

# MATH 114 - Calculus II (Spring 2024)

**Instructors:** Gökhan Benli Sec-1 (Office: M227, Office hours: TBA)  
Semra Pamuk Sec-2 (Office: M228, Office hours: TBA)  
Firat Arıkan Sec-3 (Office: M110, Office hours: Monday & Thursday 11:00-12:00)

**Assistants:** TBA

## Catalogue Description:

Substitution. Areas between curves. Integration Techniques, Improper integrals. Arc length. Volumes and surface areas of solids of revolution. Parametric plane curves. Polar coordinates. Arc length in polar coordinates. Sequences and infinite series. Power series. Taylor series. Functions of several variables: limits, continuity, partial derivatives. Chain rule. Directional derivatives. Tangent planes and linear approximations. Extreme values. Lagrange multipliers.

## Textbooks:

*Main textbook:* Robert A. Adams, Christopher Essex, CALCULUS: A Complete Course Calculus. Eight or higher Edition.  
*Reference books:* Calculus, James Stewart, Fifth Edition (or any similar calculus book for freshman students)

## Grading:

There will be two in class midterm exams (see below for the dates) and one comprehensive final. Also, there will be quizzes and homework assignments during the semester. Grading will be based on the following points:

**MT1:** 30 points, **MT2:** 30 points, **Final:** 40 Points, **Homework/Quizzes:** 10 Points, **Total:** 110 Points

## Attendance Policy:

Attendance is mandatory and will be taken in all classes. If your course attendance is less than 70%, you will receive an NA grade from the course.

## Make up for Exams:

You can have at most one make-up exam. In order to be able to take the make-up exam, you must present a reasonable excuse such as a medical report or an academic leave. The make-up exam will be given after the final exam.

## Final Exam Entrance Condition:

If your two midterm scores (each one out of 100 points) add up to less than 20 points (out of 200 points in total), then you **cannot** take the Final Exam and will receive an **NA** grade from the course

## Information for Students with Disabilities:

Students who experience difficulties due to their disabilities and wish to obtain academic adjustments and/or auxiliary aids must contact ODTU Disability Support Office and/or course instructor and the advisor of students with disabilities at academic departments (for the list: <http://engelsiz.metu.edu.tr/en/advisor-students-disabilities>) as soon as possible. For detailed information, please visit the website of Disability Support Office: <https://engelsiz.metu.edu.tr/en/>

## Academic Honesty:

The METU Honor Code is as follows: "Every member of METU community adopts the following honor code as one of the core principles of academic life and strives to develop an academic environment where continuous adherence to this code is promoted. The members of the METU community are reliable, responsible and honorable people who embrace only the success and recognition they deserve, and act with integrity in their use, evaluation and presentation of facts, data and document

**Tentative weekly schedule:** Section numbers (on the right) are those in the main textbook (Adams & Essex)

Week		Topics	Section
1	Feb 19-23	The Method of Substitution Integration by Parts	5.6 6.1
2	Feb 26-Mar 1	Integrals of Rational Functions Inverse Substitutions	6.2 6.3
3	Mar 4-8	Improper Integrals Areas of Plane Regions	6.5 5.7
4	Mar 11-15	Volumes by Slicing-Solids of Revolution Arc Length and Surface Area	7.1 7.3
5	Mar 18-22	Sequences and Convergence Infinite Series	9.1 9.2
<b>MIDTERM 1, Monday, March 25, 2023, at 17:40</b>			
6	Mar 25-29	Infinite Series (continued) Convergence Tests for Positive Series	9.2 9.3
7	April 1-5	Absolute and Conditional Convergence Power Series	9.4 9.5
8	April 8-12	<i>April 10-12, Ramadan Religious holiday (Holiday eve: April 9)</i>	
9	April 15-19	Taylor and Maclaurin Series Applications of Taylor and Maclaurin Series	9.6 9.7
10	April 22-26	Functions of Several Variables Limits and Continuity  <i>April 23, National Holiday (National Sovereignty and Children's Day)</i>	12.1 12.2
11	Apr 29-May 3	Partial Derivatives Higher-Order Derivatives The Chain Rule  <i>May 1, Labor and Solidarity Day</i>	12.3 12.4 12.5
<b>MIDTERM 2, Monday, May 6, 2023, at 17:40</b>			
12	May 6-10	Linear Approximations Gradients and Directional Derivatives	12.6 12.7
13	May 13-17	Implicit Functions Inverse Functions  <i>May 19, National Holiday (Commemoration of Atatürk &amp; Youth and Sports Festival)</i>	12.8
14	May 20-24	Extreme Values of Functions	13.1 13.2
15	May 27-31	Lagrange Multipliers	13.3
<b>Final Exam (To be announced later...)</b>			