Spring 2020   MATE 104 Calculus II

Instructor: Dr. Elçin Emre-Akdoğan	**Place:** D 228/ Online (Zoom)
Office Hours: by appointment	**Textbook:** *Thomas' Calculus,* 11th Edition by Thomas, Weir, Hass, & Giordano *Stewart* Calculus
Office: GB24	**Program:** Desmos/Geogebra
Email: elcin.akdogan@tedu.edu.tr	**Time:** Monday 10:00-12:00

Course Description: This calculus course covers basic concepts of Calculus-trigonometry, complex numbers, integral, and series. Topics include:

- Trigonometric functions,
- Trigonometric relations, Solutions of trigonometric equations;
- Complex numbers and properties;
- Riemann sums,
- Definite integral,
- Indefinite integral,
- Applications of integral,
- Improper integral,
- Series, convergence tests

Course objectives:
- to develop students' mathematical thinking
- to effectively communicate mathematics through both written and verbal
- to evaluate written mathematics for content
- to be aware of the applications of the subject and its connections to other disciplines

Learning Outcomes:
- Describe trigonometric functions, trigonometric relations concepts.
- Solve trigonometric equations.
- Explain complex numbers and their properties.
- Solve problems involving complex numbers and their applications.
- Describe Riemann Sum, definite integral, indefinite integral concepts.
- Exemplify integration methods and perform integration applications.
- Describe improper integral concept.
- Perform applications related to series and convergence tests.

Methods for Assessment of Learning Outcomes: The expected learning outcomes for the course will be assessed through graded activities and ungraded activities. The graded activities include take-home midterm, take-home final and homework. The ungraded activities will be used to monitor your progress. A variety of these ungraded assessment techniques may be employed, including problems to be completed during class, direct

questioning of students, answering students questions in class, and discussions during office hours.

Take-Home Midterm: You need to upload your project to moodle, your document's title should be NAME_SURNAME_Take-homemidterm (Due Date: 21/04/2020)
Content for Take-Home Midterm: 4.8, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 6.1

Take-Home Final: You need to upload your project to moodle, your document's title should be NAME_SURNAME_Take-homehomefinal (Due Date: 29/05/2020)
Content for Take-Home Final: 8.8., 11.1, 11.2, 11.3, 11.4, 11.5, 11.6

Attendance: This course requires strong involvement and attendance. You are responsible for all information given out during the courses. Exceeding 20% of attendance with unexcused absences will result a half letter grade reduction. You are expected to arrive on time for the lectures.

Communication: All announcements will be sent to your e-mail address through Moodle. Check your e-mails regularly in order to be informed.

Grades: Your final grade will be weighted as follows:

40 points	Homework	
30 points	Take-home midterm	Details will be given during the course
30 points	Take-home final	Details will be given during the course

Homework: As in all mathematics courses, working on problems is the key to success. It is also vital to work on problems on a regular basis. Each assignment will be due at the **beginning** of the following class.

Homework Exercises will be from the textbook. One exercise will be chosen at random from each assignment and graded on a scale of 0-10.

Solutions to homework exercises will be posted after the class during which they have been collected.

Late Homework Policy:

Homework is due at the **beginning** of class.
Examples:

- If you are not in class when homework is collected, your homework will be considered late.
  This includes lateness due to oversleeping, traffic, and parking availability.
- If you pass homework in at the end of class on the day it is due, it will be considered late.

- If you can not make it to class, **you are responsible** for turning in the assignment early or finding someone to drop it off in class for you.
- Only under severe circumstances will late homework be accepted for full credit, for example, involvement in a traffic accident, or illness requiring medical attention.

Late homework **will** be accepted at any time, subject to the following conditions:

- The word "LATE" must be written at the top of the assignment.
- Only half credit will be awarded, solely based on effort.

Academic Honesty: It hardly needs to be said that such things as plagiarism or stealing another student's work are unacceptable. However, in this class, it is entirely proper to work in teams to do discussion on the problems or the problem solving, as long as you yourself have mastery of those answers and are prepared on your own to present them in class. Plagiarism is a serious breach of academic trust. In academic work, our words and ideas are the value of our work, so turning in someone else's work as if it were your own is a form of theft. When you use someone else's words and ideas--whether it's the work of a famous writer or a fellow student--without crediting the source or authorship of those words and ideas, you are plagiarizing. So here's the bottom line: original work only, credit to ideas, writing, or words from someone other than you.

SCHEDULE

Date	Topic	Content	Next lesson
Week 1 **Session 1** **(17/02/2020)**	Integral	Introduction Trigonometry, Complex Numbers 4.8. Antiderivatives	No assignment
Week 2 **Session 1** **(24/02/2020)**	Integral	5.1. Integration, Finite sums Geogebra Links: https://www.geogebra.org/m/SNS8SYSg	No assignment
Week 3 **Session 3** **(02/03/2020)**	Integral	5.2. Limits of Finite Sums	No assignment
Week 4 **Session 1** **(09/03/2020)**	Integral	5.3. Definite Integral Geogebra Links: https://www.geogebra.org/m/P8AzBbzy https://www.geogebra.org/m/qM45tQjs 5.4. Fundamental Theorem of Calculus	*Homework assignment from textbook
Week 5 **Session 1** **(16/03/2020)**	COVID 19 BREAK!		
Week 6 **Session 1** **(23/03/2020)**	Integral	5.5. Infinite Integrals and the Substitution Rule	*Homework assignment from textbook
Week 7 **Session 1** **(30/03/2020)**	Integral	5.6. Substitution and Area between Curves	*Homework assignment from textbook
Week 8 **Session 1** 06/04/2020	Integral	6.1. Volumes and Surface areas Geogebra Links: https://www.geogebra.org/m/u8KtPdqf https://www.geogebra.org/m/N8rqtaG3#material/RcHwKujE https://ggbm.at/DkFW9v8E https://www.geogebra.org/m/nVnKDrvy	No assignment
Week 9 **Session 1** **(13/04/2020)**	Integral	8.8. Improper Integrals	**Take-home Midterm (Due date: 24/04/2020)**
Week 10 **Session 1**	Series	11.1. Infinite Sequences	*Homework assignment from textbook

(20/04/2020)			
Week 11 **Session 1** **(27/04/2020)**	Series	11.2. Series Geogebra Links: https://www.geogebra.org/m/zn4DCvFh https://www.geogebra.org/m/QkHfFjrC	*Homework assignment from textbook
Week 12 **Session 1** **(04/05/2020)**	Series	11.3. Integral Test	*Homework assignment from textbook
Week 13 **Session 1** **(11/05/2020)**	Series	11.4. Comparison Test	*Homework assignment from textbook
Week 14 **Session 1** **(18/05/2020)**	Series	11.5. Ratio and Root Test 11.6. Alternating Test	**Take-home final (Due date: 29/05/2020)**