Fall 2019   MATE 207 Calculus III

Instructor: Dr. Elçin Emre-Akdoğan	**Place:** A116
Office Hours: by appointment	**Textbook:** *Thomas' Calculus,* 11th Edition by Thomas, Weir, Hass, & Giordano
Office: G104	**Program:** Desmos/Geogebra
Email: elcin.akdogan@tedu.edu.tr	**Time:** Friday 11:00-13:00

Course Description: This calculus course covers basic concepts of Calculus- functions of several variables, limit, derivative, and sequences, series. Topics include:

- Functions of several variables: limit, continuity, series of functions
- Derivatives, directional derivatives, partial derivatives, geometric interpretation of partial derivative
- Higher order derivatives
- Chain rule

Course objectives:
The aim of this course is to provide a deep understanding of fundamental calculus concepts. This course is the last of the sequence of calculus courses in this program. Students will deal with fundamental concepts such as limit, continuity and derivative and their interpretations.

Learning Outcomes:
Upon successful completion of this course, the student should be able to:

- Interpret multivariable functions.
- Exemplify the concepts of limit, continuity.
- Describe sequences and series of functions.
- Compute different forms of derivative, including directional and partial derivative.
- Interpret geometric meaning of partial derivative.
- Explain higher order derivatives.
- Perform chain rule.

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 exams, homework, reflection paper, and photo-math project. 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.

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:

25%	Homework	
15%	Quizzes	Date and Location to be Announced
25%	Midterm Exam	Date and Location to be Announced
35%	Final Exam	Date and Location to be Announced

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 and Mathematica. 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.

<u>Late Homework Policy:</u>

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.

COURSE SCHEDULE

SCHEDULE			
Date	**Topic**	**Content**	**Next lesson**
Week 1 (27/09/2019)	Introduction	- The introduction of the course	No assignment
Week 2 (04/10/2019)	Several Variables	14.1. Functions of Several Variables Geogebra Links: https://www.geogebra.org/m/dJYx9xRe https://www.geogebra.org/m/kZEPensK	No assignment
Week 3 (11/10/2019)	Several Variables	14.1. Functions of Several Variables https://www.geogebra.org/m/rCG9wQSi https://www.geogebra.org/m/BepJdfqS https://www.geogebra.org/m/YjkBRd7F https://www.geogebra.org/m/ncyby6tm	*Homework assignment from textbook
Week 4 (18/10/2019)	Several Variables	14.2. Limits and Continuity in Higher Dimensions https://www.geogebra.org/m/Q7Zmdn6j http://tutorial.math.lamar.edu/Classes/CalcIII/Limits.aspx	No assignment
Week 5 (25/10/2019)	Several Variables	14.2. Limits and Continuity in Higher Dimensions 14.3. Partial Derivatives https://www.geogebra.org/m/acvGcp2n https://www.geogebra.org/m/tQWRhRzn	*Homework assignment from textbook
Week 6 (1/11/2019)	Several Variables	14.4. Chain Rule	*Homework assignment from textbook
Week 7 (08/11/2019)	Several Variables	14.5. Directional Derivatives and Gradient Vectors Geogebra Links: https://www.geogebra.org/m/MSmFJxJh	*Homework assignment from textbook

		https://www.geogebra.org/m/Bx8nFMNc	
Week 8 **(15/11/2019)**	Several Variables	14.5. Directional Derivatives and Gradient Vectors	No assignment
Week 9 **(22/11/2019)**	MIDTERM EXAM!		
Week 10 **(29/11/2019)**	Several Variables	14.6. Tangent Planes and Differentials Geogebra Links: http://www.math.ubc.ca/~cwsei/math200/graphics/tangentplane.html https://www.geogebra.org/m/MSmFJxJh	*Homework assignment from textbook
Week 11 **(06/12/2019)**	Several Variables	14.6. Tangent Planes and Differentials	No assignment
Week 12 **(13/12/2019)**	Sequences	11.1. Sequences	*Homework assignment from textbook
Week 13 **(20/12/2019)**	Series	11.2. Infinite Series Geogebra Links: https://www.geogebra.org/m/zn4DCvFh https://www.geogebra.org/m/QkHfFjrC	No assignment
Week 14 **(27/12/2019)**	Series	11.2. Infinite Series	*Homework assignment from textbook