Calculus I (MATH 101)
Sabancı University, Summer 2022-2023

This syllabus may be subject to update and change.

Lecturer: Şirin Kaya
E-mail: sirin.kaya@sabanciuniv.edu
Office: UC 1089

Lecture Hours: Wed 08:40 - 11:30 (FENS L062)
Fri 11:40 - 14:30 (FENS L063)

Office Hours: Thu 15:40-16:30

Teaching Assistant: Yağmur Sak (yagmur.sak@sabanciuniv.edu)
Recitation Hours: Wed 13:40-15:30 and Fri 16:40-18:30 in FASS 1079

You are responsible for every announcement made in the lectures or on 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:
- Functions and graphs,
- Limits and the derivative, differentiation rules,
- Applications of derivatives such as graph sketching, optimization, relative rates,
- The area problem and the definite integral,
- Computing definite or indefinite integrals,
- Applications of single-variable integrals as time allows.

For the entire course, we will work on single-variable functions. 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 and use basic properties of elementary functions
2. Understand the idea of limit analytically/graphically, and evaluate limits
3. Understand the definition of derivative and its geometric meaning
4. Compute derivatives using standard differentiation techniques
5. Apply the notion of derivative graphing and optimization problems
6. Understand the definition of definite integral and its geometric meaning
7. Compute integrals using standard integration techniques
8. Understand the idea of integration over unbounded intervals and compute them.


Recitations: Each recitation will consist of the following activities

Problem solving: The TA will solve some problems on the white board.
Group-study: Students will discuss and solve problems from a given worksheet in groups.
Discussion: Students are urged to ask questions during recitations.
Quiz: There will be a quiz at the end of each recitation.

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

<table>
<thead>
<tr>
<th>Midterm (09.08.2023)</th>
<th>35%</th>
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</thead>
<tbody>
<tr>
<td>Final Exam (date TBD)</td>
<td>40%</td>
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<tr>
<td>Lecture Attendance</td>
<td>5%</td>
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<tr>
<td>Recitation Attendance</td>
<td>5%</td>
</tr>
<tr>
<td>Recitation Quizzes</td>
<td>15%</td>
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</tbody>
</table>

There will be no other extra-credit opportunities.

Exams: The midterm exam will be on 9 August 2023. More details will be announced on SUCourse. The final exam date will be announced at a later date. The final may be given on any day between Aug 26th - 29th 2023. Student Resources will determine the dates and times for all final exams, and instructors cannot change it. The last day for grade submissions is September 5th, so do not plan to leave Istanbul before September 5th, 2023. We will not accommodate travel arrangements, or other personal business.

During 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.
Lecture Attendance: Attendance during the lectures will be taken via pop-up quizzes at random times. In order to get the attendance points, you must be in the room while the pop-up quiz is asked and you must answer the quiz question. There will be absolutely no make-up for missed lecture quizzes. The best 10 of your lecture quiz scores will determine the Lecture Attendance grade.

Recitation Attendance: Attendance during the recitations will be taken every recitation, at random times. In order to get the attendance points, you must be in the room while attendance is being taken and you must sign the attendance sheet. If you arrive after the attendance has been taken, you will not be allowed to sign the attendance sheet. The best 10 of your recitation attendance scores will determine your Recitation Attendance grade. There will be absolutely no make-up for missed recitation attendances.

Recitation Quizzes: There will be a quiz at the end of each recitation. In order to be able to take the quiz, you need to be present during the second hour of the recitation. Latecomers will not be allowed to take the quiz. There will be absolutely no make-up for missed quizzes. The best 8 of your quiz scores will determine the Recitation Quiz grade. More details will be announced on SUCourse.

During quizzes, 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 quiz.

Important: Every quiz paper (in recitations or pop-up quizzes in lectures) needs to be hand-written and to have name, surname, student ID, and signature on the top left corner of the document, on each page submitted. Any page missing any of these information will be completely ignored.

Midterms and Final Make-up Policy: If you miss a midterm or the final and wish to make it up, you must contact the instructor by mail, and explain your excuse before the exam begins. If it is a health problem you need to bring a doctor’s report, which 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 ends). Only students that had contacted the instructor with a valid excuse will be informed about the exact time and place. The make-up exam will contain all topics.

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 instructor.

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.

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 learning environment is unacceptable.

Global suggestions for the semester:

- *Always* come to lectures and recitations with a notebook and a pen.
- Feel free to ask your instructor and your TA 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.
- 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.

In the Resources section of SUCourse, a list of problems will be provided from each section covered in the book. These problems are for self-study and preparation for the recitation quiz. You are not supposed to return their solutions to us.
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.

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Topic (Sections from the textbook)</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>July 12</td>
<td>1.1, 1.2</td>
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<td></td>
<td>July 14</td>
<td>1.3, 1.4</td>
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<td>Week 2</td>
<td>July 19</td>
<td>2.1 - 2.3</td>
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<td>July 20</td>
<td>2.4 - 2.6</td>
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<td>Week 3</td>
<td>July 26</td>
<td>3.1 - 3.3</td>
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<td>July 28</td>
<td>3.4 - 3.7</td>
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<td>Week 4</td>
<td>Aug 2</td>
<td>3.8 - 3.11</td>
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<td>Aug 4</td>
<td>4.1, 4.2</td>
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<td>Week 5</td>
<td>Aug 9</td>
<td>4.3 - 4.5</td>
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<td>Aug 11</td>
<td>4.6, 4.7, 5.1</td>
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<td>Week 6</td>
<td>Aug 16</td>
<td>5.2, 5.3</td>
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<td>Aug 18</td>
<td>5.4, 5.5, 7.1</td>
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<td>Week 7</td>
<td>Aug 23</td>
<td>7.2 - 7.4</td>
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<td></td>
<td>Aug 25</td>
<td>7.5, 7.8</td>
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