TED UNIVERSITY

Math 101
Calculus of One Variable

SYLLABUS 2016 - 2017 FALL

Dr. Bengisen PEKMEN GERİDÖNMEZ, Dr. Ayşe Mutlu DERYA, Inst. Mehmet Akif ERDAL

Required or Elective	☑ Required ☐ Elective	**Date**	September, 26th, 2016
Semester	☑ Fall 16-17 ☐ Spring 16-17 ☐ Summer 16-17	**Classrooms**	TBA
Course Credit Hours/ ECTS	(3,2,0) 4 / 7	**Pre-requisite/ Co-requisite**	None.
Level of Course	Freshmen	**Language of Instruction**	☑ English ☐ Turkish
Instructor's Office Number & Office Hours	**Sec. 2, 4 & 5**: Dr. Bengisen Pekmen Geridönmez (Email: bengisen.pekmen@tedu.edu.tr) (Room. A419) (Office hours: TBA) **Sec. 1**: Dr. Ayse Mutlu Derya (e-mail: ayse.derya@tedu.edu.tr) (Room and Office hours are TBA) **Sec. 3**: Instructor Mehmet Akif Erdal (e-mail: akiferdal@gmail.com) (Room and Office hours are TBA)		
Teaching Assistant(s)	TBA	**Teaching Assistants' Office Number(s)**	TBA

Course Description	The concepts of Limit and Continuity, The Derivative, Applications of the Derivative, The Integration, Techniques of Integration, Applications of the Integral, and Infinite Sums
Course Learning Outcomes	On successful completion of this module, the students should be able to **1.** Recall definitions, statements of theorems, certain examples and counterexamples pertaining to functions of one variable. 2. Calculate limits and continuity for functions of one variable. 3. Calculate the derivatives of elementary and transcendental functions of one variable, tangent line, the chain rule, implicit differentiation. 4. Compute the integrals of elementary and transcendental functions of one variable, method of substitution, integration by parts, powers and products of trigonometric functions, trigonometric substitution, partial fractions. 5. Solve problems of related rates, minimum-maximum, linear approximations, graphing functions, length of a curve, planar area, and volume. 6. Test the series for Convergence/Divergence, represent elementary and transcendental functions of one variable as Taylor or Maclaurin series. 7. Practice the basic principles of mathematical writing. 1 (K.), 2 (C), 3 (A.), 4 (A.), 5 (A.), 6 (A.), 7 (A.). Bloom's Taxonomy Levels: K. Knowledge, C. Comprehension, A. Application.

Teaching Methods & Learning Activities	☑ Telling/Explaining ☐ Discussions/Debates ☑ Questioning ☑ Reading ☐ Peer Teaching ☐ Scaffolding/Coaching ☐ Demonstrating ☑ Problem Solving ☐ Inquiry ☐ Collaborating ☐ Think-Pair-Share ☐ Predict-Observe-Explain ☐ Microteaching ☐ Case Study/Scenario Analysis	☐ Simulations & Games ☐ Video Presentations ☐ Oral Presentations/Reports ☐ Concept Mapping ☐ Brainstorming ☐ Drama/Role Playing ☐ Seminars ☐ Field Trips ☐ Guest Speakers ☐ Hands-on Activities ☐ Service Learning ☐ Web Searching ☐ Experiments ☑ Other(s): ...Practice on WebWork…

Student Workload **(Total 175 Hrs)**	☑ Lectures .....**70**.. hrs ☑ Course Readings .....**25**.. hrs ☐ Workshop ..... hrs ☐ Online Discussion ..... hrs ☐ Debate ..... hrs ☐ Work Placement ..... hrs ☐ Field Trips/Visits ..... hrs ☐ Observation ..... hrs ☐ Lab Applications ..... hrs ☐ Hands-on Work .....**.....**.. hrs ☑ Exams/Quizzes .....**20**.. hrs	☐ Resource Review .....**.....**.. hrs ☐ Research Review .....**...**..... hrs ☐ Report on a Topic .....**.....**.. hrs ☐ Case Study Analysis .....**.....**.. hrs ☐ Oral Presentation .....**.....**.. hrs ☐ Poster Presentation ..... hrs ☐ Demonstration ..... hrs ☐ Web Designs ..... hrs ☐ Mock Designs ..... hrs ☐ Team Meetings.....**.....**.. hrs ☑ Other: Extra Credit Works……**60.** hrs

