

COURSE SYLLABUS

Professor: Dr. Raegan Higgins Siwatu

Office: Mathematics 214

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Office Hours: MF 3:30pm – 4:30pm, W 2:30pm – 3:30pm, TR 11am - 12noon, and by appointment—
schedule 24 hours prior

*Preferred. Please put “**Math 1451**” in the subject line. I will respond within 24 hours during the
work week (excluding holidays) and 48 hours during the weekend.

Course Number: Mathematics 1451-022

Course Title: Calculus I with Applications

Course Text: *Calculus*, 6th Edition by Smith, Strauss, and Toda.

Course Time and Location: TR 1:00pm – 2:50pm; Media & Communication 153

Course Prerequisite: at least a C in MATH 1350 or 1550, or 7 on MPE, or B in MATH 1321, or C in
1321 with 5 on MPE, or 660 on SATM, or 29 on ACTM, or 3 on AP AB Calculus with 5 on MPE.

Course Webpage: The course webpage contains this syllabus in its most current form, course grades,
and other noteworthy material for this course. All course information can be found at [http://www.
blackboard.ttu.edu](http://www.blackboard.ttu.edu); select the appropriate course in the course list. You will need your eRaider
username and password to log in.

Course Purpose: One of the main goals of this course is developing the student’s geometric insight into
the concepts of differentiation and integration, and applying these concepts to problem solving and “real
world application”. Instructors should emphasize the concepts of limit, continuity, and differentiability
to properties of graphs. Intuitive discussions and “picture arguments” are acceptable, as well as a few
short proofs (e.g., prove the product rule for differentiation).

Expected Student Learning Outcomes: Math 1451 satisfies part of the university core curricu-
lum requirement in Mathematics: “*Students graduating from Texas Tech University should be able to
demonstrate the ability to apply quantitative and logical skills to solve problems.*” It meets TTU general
education student learning outcomes for mathematics that student will:

- apply arithmetic, algebraic, geometric, statistical, and logical reasoning to solve problems;
- represent and evaluate basic mathematical and/or logical information numerically, graphically, and symbolically;
- and interpret mathematics and/or logical models such as formulas, graphs, tables and schematics, and draw inference from them.

In particular, students will develop skills to:

1. be able to explain the concept of continuous functions;
2. compute instantaneous rate of change;
3. compute derivatives of polynomial and transcendental functions;
4. use differentiation to solve related rate and optimization problems;
5. compute definite and indefinite integrals;
6. and apply specific concepts to certain problems from the real world and other sciences.

Methods of Assessment of Learning Outcomes: Assessment will be achieved through one or more activities, non-graded and graded, such as class discussion, board work, short quizzes, selected homework, examinations and other optional activities deemed appropriate by the instructor. Class grades will be assigned as follows:

WeBWorK & Quizzes	on-line assignments & in-class quizzes http://webwork.math.ttu.edu/webwork2/f13rahigginm1451s022 . More information is given below.	14%
Examinations	4 in-class exams September 17, October 10, October 31, November 21	56%
Final Exam	Wednesday, December 11, 2013 4:30pm - 7:00pm This is a comprehensive exam on the last day of finals. The room will be announced about 2 weeks prior.	30%
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Total		100%

Grading Scale

A = 100%–90.00%, B = 89.99%–80.00%, C = 79.99%–70.00%, D = 69.99%–60.00%, F = 59.99%–0%

Calculator: A graphing calculator is a useful tool for this course. However, CALCULATORS or other electronic devices will NOT be permitted on quizzes, in-class exams, and the final exam.

Scheduling: A tentative schedule is included in this syllabus. These details are presented as a guide. The instructor may change the dates for each assignment and/or exam, modify the exercise list, and/or add assignments. It is your responsibility to keep track of the course details and schedule for your section.

Reading: There is a lot of content in this course, so it has a necessarily fast pace. You are expected to read the appropriate sections of the text BEFORE coming to the lecture in which the topic is scheduled.

