

UConn - Math 3150 - Spring 2019

Course basics

Course: Math 3150, Section 1

Course Name: Analysis 1

Semester: Spring 2019

Meeting Time: MWF 11:15 - 12:05am

Classroom: MONT 314

Office Hours: MW 1pm-2pm at MONT 304.

Instructor Contact Info

Murat Akman

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Required Text: Elementary Analysis: The Theory of Calculus by Kenneth A. Ross. ISBN 978-1-4614-6270-5, Springer; 2nd ed. 2013 edition (April 17, 2013).

Description of the Course: We will cover: Introduction (Chapter 1), Sequences (Chapter 2), Continuity (Chapter 3), Sequences and Series of Functions (Chapter 4), Differentiation (Chapter 5), Integration (Chapter 6).

Course website: <http://www.math.uconn.edu/~akman/math3150s19/index.html> for quizzes, assignments, and announcements.

HuskyCT: <http://www.huskyct.uconn.edu> for class announcements and grade sheet.

Grading policy: Grades will be calculated based on weekly quizzes and homework assignments and three midterm exams. Your cumulative average will be based on;

Quiz: %20, **Homework:** %10, **1st Exam:** %20, **2nd Exam:** %20, **Final Exam:** %30.

Important dates: Please check Academic calendar of UConn for Spring Semester 2018 at <https://registrar.uconn.edu/academic-calendar/spring-2019/> for important dates.

Exam dates: **1st Exam:** March 1, Friday, **2nd Exam:** April 5, Friday, **Final Exam:** To be announced by the registrar office.

Attendance: You are expected to attend classes regularly. You are responsible for everything announced in class including changes in the course syllabus.

Homework: Homework assignments will be announced on the course website every week on Fridays and will be collected in class a week after that (due next Fridays). Grading will be based on completeness of the problem but not on the correctness of the solutions. If you work all the assigned problems you will get full credit for that even if your answers are not complete or not correct.

You are encouraged to work together on homework problems, but you must write up your solutions **independently**. All students are responsible for writing their own written solutions, carefully citing and acknowledging sources.

Quizzes: There will be quizzes during the semester on every Fridays (except on the exam days). Questions will be from the assigned problems. Missing a quiz without a valid excuse(see valid excuses) will count as a 0.

Calculators: Graphing calculators (such as TI 82, 83, 85 or 86) are allowed but not necessary. But any calculators that can perform symbolic operations (such as TI 89 or 92) are NOT allowed.

Exams: There will be 2 exams and a final exam during the entire semester. **MAKE UP EXAMS** will be given only in case of a valid excuse (See valid excuses below). See also rules on exam rescheduling exams <http://guide.uconn.edu/student-interactions/rescheduling-exams/>.

Valid Excuses: The only valid excuses for missing an exam are a family-related crisis, a serious health problem, or you are on official UConn business travel. If this is the case, you will need a note from the appropriate Dean or University Health Services official and you should notify me as soon as possible. If you are a student athlete and if your team travel schedule conflicts with a scheduled exam please let me know ahead of time.

Letter grades: After your average is calculated, letter grades will be assigned based on the standard grading cut-offs. I may adjust the cut-offs, but it is guaranteed that the cut-offs will NOT be adjusted to make it harder to get a better grade.

Academic Integrity Policy: All graded material must be your original work. You are expected that you are aware of your individual responsibilities under the academic integrity policy of UConn at <http://community.uconn.edu/academic-integrity-faculty-faq/>. Violations of these policies will not be tolerated and will result in serious consequences and disciplinary action.

Special Needs: Students with disabilities are encouraged to share, in confidence, information about needed specific course accommodations. You may also contact the Center for Students with Disability as well <http://www.csd.uconn.edu/>.

Course Topics:

1. Introduction [Week 1 - January 23 - January 25]

- The Set \mathbb{N} of Natural Numbers
- The Set \mathbb{Q} of Rational Numbers
- The Set \mathbb{R} of Real Numbers
- The Completeness Axiom
- The symbols $+\infty$ and $-\infty$.

2. Sequences [Weeks 2-3, January 28 - February 8]

- Limits of Sequences
- A discussion about the proofs
- Limit theorems for sequences
- Monotone sequences and Cauchy sequences

- Subsequences
- \limsup 's and \liminf 's
- *Some topological concepts in Metric spaces [if time permits]

3. Continuity [Weeks 4-5, February 11 - February 25]

- Continuous Functions
- Properties of continuous functions
- Uniform continuity
- Limits of Functions
- *More on metric spaces: Continuity [if time permits]
- *More on Metric spaces: Connectedness [if time permits]

February 27: Review for Exam 1

Exam 1: March 1.

4. Sequences and Series of Functions [Week 7, March 4 - March 6]

- Uniform Convergence

5. Differentiation [Weeks 8-9 , March 8 - April 1]

- Basic Properties of the derivative
- The mean value theorem
- *L'Hospital's rule [if time permits]

April 3: Review for Exam 2

Exam 2: April 5

6. Integration [Weeks 11-13 , April 7 - May 3]

- The Riemann Integration
- Properties of the Riemann Integral
- Fundamental Theorem of Calculus
- *Riemann-Stieltjes Integrals
- *Improper Integrals