Math 3210 – 2   Foundations of Analysis I   Jan. 17, 2019

Credit Hours: Four

Meeting Time: MTWF, 10:45 – 11:35 AM in LCB 121 (JWB 333 on T).

Homepage: http://www.math.utah.edu/~treiberg/M3210A.html

Instructor: Prof. A. Treibergs, JWB 224, 581 – 8350.
                 Office Hours: MWF 12:45 – 1:45 (tent.) & by appt.
                 E-mail: treiberg@math.utah.edu

Prerequisites: "C" or better in ((MATH 2210 OR MATH 1260 OR MATH 1280
                 OR MATH 1321 OR MATH 3140) AND (MATH 2200 OR MATH 2270
                 OR MATH 2250)).

Text: Joseph L. Taylor, Foundations of Analysis, American
                 Mathematical Society, Providence 2012.
                 ISBN 978-0-8218-8984-8

Course Description:
                 Logic, methods of proof and mathematical argument in
                 mathematical analysis. Rigorous reconsideration of the
                 real-number system, infinite series and of continuity,
                 differentiation and integration for functions of one
                 variable. The emphasis is on improving the student's
                 ability to understand and explain concepts in a logical
                 and complete manner.

Topics: The theory of one variable calculus and the essentials
                 of the professional mathematician: logic, proof and the
                 writing of a mathematical argument. We will cover most
                 or all of the following chapters

     Chapter 0 – Review Sets, Logic, Quantifiers, Functions. (2 Lectures)
     Chapter 1 – The Real Numbers (10 Lectures)
     Chapter 2 – Sequences (9 Lectures)
     Chapter 3 – Continuous Functions (9 Lectures)
     Chapter 4 – The Derivative (8 Lectures)
     Chapter 5 – The Integral (6 Lectures)
     Chapter 6 – Infinite Series (6 Lectures)

Expected Learning Outcomes:
                 Upon successful completion of Math 3210 – Foundations of
                 Analysis I, students will be able to: Describe the real
                 line as a complete, ordered field; Determine the basic
                 topological properties of subsets of the real numbers; Use
                 the definitions of convergence to approximate by
                 sequences, series, and functions; Determine the
                 continuity, differentiability, and integrability of
                 functions defined on subsets of the real line; Apply the
                 Mean Value Theorem and the Fundamental Theorem of Calculus
                 to problems in the context of real analysis, and
                 master definitions and produce rigorous proofs of
                 results that arise in the context of real analysis, write
                 solutions to problems and proofs of theorems that meet
                 rigorous standards based on content, organization and
                 coherence, argument and support, and style and mechanics.

Teaching and Learning Methods:
                 Material will be presented in lectures and read from the
                 text and other sources. Students will solidify their
                 learning by solving problems assigned weekly. Students
                 will ask questions and present solutions in regular
                 classroom discussions. Students may benefit from one-on–

one instruction by consulting the instructor during office hours.

Evaluation Methods and Grading

Homework: To be assigned weekly.

Homework will be due Fridays and will be collected in class. Papers turned into my mailbox in the math mail room room (JWB 228) by 1:30 PM Fridays will be regarded as being turned in on time. Homework that is late but not more than one week late will receive half credit. Homework that is more than one week late will receive no credit at all.

Exams: Exams will be closed book except that you may bring a "cheat sheet," an 8.5" x 11" piece of paper with notes on both sides. Your text, notes, homework papers, calculators laptops, tablets, phones, text messaging devices, and other books will not be allowed.

Midterms: There will be three in-class one-hour midterm exams on Wednesdays Jan 22, Feb. 19 and Mar. 25.

Final Exam: Tue., Apr. 28, 10:30 am – 12:30 pm. Half of the final will be devoted to material covered after the third midterm exam. The other half will be comprehensive. Students must take the final to pass the course.

Course grade: Best two of three midterms 40% + HW 30% + final 30%. Grades will be assigned "on the curve."

Withdrawals: Last day to register is Jan.10. Last day to drop class is Jan 17. Until Mar. 6 you can withdraw from class with no approval at all. After that date you must petition your dean's office to be allowed to withdraw.

Student Responsibilities: All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, and I will do so, beginning with verbal warnings and progressing to dismissal from and class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. http://regulations.utah.edu/academics/6- 400.php

ADA Statement: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability & Access, 162 Olpin Union Building, 801-581-5020. CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability & Access.

Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which Includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veterans status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB,

801–581–7776. To report to the police, contact the Department of Public Safety, 801–585–2677(COPS).

Student Names and Personal Pronouns: Class rosters are provided to the instructor with the students legal name as well as Preferred first name (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your UIDcard, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email bpeacock@sa.utah.edu to schedule a time to drop by. The LGBT Resource Center hours are M–F 8am–5pm, and 8am–6pm on Tuesdays.

Wellness Statement:. Personal concerns such as stress, anxiety, relationship difficulties, depression, cross– cultural differences, etc., can interfere with a students ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801–581–7776.

Note: The syllabus is not a binding legal contract. It may be modified by the instructor when the student is given reasonable notice of the modification.