Syllabus

UTK – M251 – Matrix Algebra

Spring 2006, Jochen Denzler, MWF 1:25–2:15, Ayres 102

Textbook: Howard Anton: Elementary Linear Algebra — Odd enough the book even has answers to even numbered questions. But we’ll get around this oddity.

Course contents: Basically, Ch. 1–7 of the book, with a few omissions, and a bit from Ch. 8, 9 blended in. I will cover chapter 3 before chapter 2, which is logically possible and will allow to get a motivation for determinants. See special notes for an overview.

Grade: We’ll have 3 in-class and one final exam, and homework. They count towards the grade as follows: each in-class exam with weight 1, the final with weight 2, the hwk with weight either 1 or 2, whichever gives the better average for each individual. There is also a “staircase” track with yet higher hwk weight and special conditions available. Its purpose and rules are outlined below.

Note: I will NOT give an extensive review before in-class exams. This would encourage ineffective learning strategies. Make sure to assemble the material in your brain as a coherent and meaningful entity, not as a bag of of single tricks and skills. That’s more rewarding and prepares you better, and you’ll need to relearn less before the comprehensive final.

Homework: Each homework problem will be graded with either 0, 1 or 2 points, unless otherwise specified. This puts the responsibility on you to hand in decent solutions and do calculations correctly. You will typically not be able to find solutions in the back of the book, because I will make up my own problems. However you will find very similar problems (with different numbers) in the book. You can use them as needed; I will not assign gazillions of cloned problems for training ad nauseam; this should leave you time to think and breathe. But be aware that you must do some independent thinking.

There will often be ways how you can check the correctness, or at least the plausibility of your result. And the question “how can I check my answer to this problem, once I have found an answer?”, is a good question to ponder about, or to ask me if you don’t see it.

I may occasionally assign true/false or conceptual questions and then schedule a brief quiz with a selection, essentially, from these questions. A quiz question will then count as a homework question. But be sure that you understand, rather than memorize, the answers. I am determined and able to detect and defeat parroted answers. I am even more determined (and hopefully able;-) to help you in the office hour if you have difficulties in understanding the concepts (as indicated, e.g., by an urge to memorize).

Class Attendance: I do not take attendence formally; however you are responsible for the class contents. Relying on reading the book alone will not stimulate conceptual thinking and is therefore strongly discouraged. If you miss for a good reason, I’ll be helpful in catching up, but it shouldn’t be a regular habit.

I have scheduled regular office hours MWF 2:30–3:15 They may be rescheduled permanently if this serves a class need (or in rare circumstances one time with previous announcement, if I have conflicting obligations. You are also welcome to request an appointment at other times or drop in. However, I’ll reserve Tuesday as research day and will likely not be available on Tuesdays. Otherwise I accommodate drop-ins, whenever feasible, even though I cannot always guarantee immediate availability. My office is Ayres 317 E, phone 4-5325. Email is denzler@math.utk.edu, but I may not read it for half a day or for an entire weekend.

Staircase Track: I am generally conducting my sophomore classes in a way that forces you to develop a conceptual understanding, rather than merely doing problems by plug’n’chug and memorization. If you end up doing problems without really knowing what you are doing and why, then I have labored in vain. This approach has proven to be an opportunity both for strong students (obviously) and also for weak students who carry on diligently. But it is sometimes a bit laborious for me as well as for students, because school and freshman classes often condition students towards the opposite style of learning; and paradigm shifts are never easy. I have come to observe that some students in the lower half of the quantile withdraw too early and get discouraged too soon. If you feel you are being asked to make a jump that is dauntingly high and aspire primarily for a successful pass, the staircase track is provided as a safety net for you. Here is how it works: A formula which gives homework a weight 4 rather than 1 or 2 can be used to raise an otherwise lower grade to C or D (but not to higher grades), provided you (a) make the effort of regular class attendance, and (b) contact me with conceptual difficulties to get help, and (c) write an essay as extra credit work. This essay should explain pertinent facts, examples and counterexamples on issues where you had difficulties. It will serve as a tool to help you overcome confusions, and as evidence of your success to justify a passing grade. The subject of the essay will be negotiated to match your individual needs.

You may not need the staircase track in the end and get more than C by the regular formulas, if only you carry on with the confidence provided by the staircase.