Textbook	Calculus,Single and Multivariable, 2nd Edition, Blank and Krantz
Recomended Readings	• James Stewart, Calculus, 7th Edition • Thomas' Calculus, 12th Edition • Calculus, A Complete Course, 7th Edition, by Adams and Essex.
Module and Instructor Evaluation Date	Evaluation will be held in week of December 30th, 2016.
Computer Usage	Problem Sets from WeBWorK will be assigned for practice hours and extra credit works in the web page http://math.tedu.edu.tr/webwork2

Assessment Methods (Formal & Informal)	☑ Test/Exam ☑ Quiz ☐ Oral Questioning ☐ Performance Project ☐ Written ☐ Oral ☐ Observation	☐ Self-evaluation ☐ Peer Evaluation ☐ Portfolio ☐ Presentation (Oral, Poster) ☑ Other(s): Practice on WebWork.

CONTRIBUTION OF THE MODULE TO PROGRAM OUTCOMES							
Program Outcomes	**EEE**	**IE**	**CMPE**	**ECON**	**BA**	**IR**	**ARCH**
1	✓	✓	✓				
2			✓		✓		
3			✓			✓	
5	✓					✓	✓
11				✓		✓	

COURSE ASSESSMENTS & LEARNING OUTCOMES MATRIX	
Assessment Methods	**Course Learning Outcomes**
Weekly Quizzes	#1, #2, #3, #4, #5, #6, #7
Weekly Practice Hours	#1, #2, #3, #4, #5, #6, #7
Exam 1	#1, #2, #3,#7
Exam 2	#1, #2, #3, #4, #5,#7
Final Exam	#1, #2, #3, #4, #5, #6, #7

***** GRADING WILL BE BASED ON UNIVERSITY'S CATALOG.**

COURSE ASSIGNMENTS
A. Quiz [%10] + Practice Hours [%10]
There will be 13 practice hours on WebWork and 10 quizzes either on WebWork or in the class. Some of quiz and WebWork grades MAY be dropped.
C. Exams[%25+%25]
There will be 2 exams.
D. Final[%30]
There will be a cumulative final.
E. Extra Credit Work[%10]
There will be 5 extra credit works assigned for interested students. Visit the web page http://math.tedu.edu.tr/webwork2 .

TENTATIVE COURSE OUTLINE		
W	**Days**	**Topics**
1	**9/26 - 9/30**	• The concept of limit • Limit theorems
2	**10/3 - 10/7**	• Continuity • Infinite limits and asymptotes • Exponential Functions and Logarithms
3	**10/10 - 10/14**	• Rates of Change and Tangent Line • The Derivative
4	**10/17 - 10/21**	• Rules for differentiation • Differentiation of some basic functions • The chain rule • Derivatives of inverse functions
5	**10/24 - 10/28**	• Higher Derivatives • Implicit differentiation • Differentials and Approximation of Functions • Other Transcendental Functions
6	**10/31- 11/4**	• Related Rates • The Mean Value Theorem • The maxima and minima of functions.
7	**11/7 - 11/11** **Exam I - 9.11.2016 - 18:15**	• Applied maximum-minimum problems. • Concavity. • Graphing functions.
8	**11/14 - 11/18**	• L'hopital's rule. • Anti-differentiation and applications. • The Riemann Integral.
9	**11/21 - 11/25**	• Rules for Integration. • The Fundamental Theorem of Calculus. • Integration by substitution. • More on calculation of area. • Integration by Parts
10	**11/28 - 12/2**	• Powers and products of trigonometric functions. • Trigonometric substitution. • Partial fractions. • Improper Integrals.
11	**12/5 - 12/9**	• Volumes. • Arc length • Surface area (Reading Assignment) • The average value of a function (Reading Assignment) • Center of mass, Work (Reading Assignment).
12	**12/12 - 12/16** **Exam II - 14.12.2016 - 18:15**	• Sequences • Series. • The divergence test and the integral test. • The comparison tests.
13	**12/19 - 12/23**	• Alternating series test. • The ratio and root test. • Introduction to power series.
14	**12/26 - 12/30**	• Representing functions by power series • Taylor Series. • **Review & Module and Instructor Evaluation**

