Towson University
Department of Mathematics
Math 263: Discrete Mathematics Section 8
Fall 2023

Tuesdays & Thursdays **2:00-3:15 pm** **YR-129**

Dr. RAJEEV WALIA

Office Location: YR-353
Office Hours: M,W: 2:00-3:00pm
T,Th: 3:30-4:30pm

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Course Website: blackboard.towson.edu

Activate Your Zoom Account: Go to the link and activate (or configure) a Zoom account by completing steps 1 & 2. This will create and tie your Zoom account to your Towson account. Once completed, you will be able to access your Zoom account from Blackboard by clicking on "Zoom Meetings".

Office Hours: These will be held on Zoom **M,W: 2:00-3:00pm & T,Th: 3:30-4:30pm**. On T, Th, I will also be available in-person in my office YR-353 in addition to zoom and might be a few minutes late since I have a class immediately before them. I might be able to hold office hours on Fridays from 3:30-4:30pm if you send me an email request the night before and if I'm free. Once you activate your Zoom account (see above), click on "Zoom Meetings" in Blackboard, hit "Upcoming Meetings" on Zoom, and join the appropriate office-hour-session from the list of upcoming meetings. You will need a high-speed internet connection and a webcam. It is best if you have a computer/laptop but joining via phone is also possible with limitations. It's helpful when I'm working with students if I can "read" their faces: confused? nodding in understanding? etc. For this reason, it's important that you keep your webcam on**.** These sessions will be recorded (unless a student requests otherwise), and the recordings will be available to you for download and streaming. See **Recordings** below for how to access these.

Lecture/Class Sessions: Lectures will be delivered during face-to-face meetings on Tuesdays & Thursdays from 2:00-3:15pm at YR 129. However, I'll do my best to make the class sessions available on Zoom during the regular class time which you should only utilize in the event of sickness or other unavoidable class absences. To join the zoom session for the class, please follow the same steps as you do for Office Hours (see above) using the "Zoom Meetings" link on Blackboard. These sessions will be recorded, and the recordings will be available to you for download and streaming. See **Recordings** below for how to access these.

Recordings: To access recordings, first, please follow the same steps as you do for Office Hours & Lecture/Class sessions (see above) using the "Zoom Meetings" link on Blackboard. Then the recordings of the office hours & most lectures will be available under "Cloud Recordings". If you miss a class session and watch only the recording, please understand that it may not be sufficient for learning. Missing classes will also impact your attendance & class participation grade.

Course Description: Sets, logic, induction, functions, relations, sequences, recursion, combinatorics, graphs and trees, matrices with an emphasis on applications in computer science.

Prerequisites: A grade of C or above in COSC 236. Core: Mathematics.

Textbook: Discrete Mathematics with Applications, 5th edition by Susanna S. Epp, 2020, Cengage. Online homework in this course carries 10% of your grade and will be given on webassign. The access to webassign HW also comes with an e-book. You do not need to purchase anything because this course is participating in Direct Access and your course material fees will be billed to you. You may purchase a hard copy of the textbook, but it's not mandatory.

This University Core course is designed to meet the following four learning goals.

Mathematics Core Learning Outcomes
1. Construct and evaluate logical arguments.
2. Apply and adapt a variety of appropriate strategies to solve mathematical problems.
3. Recognize and apply mathematics in contexts outside of mathematics.
4. Organize and consolidate mathematical thinking through written and oral communication.

Course Content:

Textbook Topics	# of Weeks
2.1–2.3 **The Logic of Compound Statements**: Logical form and logical equivalence; Conditional statements; Valid and invalid arguments.	2.5
3.1–3.4 **The Logic of Quantified Statements**: Predicates and quantified statements; Multiple quantifiers; Arguments with quantified statements.	1.5
4.1–4.5; 4.7-4.8 **Elementary Number Theory & Methods of Proof**: Direct proof and Counterexample; Indirect Arguments.	2.5
5.1–5.3 **Sequences and Mathematical Induction**: Sequences, Mathematical induction I & II.	2.0
6.1–6.2 **Set Theory**: Definitions; Properties of sets; Disproofs; Algebraic proofs; Boolean algebras.	1.5
7.1–7.3 **Functions**: Functions defined on general sets; One-to-one and onto, inverse functions; Composition of functions.	2.0
8.1–8.3 **Relations**: Relations on sets; Reflexive, symmetric, transitive and equivalence relations.	1.0
Exams	1.0

