2023-2024 Spring
MATH 118 - Calculus II

METU Credit & ECTS Credit: (4-2)5 & 7.5

Catalogue Description: Indefinite Integral. Techniques of integration. Arc length. Volumes and surface areas of solids of revolution. Improper integrals. Sequences and infinite series. Power series. Taylor series. Vectors and analytic geometry in 3-space. Functions of several variables: Limits, continuity, partial derivatives, chain rule, directional derivatives, tangent plane and linear approximations. Extreme values. Lagrange multipliers. Double integrals.
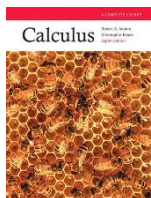
Course Coordinator: Prof. Dr. Canan Bozkaya

Course Grading and Exam Dates:

Midterm I (March 30, 2024)	30%
Midterm II (May 11, 2024)	30%
Final Exam (TBA)	40%
Quiz	5%

For more details about exams and grading, see the announcements on the Course Home page.

Suggested textbook:

Robert A. Adams, Christopher Essex
CALCULUS
A Complete Course Calculus. Eight (or any newer) Edition.
ISBN 978 0-321-78107-9
QA303.2.A33 2013

Reference Books: Calculus, James Stewart, Eight Edition

Current Semester Course Home Page: http://ma118.math.metu.edu.tr/

Contact: wwwma118@metu.edu.tr (Only the e-mails sent to wwwma118@metu.edu.tr will be answered.)

Week	Dates	Syllabus (Math 118) 2023-2	Suggested Problem List
1	February 19-23	**Ch. 6: Techniques of Integration** 6.1 Integration by Parts 6.2 Integrals of Rational Functions	**6.1**: 5, 7, 10, 11, 13, 15, 17, 19, 21,23, 25, 27, 28, 29, 33, 37 **6.2:** 3, 5, 7, 9, 11, 13, 15, 17, 19, 21,23, 25, 27, 29, 31
2	February 26-March 01	6.3 Inverse Substitutions 6.5 Improper Integrals	**6.3:** 3, 5, 7, 9, 11, 13, 15, 17, 19, 21,23,25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 44,45, 47, 49, 51 **6.5:** 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21,23, 24, 25, 31, 33, 35, 37, 39, 41, 42
3	March 04-08	**Ch. 7: Applications of Integration** 5.7 Areas of Plane Regions 7.1 Volumes by Slicing—Solids of Revolution 7.2 More Volumes by Slicing	**5.7:** 3, 5, 9, 11, 15, 17, 19, 21, 23, 29 **7.1:** 1, 3, 7, 11, 13, 15, 19 **7.2:** 3, 5, 7, 9, 11, 13, 16
4	March 11-15	7.3 Arc Length and Surface Area **Ch. 9: Sequences, Series, and Power Series** 9.1 Sequences and Convergence	**7.3:** 3, 5, 7, 9, 11, 13, 14, 21, 24, 25,27, 28, 29 **9.1**: 6,8,10,17,18,19,24 ,26,29,31,35
5	March 18-22	9.2 Infinite Series 9.3 Convergence Tests for Positive Series	**9.2:** 4,6,8,10,12,14,26,27,28,29,30,31 **9.3**: 4,6,12,16,18,20,24,26,38,42
6	March 25-29	9.4 Absolute and Conditional Convergence 9.5 Power Series **Midterm I (March 30, 2024)**	**9.4:** 2,4,8,10,16,20,24,27 **9.5:** 4,8,10,13,14,17,18,22,26,28,30
7	April 01-05	9.6 Taylor and Maclaurin Series 9.7 Applications of Taylor and Maclaurin Series	**9.6:** 6,8,12,18,22,26,34,35,40 **9.7:** 6,7,12,16,18,24
8	April 08-12	**NO CLASSES** April 10 – 12 Religious holiday (Holiday eve Tuesday)	
9	April 15-19	**Ch. 10: Vectors and Coordinate Geometry in 3-Space** 10.1 Analytic Geometry in Three Dimensions 10.2 Vectors	**10.1:** 6,19,22,27,32,36,40 **10.2:** 4,13,16,18,22,26,31
10	April 22-26	10.3 The Cross Product in 3-Space 10.4 Planes and Lines 10.5 Quadric Surfaces April 23 National Sovereignty and Children's Day, Tuesday	**10.3:** 3,5,14,15,17,20,23 **10.4:** 3,6,9,18,23,26,28,29 **10.5:** 3,5,8,10,12,15,17,20,21
11	April 29-May 03	**Ch. 12: Partial Differentiation** 12.1 Functions of Several Variables 12.2 Limits and Continuity May 1 – Labor and Solidarity Day, Wednesday	**12.1:** 4,5,8,12,13,14,20,24 **12.2:** 2,6,8,10,12,14,18
12	May 06-10	12.3 Partial Derivatives 12.5 The Chain Rule 12.6 Linear Approximations **Midterm II (May 11, 2024)**	**12.3:** 4,5,6,11,12,16,17,21,24,28,31,36,39 **12.5:** 4,8,16,18,29,30 **12.6:** 4,6,10,16
13	May 13-17	12.7 Gradients and Directional Derivatives **Ch. 13: Applications of Partial Derivatives** 13.1 Extreme Values May 19 - National Holiday (Commemoration of Atatürk & Youth and Sports Festival, Thursday)	**12.7:** 4,8,10,17,18,19,22,26,36 **13.1:** 1, 3, 6, 7, 9, 11, 17, 19, 24, 26
14	May 20-24	13.2 Extreme Values of Functions Defined on Restricted Domains 13.3 Lagrange Multipliers	**13.2:** 3, 5, 7, 8, 9, 11, 17 **13.3:** 1, 3, 5, 7, 9, 11, 19, 21, 22
15	May 27-31	**Ch. 14: Multiple Integration** 14.1 Double Integrals 14.2 Iteration of Double Integrals in Cartesian Coordinates	**14.1:** 5,13,15,18,19 **14.2:** 1-27 odd

