



كلية الحاسبات والذكاء الاصطناعي

Discrete Mathematics

Description

Dr. Ahmed Hagag

**Faculty of Computers and Artificial Intelligence
Benha University**

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Basic Course Information

- Course code: **FBS102-NBS102**
- Course name: **Discrete Mathematics**
- Level: **1st Year / B.Sc.**
- Course Credit: **3 credits**
- Instructor: **Dr. Ahmed Hagag**



Assessment

Final Exam

50

الامتحان النهائي

Section

20

حضور و واجبات
ومشاركة في السكاشن

Midterm

15

منتصف الفصل

Quizzes

10

الاختبارات
الفصلية

Attend

5

حضور

Lectures Reference

Kenneth H. Rosen



Discrete Mathematics and Its Applications

Mc
Graw
Hill
Education

Eighth Edition

Textbook 2019

<https://drive.google.com/drive/folders/1a2rpYLZtEzuTyRZVqkN1mAnvIATd1dq6?usp=sharing>





Course Objectives

- Learn how to think mathematically.
- Grasp the basic logical and reasoning mechanisms of mathematical thought.
- Acquire logic and proof as the basics for abstract thinking.
- Improve problem-solving skills.
- Grasp the basic elements of induction, recursion, combination and discrete structures.



DM is a Gateway Course

Topics in discrete mathematics will be important in many courses that you will take in the future:

- **Computer Science:** Computer Architecture, Data Structures, Algorithms, Programming Languages, Compilers, Computer Security, Databases, Artificial Intelligence, Networking, Graphics, Game Design, Theory of Computation,
- **Mathematics:** Logic, Set Theory, Probability, Number Theory, Abstract Algebra, Combinatorics, Graph Theory, Game Theory, Network Optimization, ...
- **Other Disciplines:** You may find concepts learned here useful in courses in philosophy, economics, linguistics, and other departments.



Course Syllabus

Some topics from the following chapters:

- The Foundations: Logic and Proofs.
- Basic Structures: Sets, Functions, Sequences, and Sums.
- Algorithms.
- Number Theory and Cryptography.
- Induction and Recursion.
- Relations.
- Graphs.
- Trees.

Thank You

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