

This syllabus is subject to change in unforeseen circumstances.

Calculus II (MATH 102)
Sabancı University, Spring 2021-2022

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Class Hours and Lecture Format: Lectures will be in-class and simultaneously live-streamed via Zoom. For those of you who wish to follow online, the Zoom links will be posted on SUCourse+. In order to have access to them, you must be logged in to Zoom with your Sabancı account.

The lecture recordings will be made available for a week after the lectures, so that you can also watch them at a later time. They are going to be posted on SUCourse+.

Lecture Hours: Section A: Mondays 11:40-13:30 (PAC - SGM) and Tuesdays 11:40-12:30 (PAC - SGM).
Section B: Mondays 13:40-15:30 (SOM 1099) and Tuesdays 08:40-09:30 (PAC - SGM).
Section C: Mondays 17:40-18:30 (FENS G077) and Tuesdays 14:40-16:30 (FENS G077).

Recitation Hours: Fridays 08:40-10:30, 10:40-12:30 and 13:40-15:30.

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

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.

You will find a tentative breakdown of material at the end of the syllabus.

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

Textbook: Calculus Early Transcendentals 2nd Edition (Global Edition), Briggs, Cochran & Gillett.

Recitations: Recitations will be conducted online, via Zoom. They will consist of three parts: TA/LA solving problems, discussing the worksheet with the TA and LA and the quiz.

- **Problem Solving:** The TA/LA will solve a few questions from the textbook at the beginning of the recitation.
- **Worksheets:** Some worksheet problems will be published on SUCourse+ on Thursdays. You are supposed to work on the problems, discuss them with your peers and assistants during the recitations and then upload your own solutions to Gradescope on Friday evenings. We will review your solutions and provide feedback individually.
- **Quizzes:** There will be short quizzes at the end of almost all recitations.

Grading: Your grade exclusively depends on the following listed items. The details of each item are below.

Midterm (on April 30, 2022)	35%
Final Exam (date TBA)	40%
Recitation Attendance	5%
Recitation Worksheets	10%
Recitation Quizzes	10%
Online Homework (requires Pearson MyLab account)	5% (bonus)

There will be no other extra-credit opportunities.

IMPORTANT:

Every document that requires a student submission, needs to be in *pdf* format, hand-written and to have name, surname, student ID, and signature on the top left corner of the document, on each page submitted (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 completely ignored.

Midterm: The midterm exam will be given in-person, on campus. The date has been announced as April 30, 2022. More details will be announced on SUCourse+ in due time.

Final Exam: The final exam will be given in-person, on campus, during the finals period. The final may be given on any day between June 11 – 23. Student resources will determine the dates and times for all final exams, and instructors cannot change it. More details will be announced on SUCourse+ in due time.

If you miss the midterm or final and have a valid excuse, **and contact us before the exam begins**, explaining your situation, you may be allowed to take the makeup exam. If it is a health problem, you must bring a medical report, which must be given or checked by SU Health Center within 3 days of the end date of the report.

The last day for grade submissions is June 29, so do not plan to leave İstanbul before June 29, 2022. We will not accommodate travel arrangements, or other personal business.

Recitation Worksheets: The worksheets of the week will be published on SUCourse+ on Thursdays. You need to upload your own solutions on *Gradescope*. In order to get points for any particular question, at least half of the solution must be correct. There will be absolutely no make-up for missed worksheets. Instead, the best 8 of your worksheet scores will determine the worksheet grade. Thus, no medical reports or official permission notices from the university will be accepted. More details will be announced on SUCourse+.

Recitation Quizzes: There will be a short quiz, usually at the end of the each recitation. There will be absolutely no make-up for missed quizzes. Instead, the best 8 of your quiz scores will determine the quiz grade. Thus, no medical reports or official permission notices from the university will be accepted.

The quizzes will be online proctored and recorded. In the case of non-compliance with this and other declared quiz procedures, your quiz and attendance will be void. More details will be announced on SUCourse+.

Recitation Attendance: Attendance during the recitations will be taken via the quiz participation and recitation participation. This means that in order to be counted as present in the recitations, you must be on Zoom and your camera should be on throughout at least the second hour of the recitation, you must actively participate and attempt the quiz of that week.

You must attend the synchronous Zoom lectures and recitations with your SU email account.

NA Policy: If you miss both the midterm and the final exam without valid excuses, you will get NA.

Online Homework: Detailed instructions on how to register to Pearson MyLab will be given on SUCourse+. The online homework will be assigned on the weekend and will be due on Thursday at 23:45. To do the homework, after logging into their personal MyLab account, each student will receive a random set of questions. There will be no make-up for any online homeworks if you miss the deadline.

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 other's 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, worksheets or exams, if we suspect any breach of academic integrity, we may ask for an oral validation of the quiz/worksheet/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/worksheet/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 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 common sense 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 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 time. The class may not start, or may be suspended, otherwise.

Suggestions:

- *Always* attend the lectures and recitations with a notebook and a pen.
- Feel free to ask us and your TA/LA 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.
- 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. The order in the tentative schedule might be altered. It is your responsibility to follow the lecture notes posted on SUCourse+.

Lecture	Date	Topic (Sections from the textbook)
Week 1	Feb 28-Mar 1	7.8 Improper integrals
Week 2	Mar 7-8	8.1-8.3 Sequences, infinite series
Week 3	Mar 14-15	8.4 The divergence and integral tests
Week 4	Mar 21-22	8.5-8.6 The ratio and alternating series tests
Week 5	Mar 28-29	9.1-9.4 Power series, Taylor series
Week 6	Apr 4-5	11.1-11.3 Vectors, dot product
Week 7	Apr 11-12	11.4, 12.1 Cross product, planes and surfaces
Week 8	Apr 18-19	12.2 Level curves
Week 9	Apr 25-26	12.4, 12.5 Partial derivatives, chain rule
Week 10	May 9-10	12.6, 12.7 Directional derivatives, gradient, tangent planes
Week 11	May 16-17	12.8 Maximum/minimum problems
Week 12	May 23-24	13.1-13.2 Double integrals over rectangular regions and general regions
Week 13	May 30-31	13.3-13.4 Double integrals in polar coordinates and Triple integrals
Week 14	Jun 6-7	Review