

Calculus II (MATH 102 A, B, C) Sabancı University, Spring 2022/23

We may have to revise the course plan according to the reassessment to be made country-wide, regarding higher education, at the beginning of April. The content to be delivered is certain but the method of course delivery, the number and dates of exams, and some other details are subject to change.

Lecturer (Section A): Gamze Kuruk

e-mail: gamze.kuruk@sabanciuniv.edu

Office: UC 1089

Office Hours: Tue 15:40 - 16:30, in the office or on Zoom (link on SUCourse)

Lecturer (Section B): Matteo Paganin

e-mail: matteo.paganin@sabanciuniv.edu

Office: UC 1089

Office Hours: Mon 16:40 - 17:30, in the office or on Zoom (link on SUCourse)

Lecturer (Section C): Mohammad Sadek

e-mail: mohammad.sadek@sabanciuniv.edu

Office: FENS 1099

Office Hours: Wed 10:40 - 11:30, in the office or on Zoom (link on SUCourse)

Coordinators: Gamze Kuruk and Matteo Paganin

Class Hours: (Section A) Mon 12:40 - 14:30, Tue 11:40 - 12:30 *online, broadcasted from FASS G062*

(Section B) Mon 14:40 - 16:30, Tue 11:40 - 12:30 *online, broadcasted from SBS 1099*

(Section C) Mon 11:40 - 12:30, Tue 12:40 - 14:30 *online, broadcasted from FENS G077*

All links will be shared on SUCourse.

Recitation Hours: Fri 8:40 - 10:30 (A1 - A9),

Fri 10:40 - 12:30 (B1 - B9),

Fri 13:40 - 15:30 (C1 - C8),

All links will be shared 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: Calculus Early Transcendentals 2nd Edition (Global Edition), Briggs, Cochran & Gillett. You can purchase it following the instructions found on the course page, in SUCourse.

For online homeworks, students must have a personal account on Pearson MyLab. Detailed instructions, including how to create/link such an account, will be shared on SUCourse, during the second week of classes.

Condensed guideline of the present syllabus

- Read this syllabus from top to bottom.
- Check that you have a Zoom account and a TopHat account, both using your sabanciuniv.edu address.
- Follow the announcements on SUCourse.
- Attend the lectures via Zoom and answer the questions presented at the same time via TopHat, you may do so also from the class where we will teach.
- Do the MyLab homeworks, if you purchased the book. The account on MyLab must be created with your sabanciuniv.edu address. If you used a code last semester, you do not need a new one.
- Attend the recitations via Zoom, ask questions when you do not understand, and answer the pop-up questions presented at the same time via TopHat. You are required to keep your webcam on.
- Solve the quiz question(s) at the end of each recitation, uploading your answer on Gradescope.
- Prepare for the Midterm and the Final exams.
- Take advantage of the Office Hours, to ask your questions, and check out the suggested problems, again on SUCourse.

All the details are in the following pages.

Aim of the Course: We hope to gain an understanding of:

- Sequences and series, approximation of functions by series,
- Functions of several variables,
- Differentiation of functions of several variables,
- Optimizing functions of several variables,
- Integrating functions of several variables,
- Various coordinate systems if time allows.

Learning Outcomes: On completion of this course the student should be able to:

1. Define the notion of convergence of series and use various tests to determine series convergence,
2. Find Taylor representations of functions and approximate functions via Taylor polynomials,
3. Understand and use the concept of a function of several variables, draw graphs in 3 dimensional spaces,
4. Use the properties of vectors and operations with vectors,
5. Compute partial derivatives, directional derivatives and write equations of tangent planes to surfaces,
6. Apply partial derivatives to find and test local extrema,
7. Evaluate double integrals in Cartesian and polar coordinates and triple integrals in Cartesian coordinates.

Lectures and Recitations: Lectures are broadcasted online via Zoom, from the classrooms listed above. Recitations are given online, via Zoom. Attendance is checked (see below in Participation) using TopHat and the Zoom polls. You are required to register a TopHat and a Zoom account using the sabanciuniv.edu mail address provided by the university. Any data related to any other mail address must be ignored.

Each recitation will consist of the following activities.

Problem solving: Assistants will discuss solutions of various exercises.

Solutions discussion: Assistants will share solutions of previous exams inspired by students' incorrect answers; then, together with the students, they will discuss how to improve them.

Quiz: Students are given few questions, similar to the problems seen in the rest of the recitation.

Grading: Your grade exclusively depends on the following listed items. The details of each item are in the next page. There will be no other extra-credit opportunities. Please note that the weights are *tentative*.

Midterm	35%
Final	40%
Lecture Participation	5%
Recitation Participation	5%
Recitation Quizzes	15%
Online homeworks (requires MyLab account)	5%

IMPORTANT

Every document submitted needs to be originally hand-written on paper and needs to include name, surname, student ID number, and signature in the top left corner of each page (note: if you write on the two sides of a piece of paper, write the information on both sides).

Any page missing any of these information must be ignored.

Submissions by mail are **never** considered.

