MATH 263 - DISCRETE MATHEMATICS

Fall 2023 Syllabus, Section 006, Class Number 4443

Times and Location

TTh 9:30am-10:45am in YR0122 (8/28 to 12/18)

Instructor Information

Donna Noyes, BSCE, MSACM
Lecturer of Mathematics, Co-Coordinator of Math 115
Email: dnoyes@towson.edu
Office: YR 361
Fall 2023 Office Hours:
MW 9:00-10:00 am
TTh 10:45-11:45 am
Office Phone: 410-704-4756

Course Description

Sets, logic, induction, functions, relations, sequences, recursion, combinatorics, graphs and trees, matrices with an emphasis on applications in computer science. Prerequisite: COSC 236.

Math 263 Course Materials

Discrete Mathematics with Applications, 5th edition, by Susanna S. Epp. (Cengage, 2020). These materials are integrated into our course in Blackboard. Through RedShelf you will immediately have access to your online course materials - digital textbook and online homework - for a free period through the add/drop deadline. After the free access period, your student account will be charged by the University Billing Office, unless you have opted out by that date. The direct access pricing is the lowest possible price available for access to Cengage WebAssign for this course.

Course Learning Outcomes

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

a. Construct and evaluate logical arguments.
b. Apply and adapt a variety of appropriate strategies to solve mathematical problems.
c. Recognize and apply mathematics in contexts outside of mathematics.
d. Organize and consolidate mathematical thinking through written and oral communication.

Math 263 Course Objectives

Upon completion of this course, the student must demonstrate an understanding of the concepts in sets, logic, proof-writing, mathematical induction, functions, relations, and sequences with an emphasis on applications in computer science.

Math 263 Course Content

Sections 1.2 - 1.3
Chapter 1: Speaking Mathematically (integrated into other sections)

Sections 2.1 - 2.3
Chapter 2: The Logic of Compound Statements

Sections 3.1 - 3.4
Chapter 3: The Logic of Quantified Statements

Sections 4.1 - 4.5, 4.7, 4.8
Chapter 4: Elementary Number Theory & Methods of Proof

Sections 5.1 - 5.4
Chapter 5: Sequences & Mathematical Induction

Sections 6.1 - 6.4
Chapter 6: Set Theory, Set Proof, & Boolean Algebra

Sections 7.1 -7.3
Chapter 7: Properties of Functions

Sections 8.1 - 8.3
Properties of Relations

Math 263 Evaluation

Your final grade will be based on your success in meeting the goals and objectives of this course as demonstrated throughout the semester and in the course assignments, project, and examinations. The breakdown is shown here, but the individual components are elaborated upon in the following section.

In general: If you are having a personal crisis that is affecting your schoolwork, please talk to me.

51% Three midterm exams:

- Exam 1: Chapters 2 - 3
- Exam 2: Chapter 4
- Exam 3: Chapters 5-7

20% CUMULATIVE Final Exam – Chapters 1 - 8

12% Quizzes (administered in class)

8.5% Cengage WebAssign online homework

8.5% Algorithm Analysis Project

100% TOTAL

*Note that Chapter 8 is included in the final exam, but not assessed in a midterm exam.

Exams: The three regular exams will be taken during class. The final exam will be taken at the same time as all other sections of Math 263: **Saturday, December 16th, 8-10 am**. See Blackboard for your location, because it was not available at the beginning of the semester. The course schedule is posted on Blackboard but also subject to some flexibility depending on the number of questions presented during class and if we get behind or ahead of schedule.

Quizzes: There will be weekly quizzes taken during class. See below for the quiz policies and absence policy.

In order to give a break to students who might miss a quiz for reasons other than a documented excused absence, I drop every student's two lowest quiz scores (without requiring documentation).

Cengage WebAssign online homework: Online homework is assigned for each textbook section we cover. The three lowest online homework assignment scores will be dropped. Online homework assignments can be submitted up to one day late without penalty (you must request the extension on Cengage directly and it will be automatically granted for up to 24 hours past the due date of each assignment). If you do not complete the online homework assignment by that date you will need to email your instructor with a compelling reason for a reasonable extension period (cannot be later than the night before the exam date). Getting side-tracked with work for other courses happens, but you cannot request extensions repeatedly for this reason. Time management is a vital skill for your academic success, and that begins with following the set schedules for assignments in *all* your classes.

IMPORTANT: A high WebAssign grade can be deceptive because it is treated as a learning tool for you: You have multiple attempts at each question (5 attempts for most problems) and can sometimes guess your way to correct answers. Guessing on homework, rather than working to learn the material, will not serve you well when it comes to exams. Please consider the WebAssign homework to be a learning opportunity, rather than an assessment tool. There are limited attempts at each problem, so use your attempts wisely.