This document/announcement contains all the necessary information that you need to know about the structure of the *MATH 118: Calculus II course*. More information will be announced on the official website of the course and the ODTUCLASS page. All students enrolled in this course are supposed to follow these websites regularly.

MATH 118 Coordination reserves the right to make necessary changes in this policy depending on the situations which are out of our control. So it is your responsibility to follow the announcements in the webpage of the course regularly.

Lectures and Recitations

Lectures and Recitations are delivered as announced in **Schedule of Lectures** on the official website of the course. Keep in mind that this course is **6 (=4+2) hours per week**.
The first 2+2=4 hours are for **lectures** and the last 2 hours are for **recitations**. See "the schedule of lectures"- tab on the MATH118 web page when available.

Class Attendance

You are **expected** to attend all lectures and recitations. However no attendance will be taken. Also there will be frequent pop quizzes in recitation hours.

Make up for Exams and Assignments

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).
After the final exam, there will be a form on ODTÜClass and via that form, you will apply the make-up exam instead of one missed exam and will send your reasonable excuse to **wwwma118@metu.edu.tr**.

Eligibility to take the Final Exam and NA Grade

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.
If you did not attend the Final Exam and if you do not have the right to take make-up exam for Final, you will receive an NA grade.

Who gets NA grade?

(A) Before the final exam, students will be categorized in the following way:

1) $M1 + M2 >= 20$

2) $M1 + M2 < 20$,

for which $M1$ is the Midterm 1 score out of 100, and $M2$ is the Midterm 2 score out of 100.

- Students in group **1** will be able to take the final exam.
- Students in group **2** will **NOT** be able to take the final exam. They will get an automatic NA grade.

Examples:

a) Student A attends to Midterm 1 and his score is 20. He/she does not take Midterm 2 being on leave for academic/medical reasons. Since $M1+M2 = 20 >= 20$, He/she is eligible for the final exam. If he/she submits relevant documents, it is also possible to take make-up exam which is given after the final. *No problem at all.*

b) Student B does not attend to Midterm 1 because of their illness. He/she attends to Midterm 2 and get 18 points. Since $M1+M2 = 18 < 20$, he/she won't be able to take final exam and get **NA** grade. **It should be in mind that in this example, taking make-up for Midterm is not possible even if he/she has an appropriate official document (academic/medical report etc.).**

(B) According to the university's rules and regulations governing undergraduate studies (Article 24),

"...The grade NA is designated due to one of the conditions below. The grade NA is processed as FF in the calculation of the Grade Point Average.

1) Not fulfilling the attendance requirements for the theoretical and practical course hours as indicated in the course schedule.

2) Not qualifying to take the final exam due to failure in fulfilling the provisions regarding course practices.

3) Having taken none of the mid-term and final examinations.

..."

Note that each instructor/the coordination of the course reserves the right to determine whether the attendance requirements indicated in the above policy (B-1) applies to the students of their section or not.

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 Honour Code is as follows: "Every member of METU community adopts the following honour 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 honourable people who embrace only the success and recognition they deserve, and act with integrity in their use, evaluation and presentation of facts, data and documents."