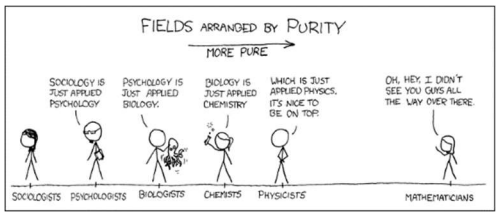
MATH 3336 – Discrete Mathematics

Basic Information

- Professor: Casey Douglas (cdouglas@uh.edu)
- Term: Spring 2023
- Section: 11163
- Office Hours: Tuesdays 10:00am – 11:00am and Thursdays 11:00am – 12:00pm
- Format: Asynchronous, Online
- Textbook: *Book of Proof* (3rd edition) by Dr. R. Hammack
    - Website and (free) PDF file
    - You can purchase a physical copy here
    - We will also use other textbooks or notes (all of which will be free)
- Course Objectives: students taking this course will learn to read, write and understand mathematical proofs.

What Is This Class All About, Anyways?

Welcome to Discrete Mathematics! This class has a lot in common with another course here at UH, one called *Transition to Advanced Mathematics*. Both prepare students for additional, more advanced coursework in mathematics, focusing on the language (notation, concepts) and techniques (counterexamples, proofs, proofs by induction) mathematicians use in their pursuit of truth and beauty.



A key point of difference between MATH 3336 and MATH 3325 is that the former focuses on *discrete* phenomena and examples (as opposed to *continuous* ones that MATH 3325 often expounds). This course, in particular, emphasizes *mathematical induction* and includes explorations of topics from *Combinatorics*. Such material is especially useful for students interested in Computer Science, and it provides accessible but powerful examples on which to practice and build mathematical intuition.

Here is a rough set of topics this course explores:

- Sets, Logic, Counting
- Direct and Indirect Proofs
- Recursion, Induction
- Relations, Functions
- Basic Number Theory, Counting
- Algorithm Complexity

Many other math courses like Pre-Calculus, Calculus, Statistics and Algebra tend to focus on *computations and formulas* (applying trigonometric identities, computing derivatives and anti-derivatives, calculating standard deviations, row-reducing matrices, etc.), having students follow curated examples during class meetings. In order to succeed in this class, though, students will need to read

(and re-read) the textbook regularly – and not just to find computational examples to practice! In short, and to the surprise of many first taking a course like this, *this is a reading-heavy math class!*

Course Structure (Where Do I Go or Click to Find Stuff?)

Because this is an online, asynchronous course, we will not hold in-person or virtual class meetings. Students will use pre-recorded lecture videos in place of these meetings, and they are encouraged to attend online office hours.

This class uses two platforms. Microsoft Teams (for meeting) and CASA CourseWare (for turning in homework and quizzes, and for scheduling in-person exams).

MS Teams

- Students should use this UH Guide for MS Teams to set up the application (if they have not done so already).
- Our Team Name is H_20223_MATH_3336_16884
- Students can join the Team for our class by using this Team Code: **7fedkau**

CASA CourseWare

- Log on to CASA CourseWare with cougarnet credentials
  - a link for MATH 3336-14860 can then be clicked.
- Consult this website and this document for more information on setting up and using the exam monitoring system CASA Monitor.

	MS Teams	CASA CourseWare
	Access Lecture Videos	View and Submit Online Exams
	Participate in ~~Office Hours~~ STUDENT Hours	View and Submit Homework
	Participate in Discussions / Discussion Boards	View and Submit Quizzes
Price	FREE – no cost	FREE – no cost

Assignments and Grades Information

- Homework (assigned and collected weekly): 12%
- Quizzes (weekly): 13%
- Exam 1: 20%
- Exam 2: 20%
- Participation: 5%
- Final Exam: 30%

We will have 12 homework assignments, 13 quizzes, two "midterm" exams and one final exam. Students can earn Participation Points by using office hours to discuss concepts, and/or by regularly sharing questions (and commentary on others' questions) via our MS Team channel.

