MATH 2710, Transition to Advanced Mathematics
University of Connecticut
Fall 2023

Instructor:
Vasileios Chousionis
Office: MONT 329
Email: vasileios.chousionis@uconn.edu
Webpage: http://www.math.uconn.edu/~chousionis

Lectures: TuTh 2:00 - 3:15 at MONT 113. Although not mandatory, attendance is strongly encouraged.

Office Hours: TTh 1:00-2:00.

Textbook: No textbook. Lecture notes will be available via Husky CT.

Recommended books for additional reading:

- *Introduction to Mathematical Thinking: Algebra and Number Systems* (1st Edition) by Will J. Gilbert and Scott A. Vanstone.
- *Book of Proof* (3rd Edition) by Richard Hammack, available online here.

Course Description: A course designed to prepare the serious student for the more theoretical upper division mathematics courses. It includes basic concepts, principles and techniques of mathematical proof. It will also cover concepts commonly assumed in some of the higher mathematics courses; these concepts include sets, set operations, indexed family of sets, equivalence relations and partitions, functions, one-to-one functions, onto functions, induced set functions.

Prerequisites: According to the University of Connecticut course catalog: Math 1132, 1152

Exams: There will be three midterm exams and NO final exam. The last midterm will be on Thursday December 7 (last day of class lectures). If you have a legitimate and documented conflict with the scheduled time for any of the midterms, you must let me know as soon as possible in order to consider your situation. There will be no make up exams.

Homework/Quizzes: Weekly homework will be assigned once per week but it will not be collected. In order to motivate you and test your understanding of the homework problems there will be weekly quizzes which will be strongly based on the assigned homework. The quizzes will take place every Tuesday during the first 15 minutes of class. Your two lowest quiz scores will be dropped and there will be no make up quizzes.

Grading Policy: Grades will be determined as follows:

- Quizzes: 25 %
- Each Midterm: 25 %

Academic Honesty: http://community.uconn.edu/academic-integrity-undergraduate-faq/

08/29	1.1-1.2: Logic, Sets
	1.3-1.4: Proofs, Quantifiers
09/05	2.1: Induction **Quiz 1**
09/07	2.1: More Induction
09/12	2.2: Binomial Theorem **Quiz 2**
09/14	3.1: Divisibility, Divisiong Algorithm
09/19	3.1: Euclidean Algorithm, Bezout's Lemma, Properties of gcd **Quiz 3**
09/21	3.2: Linear Diophantine Equations
09/26	Practice midterm discussion **Quiz 4**
09/28	**MIDTERM 1**
10/03	3.3: Primes, midterm solutions and discussion
10/05	3.3: Prime factorization
10/10	4.1: Equivalence Relations **Quiz 5**
10/12	4.2: Congruences
10/17	4.2: Congruences **Quiz 6**
10/19	5.1: The Rational Numbers
10/24	5.2: Decimals **Quiz 7**
10/26	Practice midterm discussion
10/31	**MIDTERM 2**
11/02	6.1: Functions, Midterm 2 discussion
11/07	6.1: Bijections, Inversion Theorem
11/09	6.2: Cardinality, finite and countable sets
11/14	6.2: More on countable sets, countability of rationals **Quiz 8**
11/16	6.2: Uncountable sets, Cantor's diagonal method
11/28	6.2: Schroder-Bernstein Theorem
11/30	6.2: Applications of Schroder-Bernstein Theorem
12/05	Practice midterm discussion
12/07	**MIDTERM 3**