MATH 3100: INTRO. TO MATHEMATICAL PROOF

UVa–Wise. Department of Mathematics and Computer Science. Fall 2016.

BASIC INFORMATION

Class meetings: Tuesday and Thursday, 2:00–3:15. In Darden 118.

Instructor: Dr. Matthew Harvey

Office: Darden Hall 235

Office phone: 276-376-4571

Office hours:

- Monday 9:00–11:00
- Tuesday 8:00–11:00
- Wednesday 9:00–12:00
- Thursday 8:00–11:00
- Friday 9:00-11:00

Email: msh3e@uvawise.edu

Web: www.mcs.uvawise.edu/msh3e/

COURSE DESCRIPTION

The prerequisite for this course is successful completion of Math 2050 with a grade of C or better or permission of the instructor. As you proceed into advanced math classes, the role of mathematical proof becomes more and more central. In order to survive these classes, then, you need to have a solid understanding of what a proof is, how to follow one, and how to construct one for yourself. First and foremost, this class is dedicated to developing those skills. Some of the topics covered will include logic, set theory, relations and functions, and elementary number theory. The textbook for this course is *Foundation of Higher Mathematics*, 3rd edition, by Peter Fletcher and C. Wayne Patty. We will cover chapters 1 through 3 and sections 4.1, 4.2, 4.3, 5.1, and 5.2 of that book.

THE EVERYDAY CLASS

Your presence in class is expected. In class, you are expected to pay attention and contribute. At the very least, you must not be a distraction to your fellow classmates. Please silence all electronic devices. Disruptive behavior will not be tolerated. If I feel that you are a distraction to the rest of the class, I will ask you to leave.

GRADES

Homework is an essential component of this course and something you should take seriously. Homework will be assigned and collected regularly. Your work should be neat, organized, and well thought out. You are allowed to collaborate with classmates on the homework, but you must turn in your own work. Collaboration means working together to solve the problems–copying will not be accepted. Your work should be neat, well-organized, and stapled. Answers should be clear and well-reasoned. As a student, one of the first proof-oriented math books that I read was John Durbin's Modern Algebra. His advice then, which I pass along to you now is a quote from the Roman rhetorician Quintilian.

> One should not aim at being possible to understand, but at being impossible to misunderstand.

During the semester there will be three in-class tests. These are tentatively scheduled the weeks of September 20, October 25, and December 6. These tests will consist

primarily of "proofs". You will be asked to prove various results using the techniques we have discussed in class.

- No make-up exams will be given unless you can present a valid documented excuse. In this case, you will either take a make-up exam or be given a grade based on other assignments, whichever I feel is more appropriate.
- Your final exam grade may be used to replace you lowest test grade.
- At the end of the semester you will have a comprehensive final exam.
- Course grades will be assigned according to these percentages:
     homework and quizzes: 30%
     tests: 50%
     final exam: 20%

DISABILITY SERVICES

If you need course adaptation or accommodation because of a disability or if you have emergency medical information to share with me, please make an appointment to talk with me as soon as possible. To make inquiries regarding disability services, please contact Whitney Wells, Director of Disability Services, at 276-328-0265 or wew3x@uvawise.edu, or visit the Academic Support Center in Zehmer Hall.

TITLE IX

The University of Virginia's College at Wise strives to provide a working and educational environment for all faculty, staff and students that is free from sexual misconduct and harassment. Sexual harassment, sexual assault and other acts of sexual misconduct are forms of sex discrimination prohibited by Title IX. The College reaffirms its commitment to maintain a campus environment emphasizing the dignity and worth of all members of the college community. To view UVa-Wise's sexual misconduct and harassment policy visit: www.uvawise.edu/compliance/TitleIX. If you have questions or concerns, please immediately contact:

Tabitha Smith, Title IX Coordinator
Office of Compliance and Conduct
1 College Avenue, Wise, VA 24293
Office: 276-328-0131
Cell: 276-870-5065
Fax: 276-376-4876
Email:tabitha.smith@uvawise.edu

CHEATING

Cheating will not be tolerated. Any student caught cheating will receive a zero on the assignment, will be reported to the Honor Court, and if found guilty may receive an F for the course.

MATH 3100 FALL 2016 TENTATIVE SCHEDULE

Week Of	Topics	Sections
23-Aug	Logic	1.1, 1.2
30-Aug	Quantifiers Proofs	1.3, 1.4
6-Sep	Proofs Proof by contradiction	1.4, 1.5
13-Sep	More proofs Review	1.6
20-Sep	**Test 1** Sets	2.1, 2.2
27-Sep	Sets Indexed Families	2.2, 2.3
4-Oct	Induction	3.1
11-Oct	Fall Break	
18-Oct	More induction	3.2, 3.3
25-Oct	Review **Test 2**	
1-Nov	The division algorithm Number theory	3.4, 3.5
8-Nov	Number theory Relations	3.5, 4.1
15-Nov	Graphs Equivalence relations	4.2, 4.3
22-Nov	Functions	5.1, 5.2
29-Nov	Review	
6-Dec	**Test 3**	