Transitions: MTH 299, Section 6 http://www.math.msu.edu/~seal/teaching/f14/ *Fall 2014* MICHIGAN STATE UNIVERSITY^a Lecture: MW 17:00-18:20 Wells Hall A120 Recitation: Th 17:00-18:20 Wells Hall A120 Instructor: David Seal (seal@math.msu.edu) Learning Assistant (LA): Minh Pham (phammin1@msu.edu)

1 Contact and Meeting Information

1.1 Meeting times

Course meets for a total of three days a week. Lectures are on MW, and recitations are on Thursday. It is your responsibility to learn the material presented in lecture. If you must miss a lecture or discussion for any reason, find notes from a classmate in order to make up the missing material.

1.2 Office Hours

I live in Wells Hall C330. I guarantee my presence there every Monday and Wednesday from 13:00–14:20. Meetings outside of this time can be scheduled by appointment with appropriate notice and availability.

1.3 Mathematics Learning Center (MLC)

Your LA will be holding his office hours in the MLC. The MLC provides free assistance for students in Math 1825 and all 100, 200-level courses, as well as limited help for 300-level classes. Students wanting help at the Wells Hall MLC should go to the first floor of the C-wing of Wells Hall across from the elevators where a student monitor at the lobby window will direct them to the appropriate room for help. In addition, there are neighborhood MLCs with help available Monday through Thursday evenings. The MLC has an excellent reputation for providing professional, friendly assistance to students. I strongly urge you to use their services. The MLC hours are extensive and will be posted at the center; also see http://www.math.msu.edu/~mlc/.

2 Course Overview

MTH 299 Transitions is an introduction to higher mathematics. You will learn about basic logic, set theory, integers, natural numbers and induction. You will learn to use mathematical proof to tackle introductory problems in number theory and analysis. The course will prepare you for the core courses of a mathematics degree: applied math, analysis, algebra, and topology.

2.1 Class expectations

- 1. You are expected to attend every lecture and recitation.
- 2. You are expected to pay attention and participate in class.
- 3. You are expected to own the text book and complete all reading assignments.

- 4. You are expected to spend at least two minutes outside of class for each minute spent in class reading the textbook and doing homework assignments.
- 5. If you do not understand the subject, you are expected to reread the book, repeat homework assignments and ask questions in lecture, in recitation, during office hours, at the MLC or through email until you do.
- 6. You are expected to **write** proofs. This is a **writing course!** It is important that you take the time to present your solutions and proofs in **clear**, **well written**, **English prose**. Solutions that are incompletely or poorly written will not be considered correct, **even if it appears that the mathematical content is correct**. From time to time, you may be asked to revise and resubmit homework problems that are not well written.

2.2 Pre-requisites

Please visit the Registrar's website (https://www.reg.msu.edu) for a formal definition of what's required to enroll in this course. A solid understanding of calculus is necessary, but more important is a desire to learn.

2.3 Goals

The primary goal of this course is to learn to **read** and **write** mathematics. In particular, this means the course will have a heavy emphasis on writing proofs. A passing grade in this course indicates that a student should be able to read and write mathematics at a level necessary for more advanced courses in mathematics. In addition to various proof-writing strategies, we will also discuss the basics of logic, set theory, number theory and real analysis. You are expected to learn this material as well; however, at each stage, the focus will be on understanding and writing proofs.

2.3.1 Textbook

Required textbook:

• Chartrand, Polimeni, Zhang. Mathematical Proofs: A Transition to Advanced Mathematics. (3rd Edition).

Available on reserve in the library, from the MSU Bookstore, or from a private seller such as Schuler Books or Amazon.

Recommended textbooks:

- Smith, Eggen, and St. Andre, A transition to advanced mathematics
- Halmos, Paul, Naive Set Theory

3 Important Dates

Every day is important, some more than others. For a list of the more important dates, consider the following:

Aug 27 (Wednesday)	Classes begin.
Sep 1 (Monday)	University holiday.
Sep 3 (Wednesday)	Online open add period for fall semester ends at 8pm.
Sep 4 (Thursday) to Sep 10 (Wednesday)	Window for enrollment changes (e.g., late adds, course changes,).
Sep 22 (Monday)	End of 100% tuition refund.
Oct 15 (Wednesday)	Last day to drop a course without a grade being reported.
Nov 27-28 (ThursFri.)	Thanksgiving Break.
Dec 5 (Friday)	Last day of classes.

Please visit the MSU academic calendar for a more complete list.

4 Evaluation

End of semester grades will be based on homework (25%), quizzes (15%), two in class midterms (15% each), and a final exam (30%). All of your work in the course will be graded according to three criteria, ordered from most to least important:

- 1. Does your work **effectively communicate** your reasoning and methods?
- 2. Does your work **completely answer** the question posed?
- 3. Does your work **correctly answer** the question posed?

Points will be awarded to solutions based on their ability to satisfy each of these criteria. The emphasis here is on **writing**, and not the mathematical content.

4.1 Homework

Homework assignments will be announced in class and posted on the course webpage. Unless otherwise specified, homework will be due each day at the beginning of class. It is your responsibility to turn in the correct assignment at the correct time. The lowest two homework scores will be dropped when final grades are computed. Late work will not be accepted. Homework help is available during my office hours, during recitation, and at specified hours in the Math Learning Center.

4.2 Quizzes

Quizzes will be given every Thursday during the recitation. Your performance on the quizzes will be a good indication of your standing in the class. The lowest quiz score will be dropped when computing your final grade.

4.3 Exams

There will be two midterm exams and one final exam for this course.

Midterm 1:	Thursday, October 2
Midterm 2:	Thursday, November 13
Final:	Wednesday, December 10, 3:00 pm - 5:00 pm

There will be no makeup exams. The midterms exams will be given during recitation. The final exam is a "common" exam (i.e., the same exam taken by all seven sections of this course). The location for the final exam will be announced in class.

5 Keys to Success

Mathematics is the art of problem solving, and therefore in order to master this, you have to *solve problems*. Feel free to work out additional exercises from the textbook and other texts!

- Attend Lecture. Take complete notes in class: any supplemental material will be presented in lecture.
- Visit Office Hours and go to your LA's MLC hours.
- Read the textbook.
- Do all of the assigned **homework**. Start working on the assigned problems as soon as they're assigned.
- And obviously, take the **midterms**!

6 Academic Honesty and Integrity

Don't cheat.¹ Unacceptable behavior will not be tolerated and will be reported. You *do not* want to jeopardize all of the hard work you've put into your degree!

7 Students with Disabilities

MSU has a Resource Center For Persons with Disabilities (RCPD): http://www.rcpd.msu.edu/. Please contact the RCPD if you require special accommodations, and then schedule an appointment to meet with your instructor and accommodations can be provided.

 $^{^{1}}$ Visit MSU's policy on "Student's Rights and Responsibilities" or "Graduate Students Rights and Responsibilities" for a full discussion.