Course Syllabus

Course	CS 3305.HON
Course Title	Discrete Mathematics for Computing II
Professor	Ravi Prakash
Term	Spring 2021
Meetings	TR 11:30 am-12:45 pm on Microsoft Teams

Professor's Contact Information

Office Phone	(972) 883-2289
Other Phone	(972) 883-2185 (CS Department Phone Number)
Office Location	ECS South 4.210
Email Address	ravip@utdallas.edu
Office Hours	Mondays, Thursdays: 2:00-3:00 pm Office hour meetings will be held using Microsoft Teams. If you wish to meet me during this time just initiate a meeting with me. You don't need an appointment. If you wish to meet me at other times, please email me or send a Teams message.
Other Information	During the listed class times, lectures will be conducted **using Microsoft Teams**. A recurring calendar link appears in the Microsoft Teams/Outlook calendar for every student. A weblink is also provided on the main course page in eLearning. You can join the lecture by clicking on either of these links. All lectures will be recorded and then become available on Microsoft Streams for those who wish to have asynchronous access to lectures. The best way to communicate with me at times other than class meetings and office hours is through email. You do not need an appointment to visit me during my office hours. **Please do not hesitate to seek an appointment if you wish to meet me at times other than my office hours.**

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General Course Information

Pre-requisites, Co-requisites, & other restrictions	Prerequisites: (CE 2305 or CS 2305) with a grade of C or better, and (MATH 2414 or MATH 2419)
Course Description	Advanced counting methods; recurrence relations, divide and conquer algorithms, principle of inclusion and exclusion. Partial orders and lattices, Algorithmic complexity. Graph theory. Strings and languages. Number theory. Elements of modern algebra.
Learning Outcomes	1. Ability to recognize and construct proofs. 2. Ability to recognize and use equivalence relations and partial orderings. 3. Ability to use recursive definitions and solve recurrence relations. 4. Ability to understand advanced counting methods. 5. Ability to understand graph theory and basic graph algorithms. 6. Ability to use tree terminology and basic tree algorithms.
Required Texts & Materials	*Mathematics for Computer Science* by Lehman, Leighton and Meyer, June 6, 2018 version. We will cover chapters 10-16, and 22. If time permits, we will cover additional material.
Suggested Texts, Readings, & Materials	None

Assignments & Academic Calendar

[Topics, Reading Assignments, Due Dates, Exam Dates]

Number of Lectures	Topic
1	Introduction
4	Directed Graphs and Partial Orders (Chapter 10)
2	Communication Networks (Chapter 11)
5	Simple Graphs (Chapter 12)
2	Planar Graphs (Chapter 13)
4	Sums and Asymptotics (Chapter 14)
5	Cardinality Rules (Chapter 15)
3	Generating Functions (Chapter 16)
2	Recurrences (Chapter 22)
Last Day of Class	Thursday, May 6
Midterm Examination	Midterm Examination 1: mid-February (eLearning + HonorLock) Midterm Examination 2: end-March (eLearning + HonorLock)

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1	Introduction
4	Directed Graphs and Partial Orders (Chapter 10)
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5	Simple Graphs (Chapter 12)
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4	Sums and Asymptotics (Chapter 14)
5	Cardinality Rules (Chapter 15)
3	Generating Functions (Chapter 16)
2	Recurrences (Chapter 22)
	Final Examination: during final examination week (eLearning + HonorLock)

The material builds upon what you have already studied in Discrete Mathematics I. If, as a group, you want me to review some of that material so that you can have a better understanding of ideas covered in this course I will be happy to do so.

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Course Policies

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Grading (credit) Criteria	Midterm examination 1: 20%, Midterm examination 2: 20%, Final examination: 20%, Homeworks: 25%, Paper review: 10%, Class participation: 5%
Make-up Exams	Make-up examinations will be offered only if the student has a valid medical reason and produces a doctor's letter. If a student has to be absent for several classes because of job related obligations, he/she will not be eligible for an incomplete grade. In such instances the student is advised to drop the course.
Extra Credit	No extra credit work will be assigned.
Late Work	Homeworks submitted after the due date will be penalized at the rate of 10% of the total credit for that homework for every day (not including weekends and holidays) by which they are late. Late submissions will not be accepted once the solution has been discussed in class and the graded submissions have been returned.
Special Assignments	None
Class Participation	Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the Student Code of Conduct.
Expectations	Unless a student has chosen the asynchronous access, I expect students to participate in the live lectures as such participation provides an opportunity to ask questions and obtain immediate clarifications. All course material will be posted on eLearning, and it is expected attending the online lecture will preview the material prior to class. All examinations will be online and a 24-hour time widow will be available to take the examinations. All homeworks and/or programming projects should be submitted via eLearning. Examinations, homeworks, projects are supposed to be completed independently, without seeking help of other classmates, friends, or third parties. For clarifications and assistance about these students should reach out to the Teaching Assistant and the instructor. Any suspected collaboration among students, or plagiarism will be reported to the Dean of Students for further investigation and adjudication.

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Asynchronous Learning Guidelines	All course material, including syllabus, slides, supplementary reading material, etc. will be posted on eLearning. All recordings of lectures will be posted on Microsoft Streams. Students should try to view the recordings at the earliest possible opportunity so as to not fall behind the rest of the class. Any queries and doubts should be directed towards the TA and the instructor. There will also be a discussion board on eLearning for discussion about course content. Further information about asynchronous access can be find at the following location: https://www.utdallas.edu/fall-2020/asynchronous-access-for-fall-2020/
Class Recordings	The instructor may record meetings of this course. Any recordings will be available to all students registered for this class as they are intended to supplement the classroom experience. Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law. Failure to comply with these University requirements is a violation of the Student Code of Conduct.
Class Materials	The Instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.
Classroom Citizenship	The instructor encourages students to take active part in class discussions. No question is too simple/stupid to be asked. So, do not hesitate to ask questions. A vigorous discussion of ideas in a respectful environment promotes learning.
Comet Creed	*This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:* *"As a Comet, I pledge honesty, integrity, and service in all that I do."*

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UT Dallas Syllabus Policies and Procedures	*The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.* *Please go to http://go.utdallas.edu/syllabus-policies for these policies.*

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.