MATH 154
CALCULUS FOR MATHEMATICS STUDENTS II, Spring 2021

Classes:
The classes will be online through Zoom. The Zoom link will be sent to your METU email address before each class. The video recording and lecture notes of each lecture will be posted on Odtuclass for convenience. These lectures, videos and notes are intended only for Math 154 students and sharing the related links, videos and lecture notes with third parties is strictly forbidden. The common live lecture and recitation hours for all sections:

Tuesday: 13:40-15:30
Thursday: 13:40-15:30
Recitation: Friday 13:40-15:30

Office Hours: To be announced

Course Objectives:
At the end of this course, the student will learn the definition of Riemann Integral, integration techniques, physical applications of integration, improper integrals, sequences of real numbers, power series and Taylors series.

Exams and Grading: The grading will be based on 2 Midterms, 1 Final exam and weekly homeworks and quizzes, all to be conducted online. You will need a camera (smartphone's camera or webcam) and reliable internet connection for midterms and the final exam.

Midterm I: 30 Points **(April 30 , 2021 at 13:40)**, (Written exam over Zoom with camera)

Midterm II: 30 Points **(June 11, 2021 at 13:40)**, (Written exam over Zoom with camera)

Final Exam: 40 Points (Written / Oral exam over Zoom with camera)

Quiz-Homework: 10 Points (Bonus)

Make-up: After the final exam, 1 make up exam will be given to the students who miss 1 exam with an acceptable excuse.

NA Policy: Students who miss 2 exams will get NA.

Attendance Policy: Students are expected to attend to the lectures and recitations regularly. Zoom links will be sent before the semester starts.

Reference Books: We will not strictly follow any book for this course. Followings are the references for students to prepare better. It is recommended to get any edition of the books. However, students don't need to buy these books to follow the course.

1. Michael Spivak, Calculus
2. Robert A. Adams, Christopher Essex, CALCULUS A Complete Course Calculus (Course ID does not exist for Math 153).

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/ .

Week	Dates	Math 154 Syllabus (2021-Spring)
1	March 15-19	Sums and sigma notation The definite (Riemann) integral Integrability
2	March 22-26	Properties of the definite integral Computations of integrals as limits of sums Areas as limits of sums
3	March 29-April 2	Average value of a function Mean value theorem for integrals The Fundamental Theorem of Calculus, Antiderivatives Indefinite integrals The method of substitution
4	April 5-9	The method of substitution (continued) Integration by parts Trigonometric integrals Integrals of rational functions
5	April 12-16	Inverse trigonometric substitutions Tan(x/2) substitution Areas of plane regions between curves Volumes of solids: Disk / Cylindirical shell method
6	April 19-23	Volumes of solids: Disk / Cylindirical shell method (continued) Arc length Areas of surfaces of revolutions
7	April 26-30	Areas of surfaces of revolutions (continued) Improper integrals Review for Midterm-1 **Midterm 1 (April 30, 2021, Friday at 13:40)**
8	May 3-7	Improper integrals (continued) Tests for improper integrals Sequences and convergence
9	(May 10-14 Spring Break) May 17-21	Sequences and convergence (continued) Limit laws for sequences Squeeze theorem Monotonic bounded sequence theorem
10	May 24-28	More theorems on convergence Subsequences, Cauchy sequences Infinite series: Telescoping, harmonic, geometric
11	May 31-June 4	Properties of infinite series Convergence/divergence tests for positive series Alternating series
12	June 7- June 11	Alternating series (continued) Alternating series test Alternating series estimation theorem Absolute/conditional convergence Rearrangements of infinite series Review for Midterm-2 **Midterm 2 (June 11, 2021, Friday at 13:40)**
13	June 14-18	Power series Power series representations (expansions) Term by term differentiation and integration Maclaurin and Taylor series
14	June 21-25	Taylor's theorem and some applications Binomial series
		Final Exam (To be announced later…)