

Syllabus for MAD 2104 Discrete Mathematics, Section U52

Class Number 13141, Spring 2021

Book: K. Rosen *Discrete Mathematics and Its Applications* (7 ed.)
ISBN 978-0-07-338309-5

Additional Source: Lecture Notes and Collection of Exercises at
<https://case.fiu.edu/about/directory/profiles/gorman-susan.html>

Contents of the course

MAD 2104 Discrete Mathematics is a course designed to give a better idea of fundamental math concepts which are not related to continuity and differentiability (explanation of the latter one can find in the courses on Calculus). As such, it may be thought of as the theoretical basis for computer science (although it is much more than that!). The course includes a study of naive set theory, math logic, math induction and recursion, relations and their properties, functions, cardinality of sets, graph theory and Boolean algebras. Along with the study of these topics, a primary goal of the course is to teach mathematical reasoning and problem solving. The presentation of the material is reasonably rigorous, aimed at providing the students with fundamental tools for thinking of and arguing in math as well as using computers for studying math problems.

Organization of the course work

1) Sets and Operations on Sets, Relations, Equivalence Relations, Functions, Cardinality.

(This material will be tested on Midterm 1, the week of February 8)

2) Logic and Arguments, Mathematical Induction & Recursion, Combinatorics, Combinatorial Identities & Binomial Theorem.

(This material will be tested on Midterm 2, the week of March 8)

3) Graphs (Directed & Undirected), Isomorphism of Graphs, Paths, Adjacency Matrices, Euler Paths, Four Color Problem, Planar Graphs, Trees, Traversal of Trees.

(This material will be tested on Midterm 3, the week of April 5)

4) Boolean Algebras, Disjunctive Normal Form, Minimization of Boolean functions.

FINAL EXAM –Cumulative–scheduled according to university schedule

A quiz will be given every **Wednesday** on homework assigned from the previous week except when an exam is given.

Determining the overall grade

For the computation the arithmetic mean (A.M.) of five exam scores will be used: the scores of the Three Midterms, the score of the Final Exam, and the score equal to the sum of the eight highest Quiz scores. The grading scale is given by

A for $AM \geq 90$	A- for $89 \geq AM \geq 87$	B+ for $86 \geq AM \geq 84$
B for $83 \geq AM \geq 80$	B- for $79 \geq AM \geq 77$	C+ for $76 \geq AM \geq 74$
C for $73 \geq AM \geq 70$	D for $69 \geq AM \geq 60$	D F for $59 \geq AM$

Academic Misconduct Statement

Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook.

Academic Misconduct includes: **Cheating** – The unauthorized use of books, notes, aids, electronic sources; or assistance from another person with respect to examinations, course assignments, field service reports, class recitations; or the unauthorized possession of examination papers or course materials, whether originally authorized or not. **Plagiarism** – The use and appropriation of another’s work without any indication of the source and the representation of such work as the student’s own. Any student who fails to give credit for ideas, expressions or materials taken from another source, including internet sources, is responsible for plagiarism.

To learn more about the academic integrity policies and procedures visit integrity.fiu.edu (Links to an external site.)

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The Disability Resource Center collaborates with students, faculty, staff, and community members to create diverse learning environments that are usable, equitable, inclusive and sustainable. The DRC provides FIU students with disabilities the necessary support to successfully complete their education and participate in activities available to all students. If you have a diagnosed disability and plan to utilize academic

accommodations, please contact the Center at 305-348-3532 or visit them at the Graham Center GC 190.

For additional assistance please contact FIU's [Disability Resource Center](#)

Important remark: The Instructor reserves the right to make any changes he considers academically advisable. Any such changes will be announced in advanced in class or by posting them to the e-mail accounts of the students. The students are responsible to be aware of the changes announced this way.