Discrete Structures

The University of Toledo
College of Engineering
EECS 2520 - 001 (CRN: 16497)

Instructor:	Ahmad Y Javaid	**Class Location**:	PL 2470
Email:	Ahmad.Javaid@utoledo.edu	**Class Day/Time**:	TR, 8.00 am – 9.15 am
Office Hours:	TR, 10.00 am – 12.00 pm	**Lab Location**:	NA
Office Location:	NI 2051	**Lab Day/Time**:	NA
Office Phone:	419.530.8260	**Credit Hours**:	3
Term:	Spring 2017		

COURSE/CATALOG DESCRIPTION

An introduction to the discrete structures used in computer science to develop software including proof techniques, Boolean logic, graphs, trees, recurrence relations, and functions.

STUDENT LEARNING OUTCOMES

Upon successful completion of the course, the students will:

1. Develop a vocabulary for and appreciation for mathematical rigor in Computer Science.
2. Learn and apply Mathematical Induction to a range of problems.
3. Learn fundamental notations for sets, functions, sequences, and summations.
4. Learn and apply Number Theory to solve problems in Computer Science.
5. Develop the mathematical underpinnings required for computer security.
6. Learn the elementary principles of Combinatorics.
7. Solve a limited class of recurrence relations.
8. Ability to define and construct graphs and trees.
9. Motivate the relevance of sound mathematics to software development.

TEACHING STRATEGIES

This course is designed to stimulate student learning through engagement and participation. A variety of learning strategies will be used including in class discussions, group activities and assessments. Please be prepared when you come to class by completing all assigned readings and/or viewing posted videos, if any. Coming to class prepared to participate will be critical to your success as the class activities are a significant part of learning the course material.

PREREQUISITES AND COREQUISITES

Undergraduate level PHIL 1010, Minimum Grade of D-

REQUIRED TEXTS AND ANCILLARY MATERIALS

- Discrete Mathematics and Its Applications, Kenneth H. Rosen, (Seventh Edition) McGraw-Hill, 2012, ISBN 0073383090.
- There are excellent support resources for this text at the McGraw Hill Website for this book. http://highered.mcgraw-hill.com/sites/0073383090/information_center_view0/. Pay special attention to the Learning Center link to “Student Edition”, and the supplements for each chapter.

TECHNOLOGY REQUIREMENTS

Access to the online learning system Blackboard is required. All lecture notes, reading materials, assignment and exam grades will be posted there.

UNIVERSITY POLICIES

Policy Statement on Non-Discrimination on the basis of Disability (ADA)

The University is an equal opportunity educational institution. Please read The University's Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance.)

Academic Accommodations

The University of Toledo is committed to providing equal access to education for all students. If you have a documented disability or you believe you have a disability and would like information regarding academic accommodations/adjustments in this course please contact the Student Disability Services Office.

ACADEMIC POLICIES

Academic Policies for Students

As a student in my course and enrolled at The University of Toledo you should be familiar with the policies that govern the institution's academic processes, for example, Academic Dishonesty, Enrollment Status, and Grades and Grading. Please read Undergraduate/Graduate Academic Policies.

Missed Exam/Class Policy

Students are expected to attend every class meeting of this course. Missing exams is unquestionable but in case of emergencies, instructor needs to be notified in at least 2 hours advance by email. Re-exam will be decided on a case to case basis.

COURSE EXPECTATIONS

Examination must be taken as scheduled or as announced in class. Homework assignments should be submitted before the deadline. Exceptions could be absences, only be made in extenuating circumstances and at the discretion of the instructor. Make-up exams will differ from those given in class, but will cover the same material.

GRADING

Exams

There will be 2 midterm exams, worth a total of 200 points. The final exam will be worth 200 points. Here are the dates of each exam:

Exam	Date
Mid-term Exam 1	February 9, 2017
Mid-term Exam 2	March 23, 2017
Final Exam	May 2, 2017 (8:00-10:00 am)

For each topic covered in class, related materials will be posted on BlackBoard under the folder "Lecture Notes". This material is considered part of the reading for the exams. Students may bring one page (both sides) of handwritten notes to each exam. Exams that are difficult to read will be returned for rewriting before grading.

Final Grading

Students who do not attend class or stop attending at some point throughout the semester, without officially dropping or withdrawing, will be given a final grade of "F" which will impact your overall grade point average (GPA). To formally withdraw from this or any other course you need to contact the Registrar's Office/Rocket Solution Central or check online at myUT. The grading scale for this course is as follows:

A	90% and above	C	63 - 71%
A-	87 - 89%	C-	60 - 62%
B+	84 - 86%	D+	57 - 59%
B	78 - 83%	D	52 - 56%
B-	75 - 77%	D-	50 - 51%
C+	72 - 74%	F	Below 50%

Final grades will be calculated as follows:

Assessments	% of Final Grade
Homework Assignments	25%
Mid-term 1	25%
Mid-term 2	25%
Final Exam	25%
	100%

Homework Assignments

Various formats will be used for take-home assignments including multiple choice and short answer questions. Homework will be assigned every week and will be due in exactly one week.

COMMUNICATION GUIDELINES

Office Hours and E-mail

Students can see me during Office hours as listed on Page 1. In case I am not available, please email to schedule an appointment. As your instructor, I am here to help, and I will do my best to respond to e-mails within 24 to 48 hours. Students are expected to check their UT email account frequently for important course information.

STUDENT SUPPORT SERVICES

The University of Toledo offers a wide range of academic and student support services that can help you succeed:

The Writing Center

The Writing Center provides free, face-to-face and online tutoring for writers in all disciplines. The staff there can assist you with a variety of writing assignments.

The Counseling Center

Transitioning to college and/or maintaining a healthy well-being while attending college can be difficult, if you or a friend ever feel overwhelmed adjusting to college or in need of crisis intervention or mental health services please contact the Counseling Center.

COURSE TOPICS

Note: Section numbers below refer to sections of the textbook by Kenneth Rosen

1. The Foundations: Logic and Proofs
2. Basic Structures: Sets, Functions, Sequences and Sums
4. Number Theory and Cryptography
5. Induction and Recursion
6. Counting
8. Advanced Counting Techniques
10. Graphs
11. Trees

NOTE: Students are expected to complete and submit all assignments by the due date. Late assignments will not be permitted unless arrangements have been discussed and approved prior to the due date. If you do not understand an assignment or have any questions please contact me; remember, I am here to help YOU!! Make-up tests will only be given in case of an emergency and only at the instructor's discretion.

WELCOME! I look forward to engaging and learning with you throughout the semester!