Calculus III (Math 253)
Spring 2015

Meeting times: Mon., Tues., Wed., and Fri. 9–9:50pm in 195 Anstett

Instructor: Ben Elias
Office: Fenton 210, x6-5629
Office hours: M 2-3 and T 3-4
E-mail: `belias@uoregon.edu`
Course website: `http://pages.uoregon.edu/~belias/253-spring-2015/`
Midterms: F 4/24 and F 5/22. In class, 50 minutes.
Quizzes: There will be weekly in class quizzes, each Wednesday.
Final: Friday June 12, 10:15AM, 2 hours, in 195 Anstett.

Textbook: *Calculus: Concepts and Contexts, 4th edition*, by James Stewart. We will cover Chapter 8, and Section 6.8.

Topics we will cover: sequences, series, various convergence and divergence tests, power series and Taylor series, Taylor's remainder theorem, power series solutions to differential equations, probability.

Calculators: Neither calculators nor other electronic devices will not be permitted on any of the exams.

Grading and Exams: There will be two midterms, a final exam, and very short weekly quizzes. The dates of the two midterms will be decided on in the first week of class. There will also be a practice quiz (not for credit) before each midterm. The final exam is worth 40% of your grade, the midterms 30% together, homework 20%, quizzes 10%. Please bring your UO ID to all exams.

Prerequisite: Math 252 or the instructor's permission.

Homework and Quizzes: There will be homework due each Wednesday by the start of class, and assigned the previous Wednesday (first homework due W 4/8). Check the course website each week, where the problems will be posted. Late homework will not be accepted without *prior* permission. We will *not* be using Blackboard this term; all materials will be on the course website.

Each Wednesday that homework is due, a very short quiz will be administered at the beginning of class, on the same topic as the homework.

Learning Outcomes: The eventual goal of this course is to understand and use power series approximations of functions. Specific goals:

(1) Show sequences don't converge using the definition of a limit.
(2) Use standard series convergence tests.

(3) Estimate sums using the integral test, the alternating test, or the comparison test, depending on circumstances.
(4) Calculate radii of convergence for power series.
(5) Calculate Taylor series. Represent common transcendental functions as power series.
(6) Use Taylor's remainder theorem to approximate values of transcendental functions to given levels of accuracy.
(7) Give power series solutions to appropriate differential equations. Recognize solutions when common transcendental functions.
(8) Calculate probabilities by integrating an appropriate probability density function.

Learning Environment: The University of Oregon strives for inclusive learning environments. Please notify me if the instruction or design of this course results in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center in 164 Oregon Hall at 541-346-1155 or `uoaec@uoregon.edu`. If you are entitled to extra time on exams, make sure to contact the AEC more than one week prior to the exam!

Academic Conduct: The code of student conduct and community standards is at:

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`http://conduct.uoregon.edu`

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It is not appropriate to help each other on exams, to look at other students exams, or to bring unauthorized material to exams. Any type of academic dishonesty will not be tolerated!

In this course, you are encouraged to work on the homework problems with your colleagues. Math is a collaborative activity, and one which is easier to learn as a team. However, when it comes time to write up your homework answers, this should be done individually, without reference to any common solution or the work of others. By writing it up individually, you can really isolate those things you thought you understood in the group, but which did not make sense later. For example:

Ok: a study group works a problem on the blackboard, gets the answer. Erases the answer, each member tries to write up the solution individually, asks questions of the group when something goes wrong.

Not Ok: a study group works a problem on the blackboard, gets the answer. Members copy the answer from the board to their homework sheet, or write up the solution while referencing the solution on the board. This is cheating, even if credit is given to your collaborators (otherwise it is also plagiarism).

Attendance and Participation: If you miss a class, it is your responsibility to find out what happened in this class from your colleagues. Not all class material is in the book (nor is all material in the lecture either - homeworks are essential). If your grade is borderline between one grade and another, then attendance and participation will be taken into account.

OFFICE HOURS ARE A VASTLY UNDERUSED RESOURCE. I am stuck in my office, waiting to answer your questions, so please use the opportunity!

Please, do not hesitate to ask questions, either in class or in office hours. Chances are that if you are confused, so are many of your colleagues, and they will thank you for

speaking up. Office hours should be very helpful. If you can't make office hours, email me to set up an appointment.

I will create a google group for class announcements, which can also be used for communication between classmates. I do not plan to answer any mathematical questions by email - email will be used for administrative business. Mathematical questions are best asked to your classmates: it helps everyone learn!