

CIS 275-Syllabus



CIS-275, Discrete Mathematics I, 4 Credit Hours

Prof. Sana Neji

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Office Hours: Monday and Wednesday 11:30 A.M to 2:00 P.M

Course Meeting Times: 10:00 Am - 11:45 Am and 2:00 Pm - 3:45 Pm, Monday and Wednesday.

Course Description:

This course introduces students to various topics in discrete mathematics, such as set theory, mathematical logic, trees, and graph theory. Applications to relational databases, modeling reactive systems and program verification are also discussed.

Course Objectives:

- The student will be able to classify the nodes of a tree by parent, children, siblings, ancestors, and descendants
- The student will be able to design and conduct experiments to verify the theoretical complexities of algorithm implementations
- The student will be able to identify the properties (transitivity, reflexivity, symmetry, and anti-symmetry) of a binary relation
- The student will be able to identify various paths and cycles (such as Euler and Hamiltonian) in a graph
- The student will be able to perform complexity analysis of simple algorithms
- The student will be able to prove the correctness of simple algorithms using program assertions
- The students will be able to understand and use the basic concepts of relational database systems
- The student will be able to use a truth table to decide the veracity of a proposition
- The student will be able to write an induction proof

Prerequisite:

Successful completion of CIS 200 or MATH 115

References:

Richard Johnson baugh, Discrete Mathematics, 7th edition, ISBN-10: 0131593188

Exams:

One mid-term and one final exam.

Assessment:

- Quizzes (around 7 quizzes): 20%
- Homework (around 3 assignments): 20%
- Mid-term Exam: 30% (2 hours)
- Final Exam: 30% (2 hours)

Grade Scale:

A+ \geq 95,

A \geq 92,

A- \geq 90,

B+ \geq 85,

B \geq 82,

B- \geq 80,

C+ \geq 75,

C \geq 72,

C- \geq 70,

D+ \geq 65,

D \geq 62,

D \geq 60,

E \leq 59.

Course Schedule:

Chapter 1.	Sets
Chapter 2.	Mathematical Induction
Chapter 3.	Functions, sequences and relations
Chapter 4	Algorithms
Chapter 5	Introduction to Number Theory
Chapter 6	Counting Methods
Chapter 7	Recurrence Relations
Chapter 8	Graph Theory
Chapter 9	Trees
Chapter 10	Boolean Algebra

Writing Center

The Writing Center provides support for all UM-Dearborn students wishing to improve their writing. Students needing regular one-on-one help in developing basic writing skills, as well as more advanced students wishing to improve their writing, will find the center useful. The center is located in 3035 CB (Mon-Thurs 8:30-7:00 and Fri 8:30-1:00) with smaller satellites on the first floor of Mardigian Library (Mon-Thurs 10:00-1:00) and Fairlane Center North 138 (Mon-Thurs 2:00-8:00). The center tries to accommodate walk-ins but prefers students make appointments online at

http://casl.umd.umich.edu/writ_center/

University Attendance Policy:

A student is expected to attend every class and laboratory for which he or she has registered. Each instructor may make known to the student his or her policy with respect to absences in the course. It is the student's responsibility to be aware of this policy. The instructor makes the final decision to excuse or not to excuse an absence. An instructor is entitled to give a failing grade (E) for excessive absences or an Unofficial Drop (UE) for a student who stops attending class at some point during the semester.

Academic Integrity Policy:

The University of Michigan-Dearborn values academic honesty and integrity. Each student has a responsibility to understand, accept, and comply with the University's standards of academic conduct as set forth by the Code of Academic Conduct (<http://umdearborn.edu/697817/>), as well as policies established by each college. Cheating, collusion, misconduct, fabrication, and plagiarism are considered serious offenses and violations can result in penalties up to and including expulsion from the University.

Disability Statement:

The University will make reasonable accommodations for persons with documented disabilities. Students need to register with Disability Resource Services (DRS) every semester they are enrolled. DRS is located in Counseling & Support Services, 2157 UC (http://www.umd.umich.edu/cs_disability/). To be assured of having services when they are needed, students should register no later than the end of the add/drop deadline of each term. If you have a disability that necessitates an accommodation or adjustment to the academic requirements stated in this syllabus, you must register with DRS as described above and notify your professor.

Safety:

All students are strongly encouraged to register in the campus Emergency Alert System, for communications during an emergency. The following link includes information on registering as well as safety and emergency procedures information: <http://umemergencyalert.umd.umich.edu/> Finally, all students are also encouraged to program 911 and UM-Dearborn's Public Safety phone number (313) 593-5333 into personal cell phones. In case of emergency, first dial 911 and then if the situation allows call UM-Dearborn Public Safety.