This course is an introduction to rigorous mathematics. The goal of the course is to improve student’s problem-solving abilities, introduce basic concepts of higher mathematics, and develop skills in writing mathematical proofs. It is meant to prepare students for upper level courses and to help with the transition from computational and problem-oriented courses (such as basic calculus, differential equations, etc.) to abstract mathematics.

Class time:  
11:00-11:50am MWF in 243 Altgeld Hall  

Textbook:  
Mathematical Thinking: Problem-Solving and Proofs, by D’Angelo and West, 2nd edition

Prerequisites:  
MATH 241 or equivalent. Concurrent registration in Math 241 is acceptable.

Instructor: Siegfred Baluyot  
Email: sbaluyot@illinois.edu  
Office hours: Mondays 3:00-4:00 PM and Thursdays 4:00-5:00 PM, or by appointment, in 327 Illini Hall

Grading policy  
Homework 25%  
Midterm Exams 3 × 15%  
Final Exam (comprehensive) 30%

Homework  
There will be weekly homework assignments, to be turned in on Fridays at the beginning of class. Late homework will not be accepted. You are encouraged to discuss homework problems with your classmates, but you must write your solutions in your own words. Homework will be graded according to both correctness of ideas and clarity of writing. Your lowest homework score will be dropped.
Midterm exam schedule
Midterm exams will be during class time, in our classroom. Exams will be graded according to both correctness of ideas and clarity of writing.

Midterm 1  Friday, February 16
Midterm 2  Wednesday, March 14
Midterm 3  Monday, April 16

Covered topics
(All chapters are from Mathematical Thinking: Problem-Solving and Proofs, 2nd edition)

- Numbers, Sets and Functions  Chapter 1
- Language and Proofs  Chapter 2
- Induction  Chapter 3
- Bijections and Cardinality  Chapter 4
- The Real Numbers  Chapter 13
- Sequences and Series  Chapter 14
- additional topics  (TBA)

Study tips
This course is challenging and requires time commitment. Proficiency will be achieved only through hard work, massive problem solving, and active participation in class discussions. Please take advantage of my office hours.