

MATH 2330.001, Fall 2024

Discrete Structures

Instructor Information

Professor: Dr. Stephen Graves
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The preferred method of contact is via Canvas.
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Class Meeting Times

Section	Days	Times	Location
001	MoWeFr	09:05 – 10:00	RBN 4032

Office Hours

MoWeFr 08:05 — 09:00 RBN 4011

1. COURSE INFORMATION

1.1. Official Course Description. Study of mathematical logic, sets, combinations, relations, functions, graphs and trees, Boolean algebra, and algebraic structures.

1.2. Course Prerequisites. A grade of C or better in Math 1325 or Math 2413 or equivalent and one high-level computer language. Students may not receive credit for both Math 2330 and Math 3425.

1.3. Student Learning Outcomes. Upon completion of this course, students should be able to do the following:

- Perform set operations such as union, intersection, and complement.
- Recognize the logical format of a given statement in terms of disjunctions, conjunctions, conditionals, quantifiers and propositional functions.
- Understand the basic properties of sequences, relations, and functions.
- Demonstrate problem solving skills using elementary probability concepts of permutations and combinations.
- Write proofs for statements using appropriate proof methods (direct, indirect, or mathematical induction).

2. IMPORTANT DATES

26 Aug.	First Day of Classes
2 Sep.	Labor Day – NO CLASSES (University closed)
9 Sep.	Census Date
4 Nov.	Withdrawal Deadline
25 – 29 Nov.	Thanksgiving Holiday NO CLASSES)
9 – 13 Dec.	Final Exams

3. COURSE CONTENT

3.1. Required Texts.

- a. **Primary**, DMOI *Discrete Mathematics: An Open Introduction, 3rd edition* ¹

- b. **Secondary**, ADS *Applied Discrete Structures* ²
c. **Recommended** *The 5 Elements of Effective Thinking*

by Edward Burger and Michael Starbird
ISBN 978-0691156668

This inexpensive book can totally change how you view learning and I recommend it to anyone who thinks they might struggle with course material, whether or not they're in my classes.

3.2. Academic Honesty. All work submitted must be your own. If this is determined not to be the case, you will be referred to the Director of Judicial Affairs, with a consequence appropriate to the level of the infraction. You will be reminded of the UT Tyler Honor Code on every exam.

- Submitting the *homework* or *lecture notes* of another student is **plagiarism** and will result in an earned grade of 0 for the category, not just the assignment.
- Cheating on an exam will result in an F for the course.
- Posting copyrighted material to the internet without the prior written permission of the copyright holder is **illegal**.

3.3. Civil Environment. The free exchange of ideas is a central part of a university education. Class will be conducted in a polite and professional manner and I expect students to behave politely and professionally. *Disruptive behavior will not be allowed and is judged at my sole discretion.* Persistent incivility will result in your removal from the classroom.

3.4. Canvas & Email. You are expected to check Canvas at least daily, and also expected to check your university email. **All at-home work will be submitted via Canvas.**

3.5. Personal Electronics. Students are required to have access to a device capable of accessing Canvas and a device capable of scanning hand-written work for upload to Canvas. If you have a tablet device this is an optimal use for it, but tablets are an *expensive and unnecessary luxury*.

3.6. Late & Missed Work. Late work will not be accepted. Missed lecture notes and homework will count as 0s. A student who will miss one exam for a *documented, University-sanctioned* reason must notify me at least 2 weeks before the exam, and an alternative will be arranged. A student missing one exam due to documented illness or emergency is eligible to replace the missed exam grade with the grade from their final exam, but then is *unable to receive extra credit*. Students missing more than one in-class exam have failed the course and will receive an F. Students missing the final exam have failed the course and will receive an F.

3.7. Final Exam Policy. A student may earn at most one letter grade higher in the course than they earn on the final exam: *particularly, a grade of F on the final results in a grade of at most D in the course.*

4. UNIVERSITY POLICIES

The University has many policies required to be included on syllabi. As these policies can change, please find the most recent version online.³

5. COURSE STRUCTURE

The course will generally cover one section of the book per class period; your grade will be determined by the weighted average of your **participation** (10%), your **class exams** (60%), and the **comprehensive final exam** (30%).

5.1. Grade Scale. Student letter grades will be recorded based upon their earned percentage points (PP). The grade scale will be no stricter than the standard:

PP Range	[0, 60]	(60, 70)	[70, 80)	[80, 90)	[90, ∞)
Letter	F	D	C	B	A
4.0 scale	[0.0, 1.0]	(1.0, 1.5)	[1.5, 2.5)	[2.5, 3.5)	[3.5, 4.0]

Canvas has difficulty displaying grades in any other method than percentages, so any grades given back by the instructor will include the actual grade as well as what that means on the percentage point scale.

5.2. Final Exam, 30%. It is important to demonstrate that you have some long-term ability to retain the information from the course, and so the final exam will be comprehensive. The times and dates of the final exam will be announced via Canvas. Questions on the final exam will be graded on the letter grade scale (0 = F, 1 = D, 2 = C, 3 = B, 4 = A) and the problem scores will be averaged to give an overall score on the 4.0 scale.

5.3. Class Exams, 60%. Throughout the semester we will also have comprehensive benchmark exams; these will appear on the Canvas schedule. The exam questions will be graded on the letter grade scale (0 = F, 1 = D, 2 = C, 3 = B, 4 = A) and the problem scores will be averaged to give an overall score on the 4.0 scale.

5.4. Participation, 10%. Participation will be marked each day as a 0, 1, or 2: 0 for not present or not participating, 1 for present and distracted or not participating, and 2 for present and participating. Participation will not be marked on exam days.

The easiest way to demonstrate to the instructor and *everyone around you* that you are not participating in class is to be using your phone or other electronics during class for purposes not directly related to the class.

In order to encourage participation, you will be required to scan and upload your hand-written course notes before 23:59 on the same day as class. On every day of class that is not an exam day, make sure you attend **on time**, take notes, and submit them via Canvas.

Your participation grade will be averaged and mapped through to the 4.0 scale for inclusion in your final overall grade.

Overall Grade. To compute your overall grade, find the following values:

FE = Final Exam on 4.0 scale

CE = Average of Class Exams on 4.0 scale

P = Participation on 4.0 scale

and substitute them into the formula

$$\text{Overall Grade on 4.0 scale} = (0.3)\text{FE} + (0.6)\text{CE} + (0.1)\text{P}.$$

5.5. Tentative Schedule of Topics. The schedule for the semester can be found on the main Syllabus page of Canvas, including all assigned due dates.

NOTES

1. Pretext ebook edition: <http://discrete.openmathbooks.org/dmoi3/>
2. Pretext ebook edition: <https://discretemath.org/ads/index-ads.html>
3. Usually at <https://www.uttyler.edu/academic-affairs/files/syllabuspolicy.pdf>