Math 240 Summer 2010

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I will post all of the course materials (notes and solutions) on the above website.

Grade Breakdown

The final grades will be calculated based on the following weights:
- HW - 10%
- Quizzes (there will be two) 10% each
- Midterms (there will be two) 20% each
- Final 30%

Rough Schedule/Important Dates

Date	Stuff
July 6th	Vector spaces, linear independence, span, matrices and linear maps
July 7th	Systems of equations, row reduction, rank, row echelon form
July 8th	Matrix inverses, transposes, determinants
July 12th	Eigenvalues and eigenvectors, diagonalization
July 13th	More time to work on linear algebra
July 14th	Initial value problems, linear equations with constant coefficients (homogeneous and nonhomogeneous)
July 15th	Quiz 1 - Method of undetermined coefficients and spring problems
July 19th	Finish springs, Cauchy euler
July 20th	Start systems of linear equations
July 21st	Review for test
July 22nd	Midterm 1 (on chapters 8 and 3)
July 26th	Finish systems of linear equations, some phase portraits
July 27th	Power series, series solutions to ODE's, Series solutions about singular points
July 28th	Finish series solutions, vector functions, partial derivatives, gradients, directional derivative
July 29th	Quiz 2 - Tangent lines and tangent planes, divergence and curl, line integrals, independence of path
August 2nd	Double integrals, polar coordinates, Green's theorem
August 3rd	Surface integrals and Stokes' theorem
August 4th	Review for test
August 5th	Midterm 2 (on chapters 10,5, and probably parts of 9)
August 9th	Triple integrals, divergence theorem
August 10th	More time to work on vector calculus
August 11th	Review for final
August 12th	Final Exam

Keep in mind that this is all an estimation of some one who has never taught

a course before (so things might change a lot!) but I will try to follow this as best I can. If we end up needing more time the review days (or parts of them) would go.

Class Format

The general format of the class will be a lecture most days, but beginning with a quick review of the last class as well as a time to answer questions people have about homework or previous classes. I'm guessing this will take anywhere from 10-40 minutes (depends on how much time we have). If we need more time I'll have an extra office hour. The way I set up our lecture schedule I have a few empty days in which I'd like to have a review in which the class participates and solves the problems together. All tests/quizzes will be on Thursdays (every Thursday, in fact).

Homework

The homework will be due each Tuesday. I'll assign problems after each lecture depending on how far we get. The homeworks will only be based on the lectures from the previous week, so the assignment will be completely determined by Thursday or perhaps Wednesday of the previous week. I will assign more problems than I will ask to be turned in to me (and grade them for correctness). I encourage you to do all of the problems since it will be more practice for you and also I will tend to base many test/quiz questions on assigned homework problems as a reward for those that took the time to practice them. I encourage you to work with others but everyone will need to write up their own assignment.

Quizzes

There will be two quizzes. Each will be either 2 or 3 questions and you will have 30 minutes to complete it. I will post solutions online. The quizzes are on Thursdays and will be based on material at most up to and including the lecture on Tuesday, giving you a night to consider the material and come to me with possible questions on Wednesday. Exactly what they are on will be determined once we get there. These questions will be similar to homework problems.

Tests

There will be two midterms. They will be 8-12 questions and you will have the entire 2 hour period to complete them. I will again post solutions online. There will be no multiple choice outside of the occasional true or false questions, and partial credit will be awarded. A couple of the questions will be a little more difficult than on the quizzes.

The final will be cumulative and will probably be 10-12 questions and structured similarly to the midterms. The course is basically split into 3 main topics: linear algebra (chapter 8), differential equations (chapters 3, 5, and 10), and vector

calculus (chapter 9). Expect the same number of questions on each of the three main topics.

Office Hours

I'll be holding office hours at least twice a week. I plan to have office hours on Monday (night before HW is due) and on Wednesday (night before quizzes/tests) and also by appointment (i.e. ask me!). This class is going to be quite fast paced so I strongly encourage you to come ask me for help if something is confusing you. Don't be afraid of how simple the question is (I've asked some pretty silly questions myself and continue to do so).

Remarks

•I plan on writing up notes for each lecture and posting them on my website. Since I write in all caps I tend to write very SLOWLY on the board so I will tend to rely on saying things out loud without writing them sometimes. This is one reason why I'm posting these - in case you didn't write down an important point that I never wrote in lecture. Personally I find taking notes a distraction from learning since I can't multitask, which is another reason. Also, I'm thinking about including (especially in the linear algebra) more details and proofs that I won't talk about in class for those who want to understand the material better.
•The main reason why I plan on typing up detailed solutions to all of the quizzes/midterms is so that we don't need to spend much (if any) time going over them in class. I want to make sure that we have time to go over all of the material and also do plenty of examples and review sessions, so make sure to read these solutions BEFORE class the next week. I imagine we might go over a couple of the problems people had more difficulty with, but we will not go over the entire quiz/midterm in class on Monday. Remember you can always come to my office hours for individual questions about the tests. Also, the solutions make it so that you can make sure that I graded them correctly!
•I will be grading everything (HW/quizzes/tests) with the usual 90-100% = A, 80-89% = B, etc. grading scale in mind. For this reason, if your overall grade (calculated with the weights stated on page 1) falls into these percentiles you will get AT LEAST that grade. In other words, the curve (if we even have one) can only help you. I hope this helps alleviate to some degree the amount of grade uncertainty that seems to come with every Penn math course.
•On quizzes, there will be no cheat sheets allowed - I will provide formulas if necessary. For the tests I will give everyone an index card to use for formulas on which you can write front and back.