Hunter College of the City University of New York

Department of Mathematics & Statistics

MATH 15600: Introduction to Mathematical Proof Workshop, 2 hrs, 1 cr, Fall2021 Prerequisite: MATH 15000; Prerequisite or Corequisite: MATH 15500

Meets: Weekly Schedules, Wednesday; **Assignments Due on Wednesdays**(Solutions will be posted after due date)

**Instructor: Adam Wang**

**Office Hours: Wednesday after class**

**Email: aw1447@hunter.cuny.edu**

Textbook: **Book of Proof**, Third Edition, by Richard Hammack © 2018, Richard Hammack (publisher). . Download the ebook for free from our Blackboard course web site and/or purchase the print edition on Amazon or Akademos.

Note that the Limit materials do not follow text book.

**Grading Policy:**

**Attendance and class performance: 5%**

**Homework assignments: 20%**

**Midterms(probably on lecture 6, 12): 25% each**

**Final: 25%**

* Construct direct, contrapositive, indirect (contradiction), and induction proofs, as well as counterexamples, and determine the appropriateness of each type in a particular setting;
* State definitions and construct proofs that are not only mathematically correct but also clearly written, convincing, readable, notationally consistent, and grammatically correct;
* Perform set operations on finite and infinite collections of sets and be familiar with properties of set operations and different cardinalities for infinite sets;
* Learn how to formulate and apply limit definitions for sequences, series, and functions in the language of symbolic logic, using logical connectives
* Verify relations and functions, including surjections, injections, inverses, and bijections, equivalence relations, and equivalence classes;
* Learn proofs for the infinity of primes, irrationality of , the triangle inequality, countability of Q, uncountability of R, and for finite and infinite sets

The Following information is required by Hunter College on all course syllabi.

1. Academic Integrity Statement: “Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.”

2. ADA Statement: “In compliance with the ADA and with Section 504 of the Rehabilitation Act, Hunter College is committed to ensuring educational access and accommodations for all its registered students. Hunter College’s students with disabilities and medical conditions are encouraged to register with the Office of AccessABILITY for assistance and accommodation. For information and appointment contact the Office of AccessABILITY located in Room E1214 or call (212) 772-4857 /or VRS (646) 755-3129.”

3. Hunter College Policy on Sexual Misconduct: “In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.

a. Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444). b. All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123. CUNY Policy on Sexual Misconduct Link: http://www.cuny.edu/about/administration/offices/la/Policy-on-Sexual-Misconduct-12-1-14with-links.pdf”