Evaluation: Your overall grade for this course will be computed based on the following scheme:

Graded Components	
Three Exams	39%
Quizzes	14%
Paper HW	10%
Online Homework	10%
Class Participation	4%
Attendance	1%
Comprehensive Final Exam	22%
Total	100%

Final Grade Cut-Offs
(x is your overall score)

A	93% ≤ x ≤ 100%	C+	77% ≤ x < 80%
A-	90% ≤ x < 93%	C	70% ≤ x < 77%
B+	87% ≤ x < 90%	D+	67% ≤ x < 70%
B	83% ≤ x < 87%	D	60% ≤ x < 67%
B-	80% ≤ x < 83%		

Exams: Three 75-minute exams (during regular class time) and one comprehensive final exam will be given during the semester. These are scheduled as follows:

Exam 1 – Thursday September 28th in class
Exam 2 – Thursday October 26th in class
Exam 3 – Tuesday November 21st in class
Final Exam – Saturday December 16th, 8:00-10:00am at **TBD**

Note**:** *If you have another final exam conflict or you absolutely cannot take Math 263 final exam on December 16th, please talk to your instructor ASAP or within the first two weeks to make alternative arrangements.*

Quizzes: Every week (except exam weeks), there will be a 5-10-minute quiz (usually on Thursdays) at the end of the class. Please follow the in-class announcements and the **calendar** on Blackboard for the dates when these will be given. The **first quiz** will be based on the syllabus and will be given on **Thursday 8/31**.

Homework: For most sections listed in the Course Content (see earlier table), there will be a paper homework and an online homework. Please follow the in-class announcements and the **calendar** on Blackboard for the due dates for this homework.

- **The Paper Homework** for each section (2.1, 2.2 etc.) will be posted on Blackboard under "Paper-HW". You are expected to download the PHW, print it, and complete the work. Once you are done, you will take images of your work "vertically" (not horizontally) and combine them into a single PDF at "combinepdf.com" IN THE CORRECT ORDER. You MUST upload the PDF of your work on Blackboard by clicking on "Browse Local Files" and hit "submit" before the due date. For paper HW, you are encouraged to work with your classmates, but the final solutions should be written independently showing detailed work. **If evidence of cheating is found, you will be asked to explain your work and appropriate action will be taken against you.** Paper homework, quizzes, & exams will be graded for correctness, notation, communication, presentation, and explanation of work. Due to limited grading resources, the paper homework will be graded and *counted* only at the end of the semester and only for those who think grading the homework would improve their grade. However, you may get some feedback on your attempt before the due date if you email me a picture of your work or discuss it with me during office hours. After the due date, in order to assess how you did, please use the detailed homework solutions on Blackboard under "Quiz, PHW, & Exam Solutions".

- **The Online Homework** will be available at Webassign. You will be able to log into webassign directly from Blackboard by clicking on the link "Webassign HW" that is provided under "Online HW". **Each online HW will usually require you to enter the final answers, but make sure you solve each problem (on a piece of paper) showing clear work and reasoning for each problem. You might be asked to produce your work. If evidence of cheating is found, you will be asked to explain your work and appropriate action will be taken against you.** Due to the online nature of the HW, some of the resources (e.g. videos, slides, etc.) and answers on webassign may be brief and may not be sufficient to get full credit during quizzes and exams. Please refer to instructor's lecture slides for correctness, notation, communication, presentation, and explanation of work.

Class Participation: At the discretion of the instructor, during each class meeting, the instructor will facilitate learning through interactive question-answer sessions, where each student will earn points for correct responses. You can earn points for asking questions also. Your performance will be monitored throughout the semester, and it will form the basis of the score in this category**.** You might be able to earn class participation points if you join via zoom and interact with your video on.

