MATH 215: Introduction to Advanced Mathematics (Fall 2018)

Lectures: M–W–F 11:00 - 11:50 am in Taft Hall 219.
CRN number: 42905

Instructor: Will Perkins
Email: willp@uic.edu
Office hours: 626 SEO building, Wednesdays 12pm-2pm, or by appointment

Course webpage:

Course description This course will teach you the language of mathematics. We will begin by discussing the concept of a mathematical proof and its importance. You will then learn how to write a clear, concise, and correct mathematical proofs and learn important proof strategies. We will then cover several fundamental areas of mathematics including set theory, number theory, probability, and combinatorics and write proofs in these areas. The course will prepare you to take and succeed in higher level mathematics courses.
Course prerequisites: Grade of C or better in MATH 181 and approval of the department.

Required textbook *An Introduction to Mathematical Reasoning*, P. Eccles, Cambridge University Press. ISBN:9780521597180

Syllabus

- The language of mathematics
  (1) Logic
  (2) Equivalence relations
  (3) Order
- Set theory
- Proof techniques
- Functions and maps
- Number theory
- Probability and counting

Grading

The course is assessed by homework, pop quizzes, two midterms, and a final examination.

(1) **Homework** (20%): we will have written homework due once a week. Points will be given only for fully correct answers, but I will return the initial submissions with comments and corrections and you will have the chance to correct and resubmit the homework for full points. No late homework will be accepted.
(2) **Quizzes** (10%): we will have short pop quizzes roughly once a week. These quizzes will take roughly 5 minutes and consist of a basic check of understanding and recollection from the previous lectures. The lowest 3 quiz grades will be dropped and there are no make-ups. The quizzes serve to encourage consistent attendance and to encourage reading over your notes after class.
(3) **Midterms** (30%): we will have two midterm tests (dates TBA).
(4) **Final exam** (30%): the final exam will cover all the material from the course (date and time TBA).

Grades will be determined by the following scale:

$85 - 100\%$	**A**
$75 - 84\%$	**B**
$65 - 74\%$	**C**
$50 - 64\%$	**D**
$0 - 49\%$	**F**

Course Policies

It is very important to write mathematical proofs in your own words, and so each student must turn in their own homework. You are, however, encouraged to discuss the homework with other students and to read each others work. You must indicate clearly on your homework which students you worked with.

Class discussion, working in groups, and communicating with the instructor are all essential elements of the course. I expect all of us to treat each other with respect and courtesy in all of our interactions.

Academic honesty

Issues of academic honesty will be taken very seriously in the this class. As an academic community, UIC is committed to providing an environment in which research, learning, and scholarship can flourish and in which all endeavors are guided by academic and professional integrity. All members of the campus community – students, staff, faculty, and administrators – share the responsibility of insuring that these standards are upheld so that such an environment exists. Instances of academic misconduct by students will be handled pursuant to theStudent Disciplinary Policy: `https://dos.uic.edu/docs/Guidelines%20for%20Academic%20Integrity.pdf`

Disability policy Students with disabilities who require accommodations for access and participation in this course must be registered with the Office of Disability Services (ODS). Please contact ODS at 312–413–2183 (voice) or 312–413–0123 (TTY).

Academic deadlines Please see `http://grad.uic.edu/cms/?pid=1000222`

Religious holidays

Students who wish to observe their religious holidays shall notify the faculty member by the tenth day of the semester of the date when they will be absent unless the religious holiday is observed on or before the tenth day of the semester. In such cases, the student shall notify the faculty member at least five days in advance of the date when he/she will be absent. The faculty member will make every reasonable effort to honor the request. `http://oae.uic.edu/docs/ReligiousHolidaysFY20152017.pdf`