PLEASE NOTE: This syllabus is subject to change in unforeseen circumstances.

SABANCI UNIVERSITY, Spring 2023
MATH 204 – Discrete Mathematics

Lecturer (Section A):   Cem Güneri
e-mail: guneri@sabanciuniv.edu
Office: FENS 1053
Office Hours: M 3:30 pm – 4:30 pm,
W 1:30 pm – 2:30 pm,
(zoom link: https://sabanciuniv.zoom.us/j/91937461148)

Lecturer (Section B):   Kağan Kurşungöz
e-mail: kursungoz@sabanciuniv.edu
Office: FENS 2010
Office Hours: W 6:40 pm – 7:30 pm ,
or by appointment
(zoom link: https://sabanciuniv.zoom.us/j/99347092404)

Class Hours (sec. A):   T 11:40 am – 12:30 pm (FENS G 077 and online),
R 10:40 am – 12:30 pm (FENS G 077 and online)
zoom link: https://sabanciuniv.zoom.us/j/95467764290 (both days)

Class Hours (sec. B):   T 4:40 pm – 5:30 pm (FENS G 077 and online),
zoom link: https://sabanciuniv.zoom.us/j/97261659993
R 2:40 pm – 4:30 pm (FENS G 077 and online)
zoom link: https://sabanciuniv.zoom.us/j/92785864562

Recitation Hours: F 10:40 am – 11:30 am (A1 – A4),
F 11:40 am – 12:30 pm (B1 – B4),
F 12:40 pm – 1:30 pm (C1 – C3),
F 2:40 pm – 3:30 pm (D1 – D3),
F 3:40 pm – 4:30 pm (E1 – E4),
F 4:40 pm – 5:30 pm (F1 – F4),
(zoom links for recitations are on SUCourse)

You are responsible for every announcement made in class or in SUCourse. Not attending the class or not following SUCourse regularly is not an excuse, in case you miss something.

Textbook: Discrete Mathematics and its Applications, 7th ed., Kenneth H. Rosen.

Aim of the Course: We hope to gain an understanding of:
* First order logic, proof techniques, mathematical induction.
* Sets, functions, sequences, sums,
* Algorithms, analysis of time and space complexity,
* Divisibility and primes, modular arithmetic,
* Basic and advanced counting techniques, recurrences, solving recurrences,
* Graphs, trees (if time).

Grading: Your grade exclusively depends on the items listed below. There will be no other extra-credit opportunities.

Midterm	25 %
Final	65 %
Recitation grade	10 %

Exams: The midterm will be on Sunday, April 16th, 2023 at 15:00. It is going to be a SUCourse-based online exam. Instructions will be announced via SUCourse.

Midterm	Apr 16 Sun, 15:00, online

More information about the final exams will be available in the semester. Student resources will determine the dates&times for all final exams, and instructors cannot change it. So, do not plan to leave İstanbul before the end of the finals period. We will not accommodate travel arrangements, or other personal business.

Makeup Policy: If you miss a midterm or the final for any reason, you can take the makeup exam. You do not need to submit any documents. The makeup exam will be at the end of the semester (after the finals period ends). It will contain all topics. If you miss both exams for any reason, your letter grade will be NA, and will not be allowed to take the makeup.

Recitation Grade: This consists of quiz scores (6 %) and the TA grade (4 %).

In each recitation, there will be two or three short and easy questions on the fly through SUCourse. Not only the students need to answer the questions accurately, they have to have their cameras on at least during this time.

The best 5 weeks of your quiz scores will determine the quiz grade. Every student is expected to take the quiz in their respective section; otherwise, the quiz grade will not count.

Your participation and behavior in class will determine the TA grade (disturbing your classmates, being late, leaving early etc. may hurt your TA grade).

Problem Submission for Feedback: Each week after the recitation, a challenging problem will be announced on SUCourse. Those of you who wish to get feedback for their solutions are encouraged to write their solutions, and then scan and upload to SUCourse until the following Monday evening. Although these submissions are not graded, we will read your solutions and give you feedback on how you can improve your solution or writing. These questions may prepare you better for the exams, as well.

Extra Help: You are welcome to utilize the office hours of your instructor or your TA. You are also encouraged to seek assistance with Academis Support (https://adp.sabanciuniv.edu)

Academic Integrity: All university policies on academic integrity apply to our course, and they will be enforced. (more information on http://www.sabanciuniv.edu/en/academic-integrity-statement)

Below is a very hopeful tentative breakdown of topics.

Week		Sections from the textbook (Topics)
1	Feb. 27 – Mar. 3	1.1 – 1.4 (Propositional logic, predicates and quantifiers)
2	Mar. 6 – Mar. 10	1.5 – 1.8 (nested quantifiers, intorduction to proofs)
3	Mar. 13 – Mar. 17	5.1, 5.2 (mathematical induction, strong induction)
4	Mar. 20 – Mar. 24	2.1 – 2.3 (sets, functions)
	Mar 25 (makeup for the lost Thursday)	2.4, 2.5 (sequences and summations, cardinalities of sets)
5	Mar.27 – Mar. 31	3.1, 3.2 (introduction to algorithms, growth of functions)
6	Apr. 3 – Apr. 7	3.3, 4.1, 4.3 (complexity of algorithms, divisibility, modular arithmetic, primes and gcd.s,)
7	Apr. 10 – Apr. 14	4.4, 6.1 (introduction to solving congruences, basics of counting)
	Apr. 16	Midterm exam
8	Apr. 17 – Apr. 19	6.2 – 6.4 (the pigeonhole principle, permutations and combinations, binomial coefficients and identities)
	Apr. 20 – Apr. 23	Spring break
9	Apr. 24 – Apr. 27	6.5, 8.1 (multiset permutations and combinations, introduction to recurrence relations)
10	May 1 – May 5	8.2, 8.3 (solving recurrence relations, recursive algorithms)
11	May 8 – May 12	8.4, 8.5 (generating functions, inclusion-exclusion)
12	May 15 – May 19	10.1 – 10.3 (introduction to graphs, terminology, representing graphs and graph isomorphisms)
13	May 22 – May 26	10.4 – 10.6 (connectivity, Euler and Hamiltonian paths, some isolated examples from the rest of the chapter)
14	May 29 – May 31	11.1 – 11.2 (introduction to trees)