MATH 221
Discrete Mathematics
Fall 2023

Instructor:	Murat Ak	
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Weekly Schedule:	Mon 15:30-17:20 Amphi-1	Wed 13:30-15:20 Amphi-4

Textbooks:

- Required: Grimaldi, *Discrete and Combinatorial Mathematics: An Applied Introduction, 5th Edition*, Pearson, 2003.
- Suggested: Rosen, *Discrete Mathematics and Its Applications, 7th Edition*, McGraw-Hill Edu., 2011.
- Suggested: Graham, Knuth, Patashnik, *Concrete Mathematics, 2nd Edition*, Addison-Wesley, 1994.
- Suggested: Ross, *Topics in Finite and Discrete Mathematics*, Cambridge, 2004.
- All books

Objectives: This course is designed for computer engineering undergraduate students. Its aim is to introduce the terminology, available methods, and ideas in discrete mathematics to future computer scientists/engineers.

Grading Policy:

- Midterm (40%) (Counting Principles)
- Final (60%) (Advanced Counting, Graphs)
- Bonus: Participation (?%) High-quality contribution during the lectures (questions, answers, etc.) will get instant bonus points, will be added to exam grades later.

Tentative (may change due to the midterm week, etc.) Course Outline:

Week		Day1 Subject	Day2 Subject
01	Oct02/04	Course info	Counting Basics (1.1,1.2)
02	Oct09/11	Combinations (1.3,1.4)	Catalan Numbers (1.5)
03	Oct16/18	Logic Basics (2.1,2.2,2.3)	Quantifiers (2.4,2.5)
04	Oct23/25	Math. Induction (4.1, 4.2)	Divisibility (4.3, 4.4, 4.5)
05	Oc30/Nv01	Relations (5.1-5.4)	Pigeonhole Pr. (5.5)
06	Nov06/08	Relations (7.1-7.4)	Relations (7.1-7.4)
07	Nov13/15	Problem Solving	Midterm Review
08	Nov20/22	Midterm Week	Midterm Week
09	Nov27/29	Inc-Exc (8.1-8.2)	Inc-Exc (8.1-8.2)
10	Dec04/06	Derangements (8.3)	Rook Poly. (8.4-8.5)
11	Dec11/13	Gen. Func. (9.3-9.5)	Gen. Func. (9.3-9.5)
12	Dec18/20	Recurrence Relations (10.1)	Recurrence Relations (10.2)
13	Dec25/27	Recurrence Relations (10.3)	Recurrence Relations (10.4)
14	Jan01/03	Course Review	Course Review

Class Policy, rules, and regulations:

- Any devices or other equipment that distracts you, other students, or the instructor should not be used during lectures except in emergencies.
- Missing a lecture can (and probably will) lead to a domino effect. If you miss a lecture, you are strongly recommended to study the material you missed before you return to class. You are responsible for all the material covered in class. So, in case you miss a lecture:
  - Photocopy, and read notes from someone who was in class,
  - Read the relevant sections from the lecture notes, textbooks, and make an Internet search if necessary,

  After you have done this, you may contact the instructor if you need clarification on any materials.

Academic Honesty: ☞ Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation.
Any academic fraud will be severely punished. According to the nature and the severity of the offense (which is, of course, evaluated by the instructor rather than the offender), there may be possible sanctions that include but are not limited to: (1) Assigning a grade of **zero** to the assignment; (2) Assigning a final grade of **zero** for the whole course; (3) Conducting to the disciplinary committee.