NA Policy: Students missing both the midterm and the final, without a valid excuse, will receive NA if they also miss the make-up.

In general, if you will have serious issues preventing you from regularly following the course, you are required to contact the course coordinator Gamze Kuruk. Please see also Class Discipline below.

Midterm and Final: The midterm will be on the below listed date and time. More detailed information will be available in the due course. The university will later announce the final exam date. The final may be given on any day between 1/6/2023 and 11/6/2023. Student Resources schedules it, so do not plan to leave Istanbul before 11/6/2022 (*see also the make-up policy below*).

During the exams, the use of books, notes, electronic devices (including cell phones, smart watches, calculators, earphones, computers, etc.), or any other kind of supporting learning material is **NOT** allowed. A student violating this rule will receive 0 points for that exam.

Midterm	<i>TBA</i>
Final	Scheduled and announced by SR

Participation Grades: Participation is measured both in lectures and in recitations.

In each lecture and recitation, a certain number of pop-up questions will be presented to the students, via TopHat. Students attending their correct Zoom session or class will get 1 participation point if they also answer, correctly or not, at least half of the questions. Only the TopHat answers given by students attending their correct Zoom lecture/recitation will be counted. Occasionally, a Zoom poll will be given to crosscheck the TopHat answer.

There will be no make-up for missed questions. At the end of the semester, we will drop the worst 30% scores (separately for Lecture participation and Recitation participation).

Recitation Quizzes: There will be a short quiz, usually at the end of the each recitation. Suggested problems, useful to review and practice outside the recitations, are listed in SUCourse. During the entire duration of each quiz, students are proctored and recorded. More details are announced on SUCourse.

Quizzes submitted late will lose 1 point out of 4.

There will be no make-up for missed quizzes. At the end of the semester, the worst 4 grades will be dropped.

Online homework: During the second week of the course, detailed instruction on how to create an account, use your code, and access the MyLab resources, will be shared with you on SUCourse.

The homeworks are posted on each weekend and are due on Thursday at 23:45.

There will be no make-up for the homeworks. At the end of the semester, we will drop the worst 30% scores.

Exams Make-up Policy: If you miss an exam and wish to make it up, you must contact Gamze Kuruk by mail, and explain your excuse as soon as possible.

If it is a health problem you need to bring a medical report, that must be given or checked by SU Health Center within 3 days of the date of the report. Make-up for the midterm or the final will be at the end of the semester (after the finals period). Only students that had contacted the coordinator with a valid excuse will be informed about the time and place. The make-up exam will contain all topics.

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 general, to ensure Academic Integrity, any student might be asked to validate any activity contributing to their grade in an interview via Zoom (recorded, with audio and video). A student failing to explain the submitted work, or refusing/missing the interview, will receive zero from that work.

In particular, no form of cheating is welcome in the exams, quizzes or any assignment, such as copying whole or part of each other's answers, using cheat-sheets etc. The action against such violations could range from getting a zero on the particular assignment to explaining the case in front of the Disciplinary Committee.

Class Discipline: It is our responsibility to provide students with excellent teaching and learning environments. We are therefore asking you to respect both our responsibility to teach and the right of other students to learn. Any action that disturbs your classmates or disrupts the online activities is unacceptable. Repeated violations of the above rules may cause a student to be counted as absent for a lecture or a recitation.

General Suggestions:

- Feel free to ask us and your Assistants questions in and out of class, especially during office hours.
- Remember that you do not have to be a math genius to be successful in this course (although it wouldn't hurt!). Regular study habits are sufficient to get a decent grade.
- Attend the classes and recitation hours regularly. Make sure you attend your own (registered) recitation section.
- Studying out of class for this course should become a routine. Key to success in mathematics is practice.
- GeoGebra and Desmos are useful softwares/websites to visualize many of the concepts we discuss.

Below is a tentative breakdown of topics.

Lecture	Date	Topic (Sections from the textbook)
Week 1	Feb 27-28	8.1-8.3 Sequences, infinite series
Week 2	Mar 06-07	8.4 The divergence and integral tests
Week 3	Mar 13-14	8.5-8.6 The ratio, comparison, and alternating series tests
Week 4	Mar 20-21	9.1-9.4 Power series, Taylor series
Week 5	Mar 27-28	9.4 Taylor series / 11.1-11.3 Vectors, dot product
Week 6	Apr 03-04	11.4 Cross product / 12.1 Planes and surfaces
Week 7	Apr 10-11	12.1-12.2 Planes and surfaces, level curves
	Apr 15	Midterm
Week 8	Apr 17-18	12.4, 12.5 Partial derivatives, chain rule
Week 9	Apr 24-25	12.6, 12.7 Directional derivatives, gradient, tangent planes
Week 10	May 02	12.8 Maximum/minimum problems
Week 11	May 08-09	12.8 Maximum/minimum problems / 13.1 Introduction to double integrals
Week 12	May 15-16	13.1-13.2 Double integrals over rectangular regions and general regions
Week 13	May 22-23	13.3-13.5 Double integrals in polar coordinates and Triple integrals
Week 14	May 29-30	Review (integration)