COURSE POLICIES AND SOME REMARKS
* Attendance
You are expected to attend all classes. Classes start on the hour. Please be respectful of your classmates by being on time. Cell phones should be turned off and kept out of sight. Please do not use your computers during class time.
* Calculator Policy
You may use a graphing calculator or software that does symbolic calculations. The recommended models are TI-83, or TI-89 from Texas Instruments or a suitable alternative. But you will NOT be allowed to use them during exams. You should have an owner's manual for your calculator. It will be your responsibility to be familiar with the workings of the calculator.
***** **PRACTICE HOUR LAB POLICY**
During a practice hours lab session, if you 1. Log into WebWork from outside of compute lab, 2. Log into WebWork from someone else's account other than yours, 3. Use a cell phone, laptop or tablet to communicate someone in the lab or outside related or unrelated class work, 4. Submit or supply solutions of the problems assigned for someone else, 5. Act in a manner that disrupts, distracts or disturbs the others in the class, you will get a **0 mark** for that particular Practice Hours lab session. If you miss any lab session, make-up will **NOT** be offered (except the reason of permission from University).
* Tutoring
In addition to office hours, there will be tutoring hours offered by appointment to get help. TBA
* Plagiarism
Collaboration on non-collected homework and in studying is strongly encouraged; **however, the work you hand in must be solely your own**. **Sharing written work before it is turned in to be graded is academic dishonesty.** For more information on TEDU policy on intellectual integrity see the link http://www.tedu.edu.tr/Assets/Documents/News/Public/TEDU_Ogrenci_El_Kitabi_2012.pdf .
* Disability Support
If you have a disabling condition which may interfere with your ability to successfully complete this module, please contact Dr. Aslı Bugay (email: asli.bugay@tedu.edu.tr) or Dr. Tolga İnan (email: tolga.inan@tedu.edu.tr). For more information please see Handbook for Registered Students.
* Make Up Exams
Make-up exams for Exam 1 & 2 will NOT be offered generally. If you have a legitimate reason for missing an exam, then you must arrange to make up the exam BEFORE the scheduled time of the exam. The only exceptions are illness or emergency (e.g., death in family, a traffic accident, etc.). In case of an illness or emergency you need to supply a documentation that supports your claim. The dates for Make-up exams for Finals are decided by Make-up Exam Commission according to the rules and regulation of TEDU. Please see the link http://www.tedu.edu.tr/en-US/Content/Default.aspx?SectionID=114 . Also please read the document given in the link http://www.tedu.edu.tr/tr-TR/Content/Akademik/Akademik_Belgeler/Yonetmelikler_ve_Yonergeler.aspx
* Study Habits
You need to read each section in the text book before the lecture covers it. Memorize every notation, definition and theorem in the book. After each class, go back and read it again. YOU LEARN MATH **BY WRITING and PRACTICE**. Please work as many problems as you can. If you get help from someone, go back and work it by yourself the next day. Remember that it is your responsibility to learn the material. Most of the learning takes place at home. On the average you should study at least 2 or 3 hours outside of class for every 50 minutes of class time.