Project: We will be completing a project in the second half of the course that ties together the concepts of Section 5.1 with application in Computer Science: algorithmic analysis. This project will require students to complete basic programming skills (loops and counters, assigning variables, and accumulating sums). Students will be permitted to complete the project in several programming languages, and students will complete the project in parts before collecting them together for the final, formal project report.

Student Workload Expectations

Federal and State regulations require that students should expect to spend at least two hours per week per credit hour for working on course-related activity outside of the classroom. Thus, students are expected to spend at least six hours per week outside of the three hours of classroom lecture to succeed in MATH 263.

Here are examples of outside-classroom activities: reading the textbook before lecture, rewriting lecture notes, re-working problems presented in class, watching videos on Professor Noyes' YouTube channel (https://www.youtube.com/channel/UCIVkE0kABXJY8I2sA0ZHDXg/), completing assigned homework, completing additional problems to ensure mastery of concepts, and preparing for tests.

Grading Scheme/Policy

Grade	Grade Points Per Unit
A	>=93%
A-	>=90% and <93%
B+	>=87% and <90%
B	>=83% and <87%
B-	>=80% and <83%
C+	>=77% and <80%
C	>=70% and <77%
D+	>=67% and <70%
D	>=60% and <67%
F	<60%

Math Department Disability Statement

Department of Mathematics Commitment to Diversity: Towson University values diversity and fosters a climate that is grounded in respect and inclusion. Everyone participating in this course is expected to treat all others in accordance with this vision and policy. TU's diversity tenets include sex, sexual orientation, race and ethnicity, color, nationality, gender identity or expression, mental/physical ability, religious affiliation, age, and veteran status. If you feel these expectations have not been met, please contact the Math Department's Diversity representative, Dr. Shore at fshore@towson.edu.

Math 263 Course Policies

Due dates for homework assignments are listed in Cengage - pay careful attention so that you do not miss any due dates.

Homework Policies

- Online homework will be assigned every week to allow you the opportunity to practice concepts covered in class with immediate feedback and multiple attempts to earn full credit.
- The online homework platform used in this course is Cengage WebAssign.
- Your grades for each online homework assignment will be recorded in WebAssign and also integrated into Blackboard
- Online homework is due at 11:59 pm on Monday after the material is covered in class.
- You will receive five attempts for each homework problem. No additional attempts will be offered on any homework problems, so use your five attempts wisely.
- Homework assignments are not timed, but you may get logged out for long periods of inactivity.
- Given the large amount of proof writing you will be doing, there are problems that help you build up your proof-writing skills on WebAssign, but all full-length, formal proofs will be assigned as take-home quizzes (THQs) or written homework.
- Homework will not be opened at a later point in the semester, so pay attention to all due dates.
- There is a one-day extension available by request on WebAssign, but you may only extend the homework assignment up 24 hours past its due date.
- If extenuating circumstances exist, you may submit a manual extension request on WebAssign and I will respond.

Quiz Policies

- All quizzes are administered during the class period on a weekly basis.

- You may not consult/collaborate with other students during quizzes unless specifically instructed to do so by Professor Noyes. These quizzes must be completed without the assistance of any other person/website/application/technology.
- Pay attention to the course calendar and Blackboard for quiz dates.
- No make-up quizzes will be administered.
- Each in-class quiz will be allotted 10-15 minutes, and if you were engaged in the previous class meetings, you should perform well on these quizzes.
- Attempting the suggested homework problems from the textbook and asking for help during office hours or over email will boost your chances of scoring well on the quizzes.
- All take-home quizzes (THQs) will be due at the beginning of the following class meeting.
- You must show work for computational types of questions, including truth tables, and you must use full sentences and label proofs as outlined together in class. Failure to adhere to these rules will result in a score of 0 on exam/quiz/homework questions. Err on the side of showing more information rather than less.
- Clarifying questions are both welcome and encouraged.
- The lowest two grades will be dropped.

Exam Policies

- There are four exams in this course:
  - Exam 1 covers Chapters 2-3
  - Exam 2 covers Chapter 4
  - Exam 3 covers Chapters 5-7
  - Final Exam covers Chapters 2-8
- You may not consult/collaborate with other students during exams. These exams must be completed without the assistance of any other person/website/application/technology.
- Exams will be administered on paper and during the regular class session.
- You must show work for computational types of questions, including truth tables, and you must use full sentences and label proofs as outlined together in class. Failure to adhere to these rules will result in a score of 0 on exam/quiz/homework questions. Err on the side of showing more information rather than less.
- Any necessary properties/identities will be supplied on each exam.
- You are not permitted any notes or formulas outside of the ones given by Professor Noyes.
- Clarifying questions are both welcome and encouraged.
- A violation of these exam policies will result in a report of a violation of the university academic integrity policy (see below).
- Exam papers will be returned once all students have taken the exam.