Attendance: Every student's presence in the class will be monitored regularly, and a score in this category will be determined as the percentage of times a student is present in the class for the *entire* duration. Absences due to official university business or personal emergencies (medical, legal, etc.) may be excused, but official, verifiable documents should be provided. Even if you don't have a valid excuse, you might be able to get attendance credit if you join the class via zoom and keep your video on.

Make-up & Late Work Policy: It is TU policy to excuse student absences for the following reasons: illness or injury when the student is unable to attend class; religious observance where the nature of the observance prevents the student from attending class; participation in university activities at the request of university authorities; and compelling **verifiable** circumstances beyond the control of the student. Absences that do not fall into any of these four categories are unexcused. Make-up is allowed only for *documented* excused absences. In case of a scheduled excused absence, **especially on quiz days**, the student must email and provide documentation at least one week prior to the date of the absence; otherwise, email and documentation must be provided as soon as possible. **Late work for PHW is accepted, but there will be a late penalty. No PHW is accepted after its solution is posted on Blackboard**.

Professionalism & Expectations

- The student is present at every class, arrives on time and stays until the end of class.
- No electronic devices (besides calculators and computers) are used in any way *ever* during class.
- The student conducts him/herself during class in a mature manner that does not distract others, including the instructor.
- The student participates in class activities and discussions in a mature manner.
- The student demonstrates reasonableness/flexibility in changes to the schedule or syllabus.
- The student communicates with the instructor and peers in a constructive, professional manner.
- The student demonstrates a commitment to learning.

- The instructor reserves the right to ask a student who demonstrates any disruptive behavior (including the use of cell phones) to leave the classroom for that session.

E-mail and Communication Policy: You are welcome to send your questions to the instructor's email address listed earlier. Please remember to include the course and section # in all email correspondence. While working on the webassign HW, if you have a question, you should use "Ask Your Teacher" feature.

Academic Integrity: This class is conducted in accordance with the Towson University's Code of Conduct as described in the TU Catalog or accessed here. This code prohibits "all forms of dishonesty including cheating (and) plagiarism." Plagiarism is copying the words of another or the use of ideas of another without proper citation. Cheating includes unauthorized collaboration during an assessment and using unauthorized materials, technology, or web sites during an assessment or for an assignment. If a violation of the academic integrity policy appears to occur, the course instructor will meet with the student to present the evidence and request an explanation. If the faculty member determines that a violation has occurred, the faculty member informs the student, in writing, of the academic penalty and of the student's right of appeal. This letter also goes to the Office of Student Conduct. The range of potential penalties includes deduction of points or rejection of assignment, failure of course, or a more severe disciplinary action by university authorities. The more severe the violation (in terms of extensiveness and intentionality), the more severe the penalty.

Diversity Statement: In accordance with the Towson University Strategic Plan, the FCSM Diversity Action Plan, and the Department of Mathematics Diversity Action Plan, everyone participating in this course is expected to be respectful of each other without regard to race, class, linguistic background, religion, political beliefs, sex, gender identity or expression, sexual orientation, ethnicity, age, veteran's status, or physical ability. If you feel these expectations have not been met, please contact Dr. Felice Shore (email: fshore@towson.edu).

Accessibility & Disability Statement (ADS): This course is in compliance with Towson University policies for students with disabilities. *You must supply the instructor with a memo from ADS authorizing your accommodation before any accommodation can be made*. Since accommodations are not retroactive, it is strongly recommended that you provide instructor with notification as early as possible in the term. To register with ADS, contact Accessibility and Disability Services at 410-704-2638 (Voice) or 410-704- 4423 (TDD), or visit the ADS office in the Administration Building, Room 232 or their website: Students who suspect that they have a disability but do not have documentation are encouraged to contact ADS for advice on how to obtain appropriate evaluation.

Math Tutoring: In addition to the instructor, online tutoring is available. You may receive assistance in reviewing or learning concepts. The tutors provide a valuable supplement to class time and instructor office hours. For more information and detailed schedule, see the link.

Last Day to add/drop a course: September 6th 2023
Last Day to Withdraw Without Grade Penalty: November 6th 2023
Last Day of Classes: December 7th 2023.
Other Deadlines: http://www.towson.edu/registrar/calendars/