Syllabus — Math 241 Sections 4&5
Calculus I, Spring 2017

1 Professor and contact information

Professor: David Ross

Office: Physical Sciences Building (PSB) 319

Phone: 956-4673 (but I'm rarely around to answer this, and the voicemail is flaky - email is much better)

Email: ross@math.hawaii.edu

Course Website: www.math.hawaii.edu/~ross/241.htm

Professor Website: www.math.hawaii.edu/~ross

Office Hours:

Walk-in: MWF 11:30-12:20

Other times by prior appointment.

This document and the web site together comprise the 'manual' for the course. Be sure to read the manual before asking policy questions during the semester! Especially questions about grading policy...

2 General

Lecture: MWF, 1:30-2:20, in Keller 302. Attendance is mandatory (see below).

Discussion Section:

Section 4: Friday, 9:30-10:20, Keller 404

Section 5: Friday, 12:30-1:20, Keller 404

Web: You should check the website regularly for announcements, assignments, and (especially) handouts.

3 Grades, Policies, Etc.

Text: *University Calculus (Alternate Edition)* by Hass, Weir, Thomas. We will cover most of chapters 2-6 in the text. We will NOT be using MyMathLab, so don't pay for it!

Mid-term exams: There will be 3 of these. You will be not allowed to use a calculator (nor should you need them). I will permit a crib sheet (one side of one 8×11 sheet of paper) for the midterm exams (but not for quizzes, and we will provide our own formula sheet for the Final).

Final exam: Cumulative, worth roughly 1.5 times a midterm (see below).

Exam Schedule: Midterm 1: TBD (*see website*)

Midterm 2: TBD (*see website*)

Midterm 3: TBD (*see website*)

Final Exam: Wednesday, May 10, 12-2

Notice that the date for the Final Exam is set in stone; please do not schedule a family holiday at this time.

Homework: Assigned frequently and in great quantity, but probably not collected and graded. Homework assignments will posted on the website.

Quizzes: I will give regular quizzes based on the homework. Since the problems for these come from the HW, these will be graded to a very high standard. IN OTHER WORDS, DO THE HOMEWORK. If I get a sense from the quizzes that many students are not doing the HW, I might *also* start collecting and grading it.

More Quizzes: there will occasionally be 'pop' quizzes, usually at the beginning of class, to make sure you do any assigned reading. They will be easy if you do the reading. IN OTHER WORDS, DO THE READING.

Other: Your teaching assistant will have other learning activities in discussion section that will be graded according to rubrics to be discussed.

A *non-exam grade* will be compiled, based on HW, quizzes, and any other learning activities; this will be worth 15-20% of your semester grade.

Gateways: You will be required to take the *differentiation gateway* exam. You will need to get a nearly perfect score on this to earn a C or better for the course, and will have a limited number of opportunities to attempt this exam.

+/-: No plus/minus grades will be given.

Grades: Scores will be amalgamated at the end of the semester, and your final class grade based on the total. The actual process used to combine these scores into a final grade is somewhat mysterious, but proceeds roughly as follows: (a) All exams (midterms, amalgamated non-exam grade, and final exam) are renormalized to a common scale. (b) 50% of your lowest midterm, or $\frac{1}{3}$ of your Final Exam, *or* 50% of the non-exam score will be dropped, whichever is worse. (c) The scores are added together to get a first approximation of the grade. (d) A final grade is assigned based on this approximation, but the grade might be pushed up or down based on score trends, preponderance of evidence, attendance, etc., or the special conditions from the next paragraph.

Special conditions: (a) A student cannot pass by passing just one midterm (or the non-exam grade). For example, if a student receives an F on the final and 2 midterms, but a D or C on the third midterm, and the numerical average turns out to be a D, the student will still receive an F. (b) A student will not receive more than one letter grade lower than the Final Exam letter grade, unless the Final was borderline and the other scores were appreciably worse. For example, a student with a middle B on the Final Exam will not earn worse than a C for the semester. However, a student with a borderline B/C on the final, and midterms so low as to drag the cumulative average down to a D, will earn the D for the semester.

Partial credit: Any solution for any problem on any quiz or exam which is not 100% correct, with every step in the solution process clearly spelled out, will be worth zero points. However, I will often give some fraction of the credit (sometimes as high as 100%) for a partial or slightly incorrect solution, entirely out of the goodness of my heart. Please see the section below on cheating for a further discussion.

Make-up work: Make-up mid-term exams or quizzes will not be given under any circumstances. If you miss an exam, that is the exam that gets 50% dropped in the grade computation. If you have an *excused* absence, then your final exam grade will be substituted for the missing exam.

Cheating: Cheating will not be tolerated in this class. It is the student's responsibility to ensure that (s)he does not copy from another student, or let another student copy from him or her. If I have strong reason to suspect that some infraction has incurred, I will at the very least adhere strictly to my policy (above) on the granting of partial credit, and not give any to the suspected student(s); if the evidence is strong then I will take more serious action.

Attendance: Mandatory. I might take roll at random times, or use quizzes for the same purpose, and a final attendance grade will be computed based on attendance. The attendance grade will be used to help determine what to do with borderline grades. You are responsible for everything we do in class,even on days you do not attend. In particular, the make-up policy for any surprise quizzes I decide to give is the same as for midterms (ie, none permitted).

Cell phones etc: If you have a cell phone, the ringer must be turned off during the class. I find phones ringing while I teach very unnerving, and I will not be responsible for any unprofessional actions on my part if your phone rings during the class period. The same goes for other noise sources, including alarm watches that go off before the period ends, especially the ones that play music which I do not like.

Expectations: Please read the statement at the 'Academic Expectations' link at the class website. It will give you a sense of what I expect from you as far as work and personal responsibility.

Respect: A few insensitive people can easily (and inadvertently) irritate many classmates at one time. Please try to respect the personal space of others — in particular, try to limit classroom discussion to that which is appropriate for the class.

Laptops: Please close all computing devices (including phones) and do not use them in this classroom during lecture. Tablet PCs will be allowed for note-taking provided I can be sure they are not being used for anything else.

4 Content

Topics:

1. Limits and continuity
2. The Derivative, including differentiation rules
3. Basic theory: Extreme, Intermediate, and Mean Value Theorems
4. Applications of the derivative: related rates, curve sketching, optimization
5. Approximations: differentials and Newton's Method
6. Integration: definition and properties of the definite integral, including the Fundamental Theorem of Calculus
7. Indefinite integrals and differential equations
8. Integration by substitution
9. Applications of the integral: computing areas and volumes

Rubrics: Exams and quizzes will be written to conform as much as possible to the following rubrics:

- A C student should be master the basics in all of the above.
- A B student should in addition be able to handle harder problems, including applications and multipart problems that cross topics.
- An A student should also understand much of the theory (definitions and derivations).