After all homework assignments, quizzes, exams and participation grades have been submitted and averaged (according to the weightings above), a final score will be assigned a letter grade as follows:

Score	Letter	Score	Letter	Score	Letter	Score	Letter
100 – 97	A	89 – 87	B+	79 – 77	C+	69 – 67	D+
97 – 93	A	86 – 83	B	76 – 73	C	66 – 63	D
92 – 90	A-	82 - 80	B-	72 - 70	C-	62 – 60	D-
All final scores less than a 60 will be assigned an F							

Exams will take place in person at CASA Testing Centers. Never taken an exam at a CASA Testing Center before? Check out their website for more information.

Students use the "Exam Scheduler" tab in CASA CourseWare to reserve a day, time and location for their exams (the scheduler opens one or two weeks before an exam period starts).

If a student misses their scheduled exam, they should re-open the scheduler and attempt to reserve another test time.

Exam	Content	Dates
Exam 1	Logic, Sets, Basic Proofs	Sat 2/18, Sat 2/20
Exam 2	Recursion, Counting, Number Theory	Fri 4/7, Sat 4/8
Final Exam	Cumulative (Previous Material, Algorithm Complexity, Extra Topics)	Wed 5/10, Thur 5/11

Note: These Exam Dates Have NOT Been Confirmed – they are likely to change

Students who live more than 100 miles from UH's main campus can request to set up a proctored exam at a more convenient location. This request must be submitted *at least* two weeks before the exam period, and students must cover any costs associated with this. The University's Office of Online & Special Programs handles these requests, and students seeking this option should complete the Proctor Request Form.

Grade Appeal Policy. After an exam or assignment has been graded and returned, students have 5 days to inquire about having it reviewed and possibly regraded. A re-grade request submitted after this period of time will not be considered.

Class Schedule

Although this class is online and asynchronous, it is NOT self-paced. A recommended schedule is shown here:

Week	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun
1. (1/17-1/22)	Logic				Q1	HW1	
2. (1/23-1/29)	Last day to add	Logic			Q2	HW2	
3. (1/30 – 2/5)	Sets		Drop w/out W	Sets, Basic Proofs	Q3	HW3	
4. (2/6-2/12)	Sets, Basic Proofs				Q4, Q5	HW4	
5. (2/13-2/19)	REVIEW FOR TEST 1					TEST 1	
6. (2/20-2/26)	TEST 1	Induction and Recursive Structures			Q6	HW5	
7. (2/27-3/5)	Induction and Recursive Structures				Q7	HW6	
8. (3/6-3/12)	Counting				Q8	HW7	
9. (3/13-3/19)	Spring Break						
10. (3/20-3/26)	Counting				Q9	HW8	
11. (3/27-4/2)	Number Theory				Q10	HW9	
12.	Number Theory				Q11	HW10	
13. (4/3-4/9)	REVIEW FOR TEST 2				TEST 2		
14. (4/10-4/16)	Algorithm Complexity				Q12	HW11	
15. (4/17-4/23)	Last day to drop w/ W	Algorithm Complexity			Q13	HW12	
16. (4/24-4/30)	Extra Topic(s) + Final Review					HW13 Last Day	
17. (5/1-5/7)	OTHER FINALS						
18. (5/7-5/11)	OTHER FINALS		FINAL EXAM				

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Tutoring

Additional office hours will be provided by a TA, but this is till be scheduled.

Students can take advantage of tutoring through the following:

- LAUNCH - www.uh.edu/ussc/launch
  At LAUNCH, students can:
  - Drop in for individual **Peer Tutoring** on over 100 different courses—no appointment necessary! LAUNCH is located in Cougar Village 1, room N109. http://www.uh.edu/ussc/launch/index.php.
  - Attend a **Success Workshop**: http://www.uh.edu/ussc/launch/index.php.
  - Set up an individual appointment with an **Academic Counselor**: **713-743-5411**
- Scholar Enrichment Program (SEP) provides online/remote tutoring services using Microsoft Teams - https://uh.edu/nsm/scholar-enrichment/tutoring/

COVID-19 Information

Students are encouraged to visit the University's COVID-19 website for important information including diagnosis and symptom protocols, testing, vaccine information, and post-exposure guidance. Please check the website throughout the semester for updates. Consult the (select: Undergraduate Excused Absence Policy or Graduate Excused Absence Policy) for information regarding excused absences due to medical reasons.

