Walker Hall.)

Text: *Calculus with analytic geometry*, 5th ed; by Robert Ellis & Denny Gulick.

Overview. We'll cover chapters 6–10, with emphasis on Taylor Series, ch. 9. Occasionally I will expand on what the text covers (primarily in the section on Taylor Series and Conic Sections) and of course you will be responsible for this material.

Notebook. Please obtain a 3-ring binder in which to place all hand-outs, your exams, solution sheets, and other materials. Always bring the notebook to class.

I know that the textbook is heavy (*sigh*). Nonetheless, it will help you if you bring your text to class (or arrange to share a copy in the classroom with a classmate).

Exams. There is no final exam. We will have three take-home exams, A, B, and C, on which you will work in teams (that I assign, randomly) of three students (or two students if the class-size is not divisible by three).

Exams A and B, in addition to the "take-home" component, will have an "in-class" component on which you work individually. The in-class will generally take place about a week after the take-home is due.

The teams will change for each exam. The write-up for each take-home must be carefully done: It must be typed (preferably on a word-processor) and written in complete, grammatically correct sentences. Any pictures you draw must be carefully done. If you wish, you may use the program *Maple* (which is available on our computer system) for help with visualization.

Some Requirements. Within a few weeks, I will arrange that all of you have a computer account on the math-dept. system. You will need to learn *how to read* and *how to send* email. Manuals on using email are in the computer lab. Homework and special assignments will be primarily distributed by email. I will ask that you read your email at least thrice weekly, on M,W,F sometime before class.

I will collect homework sporadically. While I will (usually) not grade it, I will whenever asked present a solution in class or email to the class a solution.

Your class participation is crucial. I will ask each student to present solutions to homework problems on the blackboard. This, together with homework as well as your comments/questions in class and during office hours, will comprise the "participation" component of the grade you earn.

Exam A   3 letter grades.
Exam B   4 letter grades.
Exam C   3 letter grades.
 Class P   2 letter grades.

The average of these is the grade that you have earned for the course.

Your computer account will make available to you the computer program *Maple*. It can do symbolic calculations, graph functions, draw conic sections, calculate Taylor Series, compute inverse-functions —it generally makes mathematical computations easier. You are *not required* to use *Maple*, but it is available for your use if you wish to learn how to use it. The lab has manuals and a tutorial. In addition, I will mail out solutions to homework problems as commented *Maple* computations. Then you can verify the solution by simply cut&pasting my solution into a *Maple* window. This should make learning *Maple* relatively easy.

General comments. Make arrangements with several classmates so that –in the unfortunate event that you miss a class– you are able to get complete notes, changes in exams dates, and so on. This is especially important since we will occasionally do material which is not in the text.

On Monday, I will hand out a sheet with homework assignments and the dates of the exams.

Useful Books. A superb reference (which, for a later course, has an excellent section on multi-variate calculus) is *Calculus*, vols. 1 and 2, by Tom Apostol. Clearly written, its arguments are presented in detail. Call# 517 A645c2.

Calculus, 4th ed., by Larson, Hostetler, Edwards. A standard text, well written, but with few proofs.

An excellent reference on the fundamentals, written on a higher-than-usual level, is *Calculus* by Michael Spivak. This has a careful treatment of what a real number *is*. Call# 515 S761c.

A good and challenging book is *Introduction to calculus and analysis* by Richard Courant. Call# QA303 .C838 1989

Books to inspire a delight in Mathematics.
Mathematical Plums, Ross Honsberger. QA7.M34447

Mathematical Gems (I, II, III) Ross Honsberger. QA 241 .H63

Mathematical Circles Revisited and *Mathematical Circles Squared*, both by Howard Eves.

Conclusion

Please remember that you are permitted –indeed, encouraged– to work on homework problems together. I may assign some communal homework projects. Calculus, when taught well, is a fascinating subject. When reading science articles in the newspaper or textbooks in scientific subjects, keep your eyes open for examples where calculus was used in a significant way to solve a real-world problem. Then bring this example to class —and teach me something! *J. King*

Filename: `Classwork/2Calculus/2Calc1995t/syll.2Calc1995t.latex`

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