2024-2025 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.

Lecture Hours and Places:

Section	Instructor	Lecture Times and Places
1	Ahmet İrfan Seven	Monday 13:40-15:30 U3 Thursday 10:40-12:30 U3
2	Songül Kaya Merdan	Tuesday 08:40-10:30 YP-A2 Thursday 08:40-10:30 YP-A1

Course Grading and Exam Dates:
- Midterm 1:   30 %   (April 13, 2025 Sunday at 09:00)
- Midterm 2:   30 %   (May 10, 2025 Saturday at 09:30)
- Final: 40 %   (June 14, 2025)
- Quizes: 5 %   (During Recitations)

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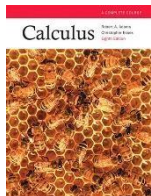
Robert A. Adams, Christopher Essex
CALCULUS
A Complete Course Calculus. Eight (or any newer) Edition.
ISBN 978 0-321-78107-9
QA303.A33 2013

Reference Books: Calculus, James Stewart, Eighth Edition

Course Assistant: Melis Aslan (wwwma118@metu.edu.tr)

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	Math 118 (2024-2) The Tentative Syllabus
1	**Feb 17 - Feb 21**	**Ch. 6: Techniques of Integration** 6.1 Integration by Parts 6.2 Integrals of Rational Functions
2	**Feb 24 - Feb 28** **(Add-Drop and Advisor Approvals)**	6.3 Inverse Substitutions 6.5 Improper Integrals
3	**Mar 03 – Mar 07**	**Ch. 7: Applications of Integration** 7.1 Volumes by Slicing—Solids of Revolution 7.2 More Volumes by Slicing
4	**Mar 10 – Mar 14**	7.3 Arc Length and Surface Area **Ch. 9: Sequences, Series, and Power Series** 9.1 Sequences and Convergence
5	**Mar 17 – Mar 21**	9.2 Infinite Series 9.3 Convergence Tests for Positive Series
6	**Mar 24 – Mar 28**	9.3 Convergence Tests for Positive Series 9.4 Absolute and Conditional Convergence
7	**Mar 31 – Apr 04**	**(March 29--April 1 Ramadan Feast, Monday and Tuesday)**
8	**Apr 07 – Apr 11**	9.5 Power Series 9.6 Taylor and Maclaurin Series 9.7 Applications of Taylor and Maclaurin Series **Midterm Exam 1: April 13**
9	**Apr 14 – Apr 18**	**Ch. 10: Vectors and Coordinate Geometry in 3-Space** 10.1 Analytic Geometry in Three Dimensions 10.2 Vectors 10.3 The Cross Product in 3-Space 10.4 Planes and Lines
10	**Apr 21 – Apr 25** **(April 23`rd Wednesday, National Sovereignty and Children`s Day Holiday)**	10.5 Quadric Surfaces **Ch. 12: Partial Differentiation** 12.1 Functions of Several Variables 12.2 Limits and Continuity
11	**Apr 28 – May 02** **(May 1`st Thursday, Labor and SolidarityDay Holiday)**	12.3 Partial Derivatives 12.5 The Chain Rule
12	**May 05 – May 09**	12.6 Linear Approximations, Differentiability and Differentials 12.7 Gradients and Directional Derivatives
13	**May 12 – May 16**	**Ch. 13: Applications of Partial Derivatives** 13.1 Extreme Values **Midterm Exam 2: May 10**
14	**May 19 – May 23** **(May 19th Monday, Commemoration of Atatürk, Youth and Sports Day)**	13.2 Extreme Values of Functions Defined on Restricted Domains 13.3 Lagrange Multipliers
15	**May 26 – May 30**	**Ch. 14: Multiple Integration** 14.1 Double Integrals 14.2 Iteration of Double Integrals in Cartesian Coordinates

This document contains all the information you need to know about the structure of the **MATH 118 (Calculus II)** course. More information will be announced on the course home page and the ODTUClass page. All students enrolled in this course are supposed to follow these websites regularly.

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

<u>**Lectures and Recitations**</u>
Lectures and recitations are delivered as scheduled in <u>View Program Course Details (64).</u> Keep in mind that this course is **6 (=4+*2*) hours per week**.

The first 4 (=2+2) hours are for **lectures** and the last 2 hours are for **recitations**. See the "schedule of lectures" in the "Announcements" tab on the MATH117 web page. For details about sections and subsections, see the page: <u>What is a section/subsection?</u>

Class Attendance
Attendance during lectures and recitations will not be taken. However, you are strongly recommended to attend the lectures and recitations.

Make-Up for Exams and Assignments
You can take 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 to take the make-up exam instead of one missed exam and you will send your reasonable excuse to **wwwma117@metu.edu.tr**.

<u>**Eligibility to take the Final Exam and NA Grade**</u>
If your two midterm scores (each one out of 100 points) add up to less than 10 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) $M1 + M2 >= 10$

2) $M1 + M2 < 10$,

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 10. He/she does not take Midterm 2 being on leave for academic/medical reasons. Since $M1+M2 = 10 >= 10$, 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 8 points. Since M1+M2 = 8 < 10, 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, see 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 documents."