Math 301 – Discrete Mathematics
Spring 2017

Course Meetings: Tuesday and Thursday, 9:30 – 10:45 in A05 Jackson Avenue Center, Oxford
Instructor: Dr. Laura Sheppardson
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Office Hours: Mon-Tues-Wed 2:30 – 3:30, or by appointment
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Text   *Mathematics, A Discrete Introduction*, by Edward R. Scheinerman
You may use any of the three editions.
Recommended reference: *Discrete and Combinatorial Mathematics*, by Ralph Grimaldi

Topics
This course will cover elementary counting principles, mathematical induction and other proof methods, relations and functions, and graphs. This includes selected sections of chapters 1-5 and 9 in the Scheinerman text. Our focus will be on logical thinking and problem solving.
By the end of this course, you should be able to:
- apply counting methods to a solve a variety of problems
- explain your solutions to someone who understands basic counting methods
- read and write statements involving standard mathematical notation, including quantifiers, set operations, and "if…then…" structures
- write simple proofs using direct methods, mathematical induction, or contradiction
- read and write a variety of notation for relations and functions, and identify standard properties of relations and functions
- apply equivalence relations and bijective functions in solving counting problems
- understand standard graph definitions, and identify examples of such items as subgraphs, trees, and independent sets
- use graphs to model and solve problems

Blackboard
You will use the Blackboard online course system to get course assignments and supplemental materials, take quizzes, monitor your grades, and communicate with classmates. Login at blackboard.olemiss.edu.
You can find basic instructions for using the system at www.olemiss.edu/blackboard
Short video lecture will also be available on blackboard.

Homework and Quizzes
You are expected to work all assigned problems, although not all will be graded. Practice problems from the textbook will be given for each topic. You should work as many of the recommended problems as you can before the next class period. This way you can ask useful questions before moving on to new material.

A brief quiz will be given on most class days. Some of these will be online and others written in class. These are intended to verify your understanding of basic concepts from the reading and/or video lectures. Longer written homework will be due every one to two weeks. These assignments will be graded on *both content and presentation*. No late homework will be accepted. (If you get to class late, turn in your work as you enter.)

You are encouraged to form study groups and to discuss homework problems with your classmates. However, the work you turn in must be your own. That is, everything you write must be in your own words, and you need to understand everything you have written.

Your homework grade is point based, rather than a percentage. Basic quizzes will typically be 2 points each, and written assignments may be up to 10 points each. There will be between 100 and 120 points available in the course of the semester.

Tests
There will be three (3) in-class tests. All will be closed book, and no calculators or other electronic devices will be needed or allowed. Your lowest test score will not be included in your grade calculation. Any student who will miss one of the three tests because of an official University function may reschedule and take this test at a time *before* the scheduled test administration. Other test rescheduling may be offered in rare cases, such as jury duty or military commitments.

The final exam will be cumulative, and will be closed book with no calculators.

Grade Calculation

Homework and quizzes	100 points
Best two (2) tests, 100 each	200 points
Final exam	200 points

Score	%	Minimum grade*
465	93%	A
450	90%	A-
435	87%	B+
415	83%	B
400	80%	B-
385	77%	C+
350	70%	C
300	60%	D

Remember that grades lower than C in mathematics courses will not be counted toward the mathematics major for the B.A. or B.S. degree.

Tentative Schedule
These are subject to change. You will be notified of any changes at least one week before the actual test.

Tuesday, February 21	Test 1
Thursday, March 23	Test 2
Thursday, April 27	Test 3
Thursday, May 11 at 8:00am	Final Exam

Attendance
Attendance will be recorded for informational purposes. You are responsible for any material, assignments, or announcements that you miss if absent from a class. No special accommodations (e.g. copies of lecture notes, make-up tests, etc.) will be provided. (You *are* encouraged to come to office hours if you have questions on what you missed.) The only exception to this policy is for participation in a University function, documented in advance of the event. *Excessive absences may result in the student being dropped from or failing the course.*
Cell phones, pagers, and other electronic devices that might cause disruption should be turned off or silenced before class begins.

Academic Misconduct
You are expected to abide by the guidelines for academic honesty given in the M-Book. Sanctions for academic misconduct may include grade reduction, extra work, failure of the course, suspension, expulsion, or a combination of the above. Academic misconduct includes presenting for grading anything which is not your own original work, using unapproved sources for any assignment or test, allowing someone else to copy your work for a graded assignment, or asking for re-grading of a paper that has been altered from its original form. If you study with other students or a tutor, do not look at notes from that study when you write homework to be graded. *If you have any doubts about whether something is proper, ask.*

Special Needs
It is University policy to provide, on a flexible and individual basis, reasonable classroom accommodations to students who have verified disabilities that may affect their ability to participate in course activities or meet course requirements. Students with disabilities are encouraged to contact the instructor to discuss their individual needs for accommodations.

Tips for success
- Keep up. You will need to be comfortable with the material from the beginning of the course to be successful in the end.
- You should expect to spend about two (2) hours outside class for every nominal hour in class. For a 3-hour course, expect about 6 hours a week of study time.
- Use your textbook. It has a good index, a glossary, solutions for chapter self-tests, and hints for the practice problems. If you come across an unfamiliar term in your reading, try looking it up. *
- Ask questions, and participate in group discussions. The point of the course is for you to learn something. I am here to help you do that, not to judge you.   I can provide much more effective help if I know where you need it.

General expectations
- You are expected to read the textbook.
- You are expected to make a reasonable attempt at all practice problems, and ask questions about those you cannot do. You may see these problems on tests.
- You will have to effectively communicate your ideas to do well in this course. You will be asked to explain how you arrived at answers to numeric problems. You will write proofs.
- Expect to spend about 2 hours on coursework outside class for every hour of class time.

Homework hints
- Read the problem carefully. Make sure you actually answer all the questions being asked.
- You are free to use the hints in the appendix.
- Read the textbook, including the examples. Some of them are very closely related to the assigned problems.
- If you're writing a proof or explanation, try reading it aloud. Are the sentences complete? Have you put on paper what you really meant?
- Check the reasonableness of your answers. If you write a proof that assumes both $a < 0$ and $a > 2$ at the same time, for example, something's wrong!

Presentation
The homework assignments in this course are intended to reinforce both your understanding and your good habits in presentation. Your work is judged based on both content and presentation. You should follow the procedures stated below strictly.

- State each problem before its solution. (Use your judgment in omitting long explanations.)
- Your papers must be neat. If you use sheets from a spiral bound notebook, you should tear off the scraps along the perforation. Multiple pages must be stapled.
- Your handwriting should be legible. Assignments with illegible handwriting will not be graded. If you have this problem, take extra time to make it more readable, or type your paper.
- **Explain your steps**. Either use well-known conventions as used in class, or use plain and concise English such as "because so and so, we must have so and so".
- If you have a continuation of an equation, make sure you write down the equality or other appropriate sign.
- If you present a correct solution but also make incorrect statements, deductions will be taken.