MATH 544 H01
SPRING 2018

Monday and Wednesday 2:20 p.m. to 3:35 p.m.
Place: LeConte 115

Instructor: George F. McNulty
Office: LeConte 302
Phone: 777-8437 (Office)
781-9509 (Home)
e-mail: mcnulty@math.sc.edu
Office Hours: 11:45 a.m. to 2:00 p.m. Monday, Wednesday, and Friday
(Actually, anytime is great except Friday morning and Tuesday and Thursday afternoon.)

Text: Finite Dimensional Vector Spaces
Author: Paul Halmos
We will cover most material in the textbook, except Chapter IV.

Midterm Exams: Wednesday 7 February
Wednesday 7 March
Thursday 18 April

Final Exam: Monday 7 May at 12:30 p.m.

The main outcome of your work in our course should be an increased ability to read and understand mathemtical definitions, theorems, and proofs concerning vector spaces and linear transformations between them.

By the end of the course, each diligent student should be in a position to comprehend the essential concepts of linear algebra, to preceive where these concepts arise in other parts of mathematics, and to compose proofs at the heart of the theory of vector spaces.

While I plan to give lectures, some of our time in class will be spent in discussion and working in small groups. For this reason, active personal participation is a key to the course. Your attendance and efforts will be needed during every meeting of the class.

Homework is at the heart of our course. Generally, an assignment will be due at the beginning of every class. Homework will be collaborative. The class will be divided into small teams for the purposes of homework.

Every one of you is welcome to come to my office at anytime. I will generally be in every day from 19 am until 5 pm. While I have other responsibilities, your success is my first priority. Most of the time I will be able to set aside whatever I am doing, so don't hesitate to visit my office.

I hope you will find our course enjoyable, informative, and useful.

How Course Grades Will be Determined

The objectives of this course can be broken down into 12 sorts of problems. Samples of these 12 sorts are attached below. The course Final will resemble this collection of sample problems. In turn these 12 sorts fall into two categories: core problems and those which lie outside the core. Your grade for the course will be determined by how well you display mastery of these problems. For each sort of problem I identify three levels of performance: master level, journeyman level, and apprentice level. The examinations given during the course provide you with opportunities to display your level of performance. These examinations will all be cumulative. The First Midterm will probably have 4 problems, the Second 8 problems (with 4 being variants of the ones occurring on the First Midterm), and the Third Midterm as well as the Final will probably have 12. I record how well you do on each problem (an M for master level, a J for journeyman level, an A for apprentice level) on each exam. After the Final, I make a record of the highest level of performance you have made on each sort of problem and use this record to determine your course grade. If you have at some point during the semester displayed a mastery of each of the 16 sorts of problems, then your grade will be an A. If you have at some point during the semester displayed a mastery of each of the core problems, then you will get at least a C. The grade B can be earned by displaying mastery of all the core problems and mastery of about half of the rest of the problems. The grade D will be assigned to anyone who can master several problems but has not yet displayed a mastery of all the core problems. In borderline cases, the higher grade will be assigned to those students who turn in their homework regularly.

This particular way of arriving at the course grade is unusual. It has some advantages. Each of you will get several chances to display mastery of almost all the problems. Once you have displayed mastery of a problem there is no need to do problems like it on later exams. So it can certainly happen that if you do well on the midterms you might only have to do one or two problems on the Final. (It is not unusual that a few students do not even have to take the final.) On the other hand, because earlier weak performances are not averaged in, students who come into the Final on shaky ground can still manage to get a respectable grade for the course.

This method of grading also stresses working out the problems in a completely correct way, since accumulating a lot of journeyman level performances only results in a journeyman level performance. So it pays to do one problem carefully and correctly as opposed to trying get four problems partially correctly. Finally, this method of grading allows you to see easily which parts of the course you are doing well with, and which parts deserve more attention.

The primary disadvantage of this grading scheme is that it is complicated. At any time, if you are uncertain about how you are doing in the class I would be more than glad to clarify the matter.