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CLASS TIMES

Both sections meet on MWF in Roop 213. §1 at 11.15-12.05, §2 at 12.20-1.10.

OFFICE HOURS

MWF 8.25-8.55, <u>MF 10.30-11.00</u>, <u>W 3.00-3.30*</u> The underlined times have a preference for 245 students. The * indicates that the office hour ends 15 minutes earlier if no one has come.

TEXTS AND MATERIALS

Book of Proof by Richard Hammack and *Concepts of Modern Mathematics* by Ian Stewart. Chapters from the second text will be assigned weekly to complement the daily use of the first text. There may also be a number of related articles posted on the course website or handed out in class that are required reading.

THE BIG PICTURE

Math 245 is officially titled "Discrete Mathematics." At other institutions this course is entitled "Transitions to Higher Mathematics," or "Introduction to Proof." The course, in a big tent sense, will be an introduction to the math major with an emphasis will on mathematical proof and logic (as opposed to the dominant narrative of computation in your earlier calculus courses).There will be a complementary emphasis on introducing other topics in the major beyond the calculus. Mathematics at this and higher levels is unambiguous argument and logic, yet made in a creatively (sometimes ambiguously) satisfying context, As one mathematician put it, higher mathematics is as much a combination of "the arts and the law" as it is the servant of the sciences.

Your preparation through the calculus will serve you well in this class but it can also be perilously misleading; your ability to read and analyze a text from your earlier literature and philosophy classes will be as useful as your earlier calculus exposure, if not more. The class that is closest to 245 might be your high school geometry class where you proved basic properties of the Euclidean plane. The ultimate goal is to learn some simple mathematical topics at a deep level and to become a good reader and good writer of mathematics in that process.

COURSE SCHEDULE

A one page course schedule is attached and will be followed strictly. Included in the schedule are the dates and times of three in-class tests and the final exam.

EXPECTATIONS

My primary expectation is that you take full responsibility for your own mathematical education. This means that before each class you are expected to read and reflect on the assigned sections and attempt and carefully write up all the Exercises associated with those sections. (Partial solutions to odd-numbered exercises are in the back of the book.)

Class time will be mostly spent in a seminar-style format with groups of students presenting at the board and reflecting on the reasoning therein. Engagement with the course should be thought of as being similar to one in the humanities in so far as you are very much expected to *come to class with the reading being reflected upon and critiqued beforehand.* Class is where you get to tie up your loose ends more so than attempt to climb a rope for the first time.

The majority of class time will be spent chatting with your classmates at the board or at a table with the instructor hovering around ready to provide some guidance. Often guidance can mean a question is answered with another question. The job of the instructor is to make you less and less dependent on their expertise, to not spoil your fun by teasing out definitions and doing problems for you. Some class time will be spent with the instructor at the board.

There is to be no use of cellphones in the classroom. Please turn off your cellphones before entering the room, even if it is before the start of class time. One person's use of a cellphone in class will result in an on-the-spot pop-quiz for everyone, a quiz that will count toward your grade.

Assessment

There will be a three minute reading quiz at the end of each class, asking you to repeat *verbatim* a definition or example from the reading or repeat a solution to an odd-numbered exercise. These quizzes will not be returned. **Quizzes are worth 10% of the grade.**

There is no grade for homework but swift feedback will be provided on all submitted written work. For work to be submitted, a script must have three co-signatories who also agree that they are unsure if the work is completely correct.

Some cultural reading will be assigned each week, mostly from *Concepts*. The chapter is meant to be read a little bit each night; read a little more casually than *Book* but still eminently suitable for discussion in class.

There are three in class tests lasting 50 minutes. There is an alternative evening time to take each test; same test but now you have 150 minutes instead of 50 minutes. If every member of class agrees to take the test in the evening then we can use the class time for that test for review. **There are three tests, each test worth 20% of your grade.**

There will be a final exam during finals week. **The final exam will be comprehensive and cumulative and will be worth 30% of your grade.**

Assessment Rubric

Each problem on quizzes and exams will be on a 5 point scale as follows:

5: Excellent and complete solution/argument with the smallest of gaps allowed. i.e. A work.

4: A decent, close to complete argument that nonetheless would need one major hint to complete or two minor ones. Questions acheiveing this grade should be re-read carefully with the holes filled in. i.e. B work.

3: Proposed argument contains something that is true and relevant. Can also be given to arguments that have serious errors and are not easily fixed. i.e. C work.

0-2: Argument might contain a thread of something that is true and relevant, or be little more than the student's name on the page and/or scribbles. i.e. D or F work.

If your cumulative average is 4.5 or above then you are guaranteed an A, equal or above 3.6 but less than 4.5 then you are guaranteed a B, equal or above 2.7 but less than 3.6 is guaranteed a C, and a D is between 2.0 and 2.6. Plus/minus grades will be assigned accordingly. In extreme cases, the instructor, like very sporadic attendance or a very poor final exam

First Week Attendance Policy

At the instructor's discretion, any student registered for a class in the Department of Mathematics and Statistics who does not attend at least one of the first two scheduled meetings of the class (or does not attend the first scheduled meeting of a class that meets once a week) MAY be administratively dropped from the class. Students will be notified by e-mail if they will be dropped. Students who fail to attend should not assume they will be administratively dropped by their instructor; it is the students responsibility to drop the course on their own or they will receive a grade at the end of the semester. All students are responsible for verifying the accuracy of their schedules and changes made in their schedules.

General JMU policy

Go to www.jmu.edu/syllabus for university wide policies on Attendance, Academic Honesty and SafeAssign, Adding/Dropping Courses, Disability Accommodations, Inclement Weather and Religious Accommodations.