

## Syllabus

### UTK – Math 247 – Honors Calculus III

Fall 2015, Jochen Denzler, MWF 2:30–3:20 HSS 104 & Thu 3:40–4:55 A 120

**Note about scheduling:** The Thursday slot is unfortunate for the Math Honors students, who are usually expected to attend the Junior Colloquium at that same time. The conflict was unavoidable this semester, the Math Honors Director is aware of it, and missing the JC because of Math 247 will not be held against a student.

If you claim a particular JC of exceptional interest to you, I'll cooperate with you to catch up with class material missed for that reason.

**Textbook:** You are not required to buy a specific textbook for this course, but I am aware that many students will find it convenient to have a textbook, and so I usually would recommend having one. If you come from M148 or M142 in Spring 2015, you may already have Rogawski. This book covers most of what I do in the course, but (as most Calc 1-3 textbooks) has a few mismatches for the purpose of this course; namely it is a bit skimpy in its use of matrix formalism and simplifies the 2nd derivative test for minimax problems in a way that obfuscates conceptual clarity. If you can live with this mismatch and rely on notes I am handing out, Rogawski (or similar books like eg Stewart) will work. The book that is the closest match to the philosophy of the course is by Marsden and Tromba: the title is 'Vector Calculus' (published by Freeman). There is no need to get the latest edition; rather I recommend to get an older edition for cheap. As I am writing this, I find the 4th and 5th editions (1993 and 1996) on amazon used with sufficient supply in the 5-30 dollar range.

The purpose of the textbook is that it should be a reference for you; preferably one that you'd like to keep for later and that should not bind so much capital such as to dissuade you from keeping it.

I will hand out some notes of my own (in a terser style than the standard textbooks), and I am making up my own homework.

**Technology:** You should have a calculator available as some homework may use a calculator. However, no calculators or technology will be allowed on exams.

**Course Contents:** Standard material of multi-variable calculus.

Note: In contradistinction to the regular course, I will introduce a small amount of matrices as useful for the notion of derivative and also minimax problems, and will maintain a geometric interpretation of the total derivative as distinct from the gradient.

**Exams:** There will be three in-class exams, about evenly spaced over the semester and announced at least 1 week ahead of time with precise date. The final exam is scheduled by university policy dependent on the class meeting schedule. In our case, this will be Tuesday Dec 08, 2:45-4:45.

*If you already have two exams earlier on that same day from other classes, please let me know asap, but at latest 2 weeks in advance. You may get your exam rescheduled in this case, in accordance with university policy.*

**Homework:** Is essential for the mastery of mathematics, in particular calculus; most of it will not consist of mere routine or drill problems (of which you can find many in any calculus textbook and peruse them as needed), but require some effort and thought. It is perfectly ok to come in with questions about the homework, and it is understood for this class, that peer discussion of homework problems is allowed and encouraged. Homework will be assigned on a flexible schedule, and the due date will normally be the second class meeting after the day of assignment, in order to allow for discussion of questions in the intervening class meeting.

I request homework submitted for grading to be written up individually, even if you collaborated in solving it. It is your responsibility to understand what you are submitting, even as you are welcome to use hints and ideas that arose from peer discussion or office hour help if you needed those hints. Enforcement of this distinction will simply be by the unavoidable fact that undigested homework would compromise your preparation for the exams.

**Homework Format:** Please leave decent margins in case they are needed for comments. Name on each sheet, then you don't need to concoct 'tear&fold engineering' to bind sheets together should a stapler not be at hand. Please avoid raggedy sides as from torn-out spiral notebook pages (if you ever had to handle a pile of those, you'll understand why).

Surprise: In Math, too, cleanly presented homework includes some plain English text explaining what you are doing; formulas and math symbols alone do not suffice to make mathematics.

**Grade:** Your grade is calculated based on

- three in-class exams (your weakest 10%, the other two 20% each),
- the final exam counting 30%,
- graded homework 20%.

At this time, I do not know whether a grader will be assigned for the homework. Depending on resources for grading homework, a spot grading policy may have to be established.

