COURSE SYLLABUS

Instructor: Dr. Raegan Higgins Siwatu
Preferred Instructor Name : Dr. Higgins
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Office Hours: M 9am – 9:50am, W 11am – 12noon (excluding those of jury duty), R 3pm – 4pm,
F 2pm – 4pm (excluding those of Faculty Proposal Development Program); by appointment – schedule
48 hours prior

Course Number: Mathematics 1452-030
Course Title: Calculus II with Applications
Course Time and Location: MWF 10am – 10:50am and F 1pm – 1:50pm in Mathematics 010 (located
in the basement)
Course Prerequisite: At least a C in MATH 1351 or MATH 1451, or departmental permission (based
on transfer or examination)
Course Materials

- **Text**: *Calculus*, 6th National Edition by K. Smith, M. Strauss and M. Toda
- **Notes**: Available on Blackboard – see Course Webpage below for more information
- **Videos**: Available on Mediasite – see Mediasite below for more information
- A ruler and colored pencils for graphing

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

Mediasite: The videos for this course can be found at `http://mediacast.ttu.edu/mediasite/Catalog`.
To access the videos, you will need your eRaider username and password. Search the catalog on the left
as follows: Mathematics & Statistics $\rightarrow$ Courses $\rightarrow$ Math 1452 $\rightarrow$ 2014-Spring-030. The videos are
provided as a courtesy and should not be used as a substitute for attending class.

About the Course: The two main areas of calculus are differential and integral calculus. Differential calculus in one variable is the main topic of Calculus I (Math 1451). That course also contains a
brief introduction to integral calculus. Math 1452 begins with a continuation of integral calculus. The
course begins with examination of several applications of integrals including computation of area between
curves, volumes, surfaces of revolution and length of a curve. Using the objective of computing indeterminate limits students are taught the difference between rates of growth of polynomials and exponential
functions. Next students are introduced to a wide range of techniques of integration including a variety
of standard techniques of substitution and integration by parts. The second main topic in Mat 1452 is
an investigation of convergence of infinite sequences and series. Topics include tests for convergence of
series and a discussion of Taylor and Maclaurin series. The final topic is an introduction to vectors in
the plane.

Core Curriculum/Graduation Requirements: Math 1452 satisfies the university core curriculum
requirement in Mathematics.

Course-specific Learning Objectives and Corresponding Outcomes

- Apply arithmetic, algebraic, geometric, statistical and/or logical reasoning to solve problems. Students will develop skills to: (1) compute areas and volumes; (2) solve real world problems involving
  selected concepts from the physical and life sciences, and economics; (3) integrate by using substitution, integration by parts, and partial fractions; (4) analyze the convergence of infinite series and
  sequences; (5)perform basic vector algebra; (6) apply specific concepts to certain problems from
  the real world and other sciences.
- Represent and evaluate basic mathematical and/or logical information numerically, graphically,
  and symbolically. Students will learn how to adequately communicate mathematical information
  in writing, verbally and graphically, by using words, numerical answers, algebraic expressions,
  logical sentences, as well as graphs and diagrams

- Use mathematical and logical reasoning to evaluate the validity of an argument. Students will learn how to identify, understand and apply mathematical and logical reasoning to theoretical and applied problems. In particular, attention will be given to elementary proofs in calculus and convergence inferences for improper integrals and infinite series.
- Interpret mathematical and/or logical models such as formulas, graphs, tables and schematics, and draw inference from them. Students will learn to identify and interpret mathematical information contained in formulas, graphs and tables, in particular:(a) applications to physical problems; (b) formulas from integration tables; (c) geometric and infinite series.

Methods of Assessment of Learning Outcomes: The assessment of students' mastery of the skills and concepts as specified in the expected learning outcomes will occur as follows:

WeBWorK	On-line exercises Visit `http://webwork.math.ttu.edu/webwork2/spr14rahigginm1452s030`. More information is given below.	15%
Quizzes	All quizzes will be in class and announced one week in advance.	15%
Examinations	3 in-class exams will be given tentatively on the **Fridays** below at **10am** February 14th, March 7th, April 25th	45%
Final Exam	Comprehensive, Monday, May 12th 4:30 p.m. - 7:00 p.m.	25%
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%

Grade Inquiry Policy: Any student who has questions about any grade received on an assessment should meet with the instructor in person within a one-week period of receiving the graded assessment. At this face-to-face meeting, the instructor will provide an explanation of the grading and computation of the score. Inquires received after the one-week period will not be considered.

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. Check WeBWorK regularly for new assignments and the corresponding due dates. Students are encouraged to print out assignments as soon as they are available. 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 **4pm** 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.

You will also be given a list of suggested homework problems from your textbook. Although these problems will not always be collected, it is important that you attempt all assigned problems in a timely fashion.