WeBWorK: WeBWorK is an internet-based method for delivering homework problems to students. **Visit the course webpage for more information on how to access WeBWorK and how to enter your solutions; see Helpful Documents.** You will need your eRaider username and student ID number with the R to log into WeBWorK.

The WeBWorK system responds by telling you whether an answer (or set of answers) is correct or incorrect and also records whether you answered the question correctly or incorrectly. You are free to try a problem as many times as you wish until the due date. **It is your responsibility to check WeBWorK for new assignments.** I will do my best to email the class when a new assignment is available. It is estimated that **each** WeBWorK assignment will take **at least 3 hours**. Please do not wait until the day the assignment is due to begin and/or send questions. I will not answer questions about an assignment after **3 pm** the day it is due.

A key educational benefit of this system is that if you get an incorrect answer, you receive immediate feedback while the problem is still fresh in your mind. You can then correct a careless mistake, review the relevant material before attacking the problem again, or seek help (frequently via e-mail) from classmates or the professor.

Quizzes: Regularly scheduled quizzes covering the assigned WeBWorK material will be administered in class. The date of the quiz will be announced one-class period in advance. In addition, I reserve the right to have unannounced quizzes at any time. Such quizzes will be included in your regular quiz grade.

You will be allowed to copy your WeBWorK solution directly onto the quiz paper in the allotted time. Since WeBWorK checks for accuracy, you will not receive any credit for simply having the correct answer. Your job on homework problems (and on exams) is to explain your reasoning and to make it clear that you understand how to do the problem. Your writing and logic should be easy to follow. For most problems, it is a very good idea to work them out first on scratch paper where you can figure out the answer and how to best present it. Once that is done, copy your solutions neatly. I recommend that you bring your well-written solutions to class on quiz day.

Make-Up Policy: There are no make-up exams or quizzes except for absence due to religious observance or absence to due officially approved trips (see Class Attendance below). The student should make arrangements to take the exam **prior** to his/her absence.

There are no make-up homework assignments except for absence due to religious observance or absence to due officially approved trips (see Class Attendance below). If a student misses a homework assignment for one of these reasons, the homework assignment will not be included in the student's course grade.

Class Attendance: Students are cautioned that active participation is necessary for success. Since we do not meet physically, absence means missed/late submission of homework and/or exam.

- Absence due to religious observance - *The Texas Tech University Catalog* states that a student who is absent from classes for the observance of a religious holy day will be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence (p.49). Notification must be made in **writing** and submitted no later than the 15th class day of the semester.
- Absence due to officially approved trips - *The Texas Tech University Catalog* states that the person responsible for a student missing class due to a trip should notify the instructor of the departure and return schedule in advance of the trip. The student may not be penalized and is responsible for the material missed.
- Whether an absence is excused or unexcused is determined solely by the professor with the exception of absences due to religious observance and officially approved trips described above.

Academic Integrity (extracted from OP 34.12): It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension.

Scholastic dishonesty includes, but it not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor) or the attempt to commit such an act.

Civility in the Classroom: Be respectful to the instructor and to your fellow students. Please **turnoff** cell phones, iPods, etc. Do not hold side conversations and do not read the newspaper in class. I will ask anyone participating in what I perceive to be inappropriate behavior to stop immediately.

Accommodation for Students with Disabilities (extracted from OP 34.22): Any student who, because of a disability, may require some special arrangements in order to meet course requirements should contact the instructor (in MA 219) as soon as possible to make the necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until the appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office at 335 West Hall or 806-742-2405.

Campus Resources:

- Tutoring and Study Center (TSC) – a free tutoring center provided by the Mathematics & Statistics Department located at in Room 106 of the Math Building. Visit <http://www.math.ttu.edu/Undergraduate/Resources/tutor.shtml> for the most recent hours of operation.
- Learning Center – a free tutoring center located in Room 80 of Holden Hall. Online tutoring is also available. Visit <http://www.depts.ttu.edu/passcntr/PLC/> for more information.
- Tutoring List – a list of tutors student may hire can be found at <http://www.math.ttu.edu/Undergraduate/Resources/tutor.shtml> or in Room 201 of the Math Building.

