

# MATH 2330, Fall 2023

## Discrete Structures

---

### Instructor Information

Professor: Dr. Stephen Graves  
Office: RBN 4011  
Email: sgraves@uttyler.edu  
Dept. Phone: 903-565-5839

The preferred method of contact is via Canvas.  
uttyler.instructure.com

### Class Meeting Times

Section	Days	Times	Location
001	MoWeFr	09:05 – 10:00	RBN 4034

### Office Hours

Mo	10:15 — 11:15	RBN 4011
TuTr	09:00 — 10:00	Zoom by Appt

---

## 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

---

21 Aug.	First day of classes
1 Sep.	Census date
4 Sep.	Labor Day (No classes)
30 Oct.	Withdrawal deadline
20 – 24 Nov.	Thanksgiving Break (No classes)
4 – 9 Dec.	Final exams
8 & 9 Dec.	Fall Commencement

---

## 3. COURSE CONTENT

**3.1. Required Texts.**

- Primary,** ADS *Applied Discrete Structures*<sup>1</sup>
- Secondary,** DMOI *Discrete Mathematics: An Open Introduction, 3rd edition*<sup>2</sup>

**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 assignments 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. In the event that a student misses a single in-class

exam, the final exam grade will increase to cover the missing points. Students missing more than one in-class exam fail the course. Students missing the final exam will receive an F for the course.

**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.<sup>3</sup>

#### 5. COURSE STRUCTURE

The course content will be tentatively organized by week in Canvas modules; this is subject to change as our use of class time necessitates. Your grade will be calculated in **percentage points (PP)**: lecture notes (5 PP), homework (5 PP), and exams (90 PP).

**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

**5.2. Lecture Notes, 5 PP.** Students who consistently attend class and participate by writing notes and asking questions outperform students who do not. In order to encourage attendance, you will be required to scan and upload your hand-written course notes before 23:59 on the same day as class. *When you miss class, make sure to obtain lecture notes from a classmate and submit them before the deadline. Missed notes will not be provided by the instructor.* Each day's notes will be graded as a 0 (no meaningful notes), 1 (halfway complete and meaningful notes), or 2 (complete and meaningful notes). The notes *do not need to be an exact transcript of class to be complete*, but must contain all meaningful ideas from class. Late notes receive 0 points.

There are 38 days for which notes can be submitted; at 2 points each that totals 76 points. Your grade L will

be taken out of 68 points, and you will earn 5L/68 PP for lecture notes.

5.2.1. *Extra Credit.* If you receive  $L > 68$  points from lecture notes, you will receive an additional  $1/8$  PP per point above 68, for a maximum of 6 PP.

This changes the formula to  $5 + (L - 68)/8$ .

**5.3. Homework, 5 PP.** There is no practice as reliable as working homework to help you learn mathematics, so I will assign homework regularly. You are encouraged to work together and even more strongly encouraged to contact me when you struggle. Homework must be written by hand, scanned, and uploaded to Canvas before the scheduled time on the due date. Homework will be graded for *completeness only*, on a similar scale as lecture notes: 0 for minimal completion, 1 for at least half completion, and 2 for full completion. Late homework receives 0 points.

Homework is due by 23:59 on the Monday, Wednesday, or Friday **after** the date on which the content is discussed in class. Hence the problems assigned based on the first day lecture (21 August) are due by 23:59 on Wednesday, 23 August.

There are 36 homework assignments. Your grade H will be taken out of 72 points, and you will earn 5H/72 PP for homework.

5.3.1. *Extra Credit.* A student who turns in all homework on time and earns all nonzero scores will receive an additional 1 PP towards their grade.

**5.4. Exams, 90 PP.** There will be 3 in-class exams as well as a final exam. In-class exams dates are listed on the Schedule at the end of this syllabus and will be posted to Canvas. The Final Exam is scheduled by the University administration and happens to fall on Monday, 4 December, from 08:00 — 10:00. In-class exams each contribute 20 PP towards your final grade, while the final contributes 30 PP. All exams will be comprehensive, but will be skewed toward the newer material covered since the last exam.

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