Reasonable Academic Adjustments/Auxiliary Aids

The University of Houston complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for disabled students. In accordance with Section 504 and ADA guidelines, UH strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe that you have a disability requiring an academic adjustments/auxiliary aid, please contact the Justin Dart Jr. Student Accessibility Center (formerly the Justin Dart, Jr. Center for Students with DisABILITIES).

Excused Absence Policy

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston Undergraduate Excused Absence Policy and Graduate Excused Absence Policy for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Under these policies, students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. Additional policies address absences related to military service, religious holy days, pregnancy and related conditions, and disability.

Recording of Class

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the Justin Dart, Jr. Student Accessibility Center. If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with *anyone* without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

Resources for Online Learning

The University of Houston is committed to student success, and provides information to

optimize the online learning experience through our Power-On website. Please visit this website for a comprehensive set of resources, tools, and tips including: obtaining access to the internet, AccessUH, Blackboard, and Canvas; using your smartphone as a webcam; and downloading Microsoft Office 365 at no cost. For questions or assistance contact UHOnline@uh.edu.

UH Email

Please check and use your Cougarnet email for communications related to this course. To access this email, login to your Microsoft 365 account with your Cougarnet credentials.

Webcams

Access to a webcam is required for students participating remotely in this course. Webcams must be turned on (*state when webcams are required to be on and the academic basis for requiring them to be on*). (*Example: Webcams must be turned on during exams to ensure the academic integrity of exam administration*.)

Academic Honesty Policy

High ethical standards are critical to the integrity of any institution, and bear directly on the ultimate value of conferred degrees. All UH community members are expected to contribute to an atmosphere of the highest possible ethical standards. Maintaining such an atmosphere requires that any instances of academic dishonesty be recognized and addressed.
The UH Academic Honesty Policy is designed to handle those instances with fairness to all parties involved: the students, the instructors, and the University itself. All students and faculty of the University of Houston are responsible for being familiar with this policy.

Title IX/Sexual Misconduct

Per the UHS Sexual Misconduct Policy, your instructor is a "responsible employee" for reporting purposes under Title IX regulations and state law and must report incidents of sexual misconduct (sexual harassment, non-consensual sexual contact, sexual assault, sexual exploitation, sexual intimidation, intimate partner violence, or stalking) about which they become aware to the Title IX office. Please know there are places on campus where you can make a report in confidence. You can find more information about resources on the Title IX website at https://uh.edu/equal-opportunity/title-ix-sexual-misconduct/resources/.

Security Escorts and Cougar Ride

UHPD continually works with the University community to make the campus a safe place to learn, work, and live. Our Security escort service is designed for the community members who have safety concerns and would like to have a Security Officer walk with them, for their safety, as they make their way across campus. Based on availability either a UHPD Security Officer or Police Officer will escort students, faculty, and staff to locations beginning and ending on campus. If you feel that you need a Security Officer to walk with you for your safety please call 713-743-3333. Arrangements may be made for special needs.

Parking and Transportation Services also offers a late-night, on-demand shuttle service called Cougar Ride that provides rides to and from all on-campus shuttle stops, as well as the MD Anderson Library, Cougar Village/Moody Towers and the UH Technology Bridge. Rides can be

requested through the UH Go app. Days and hours of operation can be found at https://uh.edu/af-university-services/parking/cougar-ride/.

Syllabus Changes

Please note that the instructor may need to make modifications to the course syllabus. Notice of such changes will be announced as quickly as possible through (*specify how students will be notified of changes*).

Helpful Information

Coogs Care: https://uh.edu/dsa/coogscare/

Student Health Center: https://www.uh.edu/healthcenter/