Tentative Schedule

<u>Date</u>	<u>Section(s)</u>	<u>Suggested Exercises or Topic</u>
Aug 27 (T)	1.1	9, 19, 21, 23, 35, 37, 39, 41, 49, 53
	1.2	7 - 39 (odd), 45
Aug 29 (R)	1.3	3, 6, 7, 9, 11, 13, 17, 19, 23, 35, 39
	1.4	3, 5, 7, 11, 13, 14, 15, 19 - 27 (odd), 35, 37, 53
Sept 3 (T)	1.5	3, 5, 9, 10, 13, 15, 17, 19, 21 - 27, 29, 31, 33, 43, 45, 47
	2.1	1 - 5(odd), 9, 10, 19, 23, 25, 26, 27, 29, 31, 33, 45, 49
Sept 5 (R)	2.2	1 - 29(odd), 36, 37, 40, 41, 43, 49, 52, 53, 55
Sept 10 (T)	2.3	7 - 15(odd), 19, 21, 23, 25, 27, 29, 33, 35, 39, 40, 41, 43, 45
	2.4	1 - 35(odd), 44, 49
Sept 12 (R)		Catch-up and/or Review for Exam 1
Sept 17 (T)		Exam 1
Sept 19 (R)	3.1	5, 7, 13, 15, 19, 21, 23, 26, 30, 31, 37, 41, 43
	3.2	5 - 37(odd), 41, 43, 45
Sept 24 (T)	3.3	1 - 43(odd), 45, 47, 51
Sept 26 (R)	3.4	1 - 29(odd), 25, 37, 38, 43, 45, 46
	3.5	5, 7, 11, 13 - 39(odd)
Oct 1 (T)	3.6	1 - 29(odd), 25, 37, 38, 43, 45, 46
Oct 3 (R)	3.7	5, 7, 9, 13, 15, 19, 22, 25, 27, 35, 37, 39, 40, 45, 47
	3.8	3, 5, 7, 11, 13, 19, 22, 27, 33
Oct 8 (T)		Catch-up and/or Review for Exam 2
Oct 10 (R)		Exam 2
Oct 15 (T)	4.1	1 - 11(odd), 19, 21, 25, 27, 31, 36, 37, 39, 49
	4.2	5, 9, 11, 17, 21, 27, 29, 31
Oct 17 (H)	4.3	5, 7, 8, 13 - 29(odd), 33, 34, 38, 40
Oct 21 (M)		Mid-semester grades due
Oct 22 (T)	4.4	5 - 21(odd), 25, 27, 33, 35, 41, 43, 51
	4.5	3 - 35(odd), 38, 41, 45
Oct 24 (R)	4.6	3, 5, 7, 15, 23, 25, 27, 28, 34, 35, 39
Oct 29 (T)		Catch-up and/or Review for Exam 3
Oct 31 (R)		Exam 3
Nov 5 (T)	5.1	1 - 27(odd), 40, 45
	5.5	1 - 33(odd), 37, 39, 44, 47
Nov 7 (R)	5.2	2, 3, 7, 19, 22, 23
Nov 12 (T)	5.3	3, 5, 7, 13, 15, 21, 33, 35, 37, 43, 45, 46
	5.4	1 - 31(odd), 35, 37, 39, 51
Nov 14 (R)	5.7	3 - 13(odd), 21, 27, 30, 35
	5.8	11, 15, 17, 19, 21
Nov 19 (T)		Catch-up and/or Review for Exam 4
Nov 21 (R)		Exam 4
Nov 26 (T)		Thanksgiving - No Class
Dec 3 (T)		Review for Final Exam and last day of this class
Dec 11 (W)		Final Exam
Dec 16 (M)		Final grades due