Fundamentals of Analysis II (Math 317)
Spring 2018

Meeting times:	Mon., Wed., and Fri. 1–1:50pm in 154 Straub
Instructor:	Ben Elias
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Office hours:	TBD
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Preferred Pronouns:	he/him/his.
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Office hours:	TBD.
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Course website:	http://pages.uoregon.edu/∼belias/317-spring-2018/
Midterms:	Probably M 5/7. In class, 50 minutes.
Quizzes:	There will be two in-class quizzes, TBD.
Final:	Thursday March 22, 2:45PM, 2 hours, in 307 Deady.

Textbook: *Understanding Analysis, 2nd ed.*, by Stephen Abbott. Last quarter we covered chapters 1, 2, and parts of 3 and 4. We will cover the remainder of chapters 3 and 4, together with chapters 5, 6, and 7, and potential topics from chapter 8.

In advanced math classes, one should expect that important concepts can be introduced in the lectures, in the book, and even in the homework.

Note to students: This course is likely to be different from any you have taken before. I will not say that the material is harder than other courses, but it is certainly newer and in many ways weirder. Like any other new skill, it will take practice.

The homeworks will feel different than those in lower level math courses. They are not drills, designed to internalize a specific technique. Mostly, they are thought experiments, and each is unique. Homeworks are extremely important in this class, and will be worth a fairly high percentage of your grade. I want you to spend more time on them.

I strongly recommend rethinking how you approach homework for this class. If it were a graduate course, I would assign one or two problems each lecture, due the next lecture. Undergraduate schedules are more constrained so this would be unfair; I will assign weekly homeworks. But if you have the schedule, you'll be far more efficient if you try to do a few problems each day, or alternatively, if you look over the problems regularly and think about them, even if your group homework session is several days off. The homeworks are mental knots that need slow untying, and your brain will help you for free if you give it time.

Office hours: OFFICE HOURS ARE A VASTLY UNDERUSED RESOURCE. I am stuck in my office, waiting to answer your questions, so please use the opportunity! This class also has an assistant, Karl Schmidt, with independent office hours.

Please, do not hesitate to ask questions in class. If you are confused, so are many of your colleagues, and they will thank you for speaking up. But you will surely have more questions, and office hours should be very helpful. If you can't make my office hours or the assistant's, email me to set up an appointment.

It also helps everyone learn if you ask mathematical questions to your classmates. Canvas will be available for this purpose, and the course assistant will be checking Canvas as well.

Attendance and Participation: Attendance is mandatory for this class. If you miss a class, it is your responsibility to find out what happened from your colleagues. If your grade is borderline between one grade and another, then attendance and participation will be taken into account.

Grading and Exams: There will be one midterms, a final exam, and two quizzes. The final exam is worth 40% of your grade, the midterm 20%, homework 30%, quizzes 10%. Please bring your UO ID to all exams.

Homework and Quizzes: There will be homework due each Wednesday by the start of class, and assigned by the previous Wednesday (first homework due W 4/11). This includes homework due in week 10. Check the course website each week, where the problems will be posted. Late homework will not be accepted without *prior* permission.

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

`http://conduct.uoregon.edu`

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! Needless to say, using homework solution guides is not permitted.

In this course, you are strongly 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.

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

Prerequisite: Math 316 or the instructor's permission.

Learning Outcomes: The goal of this course is to begin a rigorous understanding of the concepts important in calculus. Specific goals are to understand these concepts:

(1) Compactness. Continuous functions and extrema.
(2) Uniform continuity. The interplay between continuity and compactness.
(3) The derivative. Proofs of familiar facts about the derivative. Darboux's theorem.
(4) Sequences and series of functions, and uniform convergence. Power series. Taylor series.
(5) The integral. The fundamental theorem of calculus.

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!