I will not curve more harshly than  $A \geq 90\% > B \geq 80\% > C \geq 70\% > D \geq 55\%$ , with + and - grades interpolated, but I may curve slightly more leniently, as difficulty of exams may vary a bit. Details outlined below under FAQ.

**Attendance:** Please make an effort to attend all classes, except for compelling reasons like sickness. Absences can affect your grade by adversely affecting mastery of the taught material. However, I will not police attendance. I will make an honest attempt to help you catching up from absences for compelling reasons on an individual basis (e.g., office hours), but will not cooperate in cases of negligence.

**Office hours:** My office hours are posted on my homepage <http://www.math.utk.edu/~denzler> (NOT the course webpage, b/c students from other classes may want to access the same office hour).

For now, the following apply: Office hours MWF 10:15-11:00 and 3:40-4:30. Thu 5:10-6:00. I may step out briefly during unattended office hours. As needs depending on student schedules become clearer during the semester, I may update the precise times.

I am widely available for drop in (at your risk of finding me available or not) or appointment at a mutually agreed time. Drop-in immediately *preceding* a class is however discouraged.

To make an appointment fitting your own schedule, send me an e-mail. I also accommodate evening hours, either in-office for early evening, or by skype for later evening.

**My coordinates:** My office is **Ayres 317, phone 4-5325**. Email is [denzler@math.utk.edu](mailto:denzler@math.utk.edu). Email does not guarantee immediate attention as I am not setting up a 'new e-mail ping' on my computer (and I am a happy user of a vintage cell phone that doesn't even do e-mail). I appreciate if your e-mail contains 'M247' as part of the subject line.

For issues that require immediate attention, please use my office phone number 865 974 5325, or send a \*brief\* ('vintage phone', remember?) text message to my cell 865 604 7173.

My home page is <http://www.math.utk.edu/~denzler/>

**Course website:** <http://www.math.utk.edu/~denzler/M247-Fa2015/>. This website is publicly accessible and will not contain material that needs confidentiality. I use the Blackboard system only for limited administrative purposes (mainly e-mail).

**Disabilities:** Students who may need formal accommodations based on documented disabilities should contact the Office of Disability Services 974-6087 in Hoskins Library. Independently any student who feels he/she may need arrangements based on the impact of a disability is welcome to contact me to discuss specific needs privately. *You are NOT required to divulge any personal information*, but be aware that sometimes information that students volunteer may help me accommodate them better.

The **Campus syllabus:** contains more info about ODS accommodations, as well as academic honesty and other issues. It is attached.

**FAQ:** “How do you convert percentages into letter grades?” Answer: The precise cutoff thresholds will be determined at the end, but you will gain an increasingly better idea about them as the semester progresses. This is done in the following way:

After each in-class exam is graded, I will tell you which number of points on that exam is the minimum for it to be considered an A, or a B, or a C, or a D. (You can imagine how the  $A-$ ,  $B+$  etc fit in between, roughly). There is a minimum commitment that the curving will not be harsher than what is outlined above under ‘Exams’, but it may be more lenient if the exam is more difficult.

There will be four virtual students on the class roster, called Amin, Bmin, Cmin, Dmin, who, by definition, will always have the minimum percentage for an A, B, C, D respectively, on each of the exams. The scores for Amin, Bmin etc on the final exam and in the homework will be determined after the final exam is graded, and they will be roughly consistent with the thresholds revealed earlier for the in-class exams.

You compete against these four virtual students. If your percentage is at least as high as that of Amin, you’ll get an A. If it is at least as high as that of Bmin, you’ll get a B or better, and so on. Cutoff thresholds for  $A-$ ,  $B+$ , etc will at this time also be set in between.

I intend to use the freedom retained in setting the final cutoffs only at the very end (as opposed to giving a fixed scale at the beginning) in order to avoid ‘awkward cutoffs’ where  $\frac{1}{10}\%$  difference would make a difference of 0.3 in the letter grade.

In exceptional cases (if material later shows up as clearly mastered in the final exam, after that same material had caused a bombed in-class exam for special reasons, like extended sick absences, family emergencies or similar), I may deviate slightly in favor of the student. Deviations disfavoring the student will not be made, except as penalties for academic dishonesty in accordance with applicable policies.