

This syllabus is subject to change in unforeseen circumstances

SABANCI UNIVERSITY, Spring 2022 MATH 204 AB – Discrete Mathematics

Lecturer: (Section A) Mohammad Sadek
e-mail: mmsadek@sabanciuniv.edu
Office: FENS 1099
Office Hours: M 10:40-11:30, or by appointment.
<https://sabanciuniv.zoom.us/j/97543443721?pwd=dmcRHFYmImlsZEILTWw4dU1TSThVdz09>
Meeting ID: 975 4344 3721
Passcode: MATH204A
(office hours are online)

Lecturer: (Section B) Kağan Kurşungöz
e-mail: kursungoz@sabanciuniv.edu
Office: FENS 2010
Office Hours: T 18:40-19:30, or by appointment.
<https://sabanciuniv.zoom.us/j/94369346210>
(office hours are online)

Class Hours: (Section A) T 4:40 pm – 5:30 pm (PAC Hall)
R 10:40 am – 12:30 pm (PAC Hall)
zoom info for both days' lecture:
<https://sabanciuniv.zoom.us/j/98321705991?pwd=QlRuaW1pOU50RGpqNGhma1lpbzA1dz09>
Meeting ID: 983 2170 5991
Passcode: MATH204

(Section B) T 9:40 am – 10:30 am (SOM 1099)
(<https://sabanciuniv.zoom.us/j/99508686965>)

R 2:40 pm – 4:30 pm (PAC Hall)
(<https://sabanciuniv.zoom.us/j/98365877089>)

Recitation Hours: R 4:40 pm – 5:30 pm (A1 – A3),
R 5:40 am – 6:30 pm (B1 – B3),
F 10:40 am – 11:30 am (C1 – C4),
F 11:40 am – 12:30 pm (D1 – D4),
F 2:40 am – 3:30 pm (E1 – E4),
F 3:40 am – 4:30 pm (F1 – F4),

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.

Link for online purchase of the book:

<https://www.homerbooks.com/urun/discrete-mathematics-and-its-applications>

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,
- Basic and advanced counting techniques, recurrences, solving recurrences,
- Relations (if time),
- Graphs, trees (if time).

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

Midterm I	25 %
Midterm II	25 %
Final	30 %
Recitation grade	20 %

Exams: The midterms will be on the below listed dates and times. More detailed information will be available in due course.

Midterm I	Apr. 02, 2022, 12:40-14:30
Midterm II	May 21, 2022, 12:40-14:30

The final may be given on any day between Jun 11-23. Student resources will determine the dates× for all final exams, and instructors cannot change it. Do not plan to leave İstanbul before Jun 24. 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. Makeup for either midterm or the final will be at the end of the semester (after the finals period ends). Only students that missed one of three exams will be contacted about the exact time and place. If you miss two exams out of three without a valid documented reason, your letter grade will be NA, and will not be allowed to take the makeup. If you need to take the makeup, do not plan to leave İstanbul before Jun 29, which is the last day for letter grade submission.

Recitation Grade: This consists of quiz scores (17 %) and the TA grade (3 %). The best 8 of your quiz scores will determine the quiz grade. Your participation and behavior in recitation hours will determine the TA grade (disturbing your classmates, attempting to cheat in quizzes (which may cause other problems), being late, leaving early etc. may hurt your TA grade).

Quizzes: There will be quizzes in almost all recitations (12 or 13 quizzes). They will be short quizzes at the end of recitations. **The quizzes will be online proctored and recorded.** This means that you must be on zoom and your camera should be on during the quiz. In the case of non-compliance with this and other declared quiz policies, your quiz will be voided. The best 8 of your quiz scores will determine the quiz grade. There will be no make up for any of the quizzes for any reason. Suggested problems will be posted on SUCourse.

Extra Help: You are welcome to utilize the office hours of your instructor or your TA.

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>)

In particular, no form of cheating is welcome in the exams or quizzes, such as copying whole or part of each others' answers. Students are not allowed to give or receive outside help. The action against such violations could range from getting a zero on the particular quiz/exam to explaining the case in front of the disciplinary committee.

In quizzes or exams, if we suspect any breach of academic integrity, we may ask for an oral validation of the quiz/exam. In this case, the student will be invited to an oral interview and will be given the opportunity to explain their solution. If the student cannot provide sufficient explanations, or does not show up to the interview, their quiz/exam grade will be replaced with zero (0).

Class Discipline: It is our responsibility to provide students with excellent teaching and learning environments. We are therefore asking you to please respect both our responsibility to teach and the right of other students to learn. Any action that disturbs your classmates or interrupts the lecture is unacceptable. The following rules must be followed as long as you are our students.

1. Classes will start punctually on time. By coming to a class late, you will not only lose important material and announcements, but you will also disturb and distract others in the class, and disrupt the flow of the lecture or discussion.
2. Leaving early is unacceptable (unless we are aware ahead of time). If you are unable to attend class, you are responsible to find out what you have missed.
3. Turn your mobile off or put it on silent mode and stow it away.
4. **Class Attendance:** Attendance and participation in class sessions are essential to the process of education. If students fail to attend class, they fail to take advantage of an educational opportunity. Students' grades may suffer if their absences from any class session cause them to miss any direct assessment activities (e.g., a quiz). For these reasons students are expected to attend all classes regularly.

Attention must be taken regarding COVID-19 spread prevention. Students attending classes must comply with the rules list at <https://mysu.sabanciuniv.edu/en/covid-19-rules> , especially those regarding "OPEN AND CLOSED AREAS". The maximum capacity of the classrooms will always be respected and students are required to correctly wear a mask and sit only in the designated seats at all times.

Below is a very hopeful tentative breakdown of topics.

Week	Dates	Topic (Sections from the textbook)
1	Feb 28 - Mar 04	1.1 – 1.4 propositional logic, predicates and quantifiers
2	Mar 07 - Mar 11	1.5 – 1.8 nested quantifiers and introduction to proofs
3	Mar 14 - Mar 18	5.1, 5.2 mathematical induction
4	Mar 21 - Mar 25	2.1 – 2.3 sets and functions
5	Mar 28 - Apr 01	2.4, 2.5, 3.1 sequences and sums, cardinality of sets, intro to algorithms, MT I on Apr 02 Saturday, between 12:40-14:30
6	Apr 04 - Apr 08	3.2, 3.3 growth of functions and complexity of algorithms
7	Apr 11 - Apr 15	4.1, 4.3 divisibility, modular arithmetic, primes
8	Apr 18 - Apr 22	6.1 – 6.4 introduction to counting, the pigeonhole principle
9	Apr 25 - Apr 29	6.5, 6.6, 8.1 advanced counting
	May 02 – May 08	Spring break
10	May 09 - May 13	8.2 – 8.5 solving linear recurrences, generating functions
11	May 16 - May 20	9.1, 9.2 relations (no classes or recitations on May 19-20) MT II on May 21 Saturday, between 12:40-14:30
12	May 23 - May 27	10.1 – 10.3 intro to graphs, graph isomorphisms
13	May 30 - Jun 03	10.4 – 10.8 connectivity, Euler and Hamilton paths, intro to graph algorithms
14	Jun 06 - Jun 10	11.1 – 11.5 trees