Communication

- I will communicate with the entire class via announcements on Blackboard, which will also be emailed directly to your student account. If you need to contact me outside of class and office hours, you need to do so using your student email account due to privacy policies (FERPA).
- You are expected to check both Blackboard and your student email account regularly and respond appropriately.
- Please do not message me directly through Blackboard messages, because I do not see these messages as quickly as I see my email.

Professionalism

- You are expected to attend every class session on time and remaining throughout the entire class session.
- You are expected to be respectful of me, your classmates, and any guests in our classroom. This includes communicating in a kind and constructive manner.
- Your phone/tablet/laptop computer should remain in your bag throughout the class session. If you load the course notes into an application on your tablet and use it to take notes during class without getting distracted by other applications or communications, you may do so without penalty. Stay on task, though.
- You are expected to engage in class activities and discussions. Math is not a spectator sport, and you need to engage in order to learn. This is your class and your degree, so take it seriously.
- Some flexibility will be required if we need to adjust the schedule throughout the semester.

Math 263 Important Dates

- **Monday, August 28:** First day of classes
- **Monday, September 4:** Labor Day holiday; TU closed
- **Wednesday, September 6:** Last day to drop a course without a "W"
- **Friday, October 13:** Fall Break; TU closed
- **Monday, November 6:** Last day to withdraw with a grade of "W"
- **Wednesday-Sunday, November 22-26:** Thanksgiving Holiday; TU closed
- **Monday, December 11:** Last day of regular classes
- **Final Exam date, time and location:**

  Saturday, 12/16, 8:00 - 10:00 am, location TBA

Late Work Policy

I do **not** accept late work. If we have an assignment due in class, you may not email it to me or ask to upload it later or turn it in at a later date. If you have a verifiable emergency, this policy can be adjusted as needed. Due to the nature of the weekly quizzes, I will **not** administer make-up quizzes. You will have the lowest two quiz scores dropped, so if you miss a quiz and receive a score of zero, that quiz may be counted as one of the two dropped quizzes.

Academic Integrity Policy

The academic integrity policy for this course is consistent with the TU Academic Integrity Policy. The policy can be reviewed here: https://www.towson.edu/about/administration/policies/03-01-00-student-academic-integrity-policy.html

Course Repeat Policy

Students may not repeat a course more than once without prior permission of the Academic Standards Committee. (If course can be

repeated for additional credit, provide a statement such as “May be repeated for a maximum of X units.”)

Students with Disabilities Policy

This course is in compliance with Towson University policies for students with disabilities. Students with disabilities are encouraged to register with Accessibility & Disability Services (ADS), University Union, Suite 146, 410-704-2638 (Voice) or 410-704-4423 (TDD). 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. A memo from ADS authorizing your accommodation is needed before any accommodation can be made.

https://www.towson.edu/accessibility-disability-services/

Title IX Policy

Towson University (TU) is committed to ensuring a safe, productive learning environment on our campus that does not tolerate sexual misconduct, including harassment, stalking, sexual assault, sexual exploitation, or intimate partner violence [Policy 06.01.60]. It is important for you to know that there are resources available if you or someone you know needs assistance. You may speak to a member of university administration, faculty, or staff, but keep in mind that they have an obligation to report the incident to the Title IX Coordinator. It is a goal that you feel able to share information related to your life experiences in classroom discussions and in one-on-one meetings. However, it is required to share information with the Title IX Coordinator regarding disclosures, but know that the information will be kept private to the greatest extent possible. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the TU Counseling Center 410-704-2512 to schedule an appointment, and locally within the community at TurnAround, Inc., 443-279-0379 (24-hour hotline) or 410-377-8111 to schedule an appointment.” http://towson.edu/titleix (http://towson.edu/titleix/)

Attendance/Absence Policy

Class attendance is expected. 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-ups are allowed only for documented excused absences.

Please read the University policy regarding class attendance in the online Towson University Undergraduate Catalog:

https://catalog.towson.edu/undergraduate/academic-policies/class-attendance-absence-policy/

Counseling Resources

The Towson University Counseling Center (TUCC) provides free and confidential counseling services. For more information about TUCC, please visit their website at https://www.towson.edu/counseling (https://www.towson.edu/counseling/). To make a same-day appointment or for after-hours crisis assistance, please call 410-704-2512.