

## Calculus II (MATH 102 A, B) Sabancı University, Fall 2021/22

**Lecturer (Section A):** Matteo Paganin

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**Office Hours:** Wednesday 14:40-15:30 or by appointment, on Zoom (link on SUCourse)

**Lecturer (Section B):** Nilay Duruk Mutlubas

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**Office Hours:** Tuesday 11:40-12:30 or by appointment, on Zoom (link on SUCourse)

**Coordinator:** Gamze Kuruk (office hours by appointment on Zoom)

**e-mail:** gamze.kuruk@sabanciuniv.edu

**Class Hours:** (Section A) Mon 15:40 - 17:30 *in FMAN 1099 and online*, Tue 11:40 - 12:30 *online*  
(Section B) Mon 11:40 - 13:30 *in FMAN 1099 and online*, Tue 16:40 - 17:30 *online*

**Recitation Hours:** Fri 8:40 - 10:30 (A1 - A3),  
Fri 10:40 - 12:30 (B1 - B3),  
Fri 13:40 - 15:30 (C1 - C3).

**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.

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### 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 or in the auditorium, and answer the questions presented at the same time via TopHat.
- Check out the short videos we will upload on some weeks on SUCourse, with some discussions on how to solve the exercises and review the notes before the recitations.
- Do the MyLab homeworks, if you purchased the book. The account on MyLab must be created with your sabanciuniv.edu address.
- Attend the recitations via Zoom, uploading a pdf of your solutions of the weekly worksheet on SUCourse, and answer the questions presented at the same time via TopHat. Keep your webcam on, for better interaction.
- Finalize and upload your solutions of the worksheet on SUCourse by the next day. This is the only version we will grade.
- 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.

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All the details are in the next pages

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

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

**Lectures and Recitations:** Lectures are given in class and broadcasted online via Zoom, on Mondays, and only online via Zoom, on Tuesdays. Recitations are given online, via Zoom. Attendance is checked (see below in Participation) using the log files of Zoom (for the recitations) and TopHat. You are required to register a Zoom account using the sabanciuniv.edu mail address provided by the university. Log data related to other mail addresses will be ignored.

Each recitation will consist of the following activities

**Problem solving:** Students are given a worksheet to work on, with the support of the Assistants.

**Discussion:** Students are presented questions, via TopHat, to discuss the details of the weekly topics.

**Quiz:** Students are given few questions, similar to the problems in the worksheets or in the discussion.

**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.

Midterm	30%
Final	35%
Lecture Participation	5%
Recitation Participation	5%
Recitation Quizzes	10%
Weekly Worksheets	15%
Online homeworks (requires MyLab account)	5%

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**IMPORTANT:**

Every document submitted needs to be hand-written on paper, to be converted to pdf, and 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 will be ignored.

Submissions by mail are **never** considered, SUCourse is the only means accepted.

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**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:** These are tests performed in person on campus. 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 3/1/2022 and 14/1/2022. Student Resources will determine the dates and times for all final exams, and instructors cannot change it. So, do not plan to leave Istanbul before 14/1/2022 (*see also the make-up policy below*).

During the exams, the use of books, notes, electronic devices (including cell phones, smart watches, calculators, 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	November 20th - between 15:30 and 18:00
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.

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. There will be no make-up for missed quizzes. At the end of the semester, the worst 3 grades will be dropped.

**Weekly Worksheets:** In every recitation, students are asked to upload the first draft of their solutions of a worksheet, on SUCourse. We then expect the final version of the solutions to be uploaded by Saturday at 19:00, the day after. The final version will be valid only if the first draft contains some relevant work. Valid final versions are granted 3 points, 1 for each correct solutions of the first three problems of the worksheet. If the worksheet contains more than 3 questions, those are optional. The first draft will never be graded. There will be no make-up for the worksheets. At the end of the semester, the worst 3 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 Tuesday evening 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 and is performed in person on campus.

**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 or quizzes, 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 quiz/exam 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.

Attention must be taken regarding COVID-19 spread prevention. Students attending classes must comply with the rules listed 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 time. The class will not start, or will be suspended, otherwise.

For the physical attendance, students will be admitted in the auditorium on a "first come first served" basis.

### 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	Sep 27-28	7.8 Improper integrals
Week 2	Oct 04-05	8.1-8.3 Sequences, infinite series
Week 3	Oct 11-12	8.4-8.5 The divergence, integral, and ratio tests
Week 4	Oct 18-19	8.6, 9.1 Alternating series tests and Taylor Polynomials
Week 5	Oct 25-26	9.2-9.4 Power series, Taylor series
Week 6	Nov 01-02	11.1-11.3 Vectors, dot product
Week 7	Nov 08-09	11.4, 12.1 Cross product, planes and surfaces
Week 8	Nov 15-16	12.2, 12.3 Level curves, limits and continuity
	Nov 20	Midterm I
Week 9	Nov 22-23	12.4, 12.5 Partial derivatives, chain rule
Week 10	Nov 29-30	12.6, 12.7 Directional derivatives, gradient, tangent planes
Week 11	Dec 06-07	12.8 Maximum/minimum problems
Week 12	Dec 13-14	13.1-13.2 Double integrals over rectangular regions and general regions
Week 13	Dec 20-21	13.3-13.5 Double integrals in polar coordinates and Triple integrals
Week 14	Dec 27-28	Review