Final Exam: The common final exam will be given on Monday, Math 12th at 4:30pm. The location will be announced the last week of class, sent via email, and posted at `http://www.math.ttu.edu/FacultyStaff/Resources/Finals/`. **The common final represents a course requirement. A student who did not complete the Final Examination, but otherwise completed all the other requirements successfully, cannot be assigned a passing letter grade (D or higher) unless taking the Final Examination.** Each designated instructor has to keep his/her copy of partial scores and grades for each student for one calendar year from the date of recording the grade in the web database.

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.

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 attending class or attempting the WeBWorK exercises. **Reading quizzes will be given if it is appears that students are not reading the text**.

Make-Up Policy: There are no make-up quizzes or exams 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 quiz or exam **prior** to his/her absence. In the event a quiz or exam cannot be taken prior to an absence, the make up assessment will be given on Individual Study Day which is Wednesday, May 7th.

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

Class Attendance: Students are cautioned that active participation is necessary for success. Attendance will be taken at the professor's discretion.

- 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.

Communication: The use of information technologies such as email and the internet have become routine learning tools. It is imperative that you learn to use email and the internet as part of your college education. Accordingly, **you must have a TTU email account** and **check it** (and Blackboard) **regularly**. I will be communicating with you via email and delivering lecture notes via Blackboard.

In the event that you need to contact me via email, please include **"Math 1452"** and the title of the email (e.g., homework question, attendance) in the subject line. For example, the subject line may read "Math 1452: WeBWorK." I will respond to email within 24 hours during the work week (excluding holidays). Emails with Math 1452 in the subject line will receive a quicker response.

It is strongly encouraged that students create a folder and rule for this course in his/her Microsoft Outlook email account. Using the web application for Microsoft Outlook (visit `mail.ttu.edu`), a folder can be created by right clicking on the Inbox and selecting "Create New Folder." A possible folder name is MATH1452SP14. Once the folder is created, next create a rule. To do so, select the "Options" near the top right of the screen. Then choose "Create an Inbox Rule." Select "New" and then "Move message from someone to a folder . . . ." Choose "*Select people . . ." and type my email address raegan.higgins@ttu.edu in the "From" field at the bottom. Then select "OK". Next you will choose the folder you just created by selecting "*Select one . . . ." Finally select "More Options" to select "Stop processing more rules" and to give the rule a name. Once you are done, select "Mail" in the upper left.

In the event that a student submits a question via email that contains mathematical calculations, **the calculations must be submitted via a PDF file**. Submitting problems this way decreases the probability of misunderstanding the work and increases the response time. It is challenging to communicate mathematics in writing without using proper language. So an actual written question will help alleviate misunderstanding. A free smart phone application is CamScanner.

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.

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 person 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, visit `http://www.depts.ttu.edu/students/sds/` or 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.

Suggested Exercises

Although these problems will not be collected, careful and thoughtful completion of them will help you learn the material.

Section	Page	Exercises
Chapter 5 Review	409	19 - 25, 28
6.1	428	13, 14, 17, 18, 19, 25, 26, 29, 31, 34, 35, 36, 46
6.2	443	1, 3, 5, 6, 8, 9, 13, 15, 17, 19, 21, 27, 29, 31, 32, 33, 37, 39, 42, 44, 46, 48
6.3	456	1-21 (odd), 26, 27, 31, 42, 43, 44, 47
6.4	466	1-7(odd), 8, 15- 19(odd), 29, 31, 37, 45
6.5	480	1-3, 5-11 (odd), 15, 17, 19, 23, 25, 29, 33, 37, 39, 41
7.1	516	1-23 (odd), 29, 33, 36, 39, 40, 41, 44 53, 55, 59
7.2	521	1, 3, 5, 6, 7, 8, 9, 13, 17, 25, 28, 35, 38, 40, 42
7.3	530	5-47(odd), 51, 53
7.4	539	1, 3, 7, 13-27(odd), 33, 35, 39, 45, 51
7.5	543	1-39(odd), 43, 47, 55, 56
7.6	553	1 - 15(odd), 23, 25, 35
7.7	566	1-43(odd)
7.8	574	1, 5, 7, 11, 13 - 37(odd)
8.1	594	3 - 9(odd), 13 - 31(odd), 38, 39, 43
8.2	603	3 - 25(odd), 31, 41, 44, 46
8.3	612	3 - 47(odd), 51, 53
8.4	618	5 - 51(odd)
8.5	625	3 - 49(odd)
8.6	636	5, 9, 14, 15, 16, 19, 22, 25, 33, 34, 38, 40, 41
8.7	647	1 - 21(odd), 27, 29, 31, 37 - 41(odd)
8.8	661	3, 7, 11, 13, 21, 25, 27, 29, 32, 33, 35, 39, 45
9.1	684	3, 7, 11, 14, 15, 17, 21, 23, 25, 29, 31, 33, 35, 47
9.2	694	3, 5, 11, 13, 15, 21, 25, 27, 29, 31, 33, 35, 45
9.3	703	3, 5, 7, 9, 11, 12, 17, 21, 23, 25, 29, 31, 33, 39, 43, 45
9.4	714	1 - 9(odd), 13, 17, 19, 23, 27-29, 31, 45
9.5	724	3 - 25 (odd), 29, 31, 33, 45