Calculus I, K254, CRN 10411

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Office Hours: Tuesday/Thursady 3:00-6:00pm and by appointment   Location of Office Hours: T.A.S.C.

Class Hours: Monday/Wednesday 6:00-7:40pm   Class Room: E227

Prerequisite

Pre-Calculus or other higher courses

Required Material

1. In this course you will need a book which is Calculus: Early Transcendentals, 8th Edition. Stewart. Cengage Learning, 2015. ISBN #9781285741550.

2. Graphing calculators will be needed for many homework problems, and it is **REQUIRED** that you bring one to every class. The use of Cell phones, tablets and other electronic devides are **STRONGLY PROHIBITED**.

3. A notebook and something to write with are needed for this course. In order to succeed in this class these things are a must.

Course Description

This is a first course in the calculus sequence intended for students who plan on majoring in mathematics, physical sciences, or engineering technology. Topics include: rate of change, limits, continuity, differentiation of algebraic, trigonometric, exponential, and logarithmic functions, differentials, applications of differentiation, definite and indefinite integrals, and applications of integration.

Evaluations

Quizzes/ Projects 25%,   Take home Exams & Class Exams 50%,   and Final exam 25%.

1. Take home Exam will be due in a week from giving, once turn in then you will begin the class exam.

2. Quizzes will be **POP** and it will be only for 20 minutes **ONLY**. You will not know when and what time. It can be any moment.

Grading Policy

This is how the grade will be scale in the class. There will be **NO CURVE**. However, I will **not stop and deny you** if you want to improve your grade, meaning you are allow to do retakes as many times as you want, (just be aware that it will be harder compare to your previous one). Below is the measurements for the minimum/maximum for each letter grade.

- From $93 \rightarrow 100 \implies A$ $92 \rightarrow 90 \implies A-$

- From $89 \rightarrow 87 \implies B+$ $86 \rightarrow 83 \implies B$ $82 \rightarrow 80 \implies B-$

- From $79 \rightarrow 77 \implies C+$ $76 \rightarrow 73 \implies C$ $72 \rightarrow 70 \implies C-$

- From $69 \rightarrow 67 \implies D+$ $66 \rightarrow 63 \implies D$ $62 \rightarrow 60 \implies D-$

- From $59 \rightarrow 0 \implies F$

Class Cancellation

In case of increment weather, check the college website for class cancellations or call 860-215-9000 for recorded message.

During Class

I **WILL NOT TOLERATE** the use of electronics in this class, **EXCEPT** if this is an accomadation. Please refrain from using computers for anything but activities related to the class. Phones are prohibited as they are rarely useful for anything in the course. Eating and drinking are allowed in class

but please refrain from it affecting the course. Try not to eat your lunch in class as the classes are typically active.

Attendance Policy

It is **VERY IMPORTANT** you attend class because if you do not you will see the outcome of it at the end of the semester and also it might impact your **FINANCIAL AID**, so please be mindful of that. Attendance is expected in all lecture. Valid excuses for absence will be accepted before class. In extenuating circumstances, valid excuses with proof will be accepted after class. For every class missed your knowledge about the subject will be decreasing, and in term of moving forward it will be difficult in your part. It is **YOUR RESPONSIBILITY** to find what you miss **NOT MINE**. Your life, your choice, and your education.

Academic Integrity and Honesty

At TRCC, we expect the highest standards of academic honesty. All students are expect to demonstrate integrity in the completion of their coursework. Academic integrity means doing one's own work and giving proper credit to the work and ideas of others. It is the responsibility of each student to become familiar with what constitutes academic dishonesty and plagiarism and to avoid all forms of cheating and plagiarism. Students who engage in plagiarism and other forms of academic misconduct will face academic and possibly disciplinary consequences. Academic sanctions can range from a reduced grade for the assignment to a failing grade for the course. From a disciplinary standpoint, an Academic Misconduct Report may be fill and a Faculty Hearing Board may impose sanctions such as probation, suspension or expulsion.

Accommodations for Disabilities

If you have a disability that may affect your progress in this course, please meet with a Disability Service Provider (DSP) as soon as possible.

Please note that accommodations cannot be provided until you provide written authorization from a DSP.

College Disabilities Service Provider:

- Matt Liscum, Counselor he can be reach at (860) 215-9265, and his office is at Room A113. He will be able to provide service for people that has learning disabilities, ADD/ADHD, Autism Spectrum, and Mental Health Disabilities.

- Elizabeth Wilcox, Advisor, she can be reach at (860) 215-9289, and her office is at Room A113 as well. She will be able to help people with medical, mobility, and sensory disabilities.

Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and TRCC policy and will not be tolerated. Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation also is a violation of state and federal law and TRCC policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited. CT State's policies and regulations covering discrimination, harassment, and retaliation may be accessed at **STUDENT HANDBOOK** Any person who feels that he or she has been the subject of prohibited discrimination, harassment, or retaliation should contact the Office.

Digication Statement

All students are required to maintain an online learning portfolio in Digication that uses the college template. Through this electronic tool, students will have the opportunity to monitor their own growth in college-wide learning. The student will keep his/her earning portfolio and may continue to use the Digication account after graduation. A Three Rivers General Education Assessment Team will select and review random works to improve the college experience for all. Student work reviewed for assessment purposes will not include names and all student work will

remain private and anonymous for college improvement purposes. Students will have the ability to integrate learning from the classroom, college, and life in general, which will provide additional learning opportunities. If desired, students will have the option to create multiple portfolios.

Course Objectives

Upon completion of the course, student should be able to:

1. Find the natural domain and range of the given function.

2. Compute the value of the function at the indicated value of x.

3. Know the classification of the functions, their basic properties and graphs.

4. Classify a function as even, odd, or neither.

5. Find the composite of two functions, and express a function as the composition of two or more functions.

6. Sketch the graphs of the functions using concepts of reflections and translations, intercepts.

7. Use vertical line test to identify whether the given graph is the graph of a function.

8. Find the limit of a function, using graph, table of values, or algebra. Find limits involving infinity.

9. Determine whether the given function is continuous or not, find and describe all points of discontinuity.

10. Know the Intermediate Value Theorem.

11. Use the definition of the derivative to differentiate a function. Understand graphical and physical meanings of the derivative.

12. Find whether the function is differentiable or not.

13. Use the techniques of differentiation, the Chain Rule to find first and higher derivatives of algebraic, trigonometric, inverse functions, exponential, and logarithmic functions.

14. Find the equation of the line tangent to the graph of a function at the specified point.

15. Solve the word problems on rate of change of the function.

16. Find the derivative of a function by implicit differentiation; apply it to related rate problems.

17. Find the derivative of a function by logarithmic differentiation.

18. Find the differential of a function. Find the linear approximation of a function.

19. Identify which of the given curves represents a function and which represents its first and second derivative. Sketch the graph of the derivative of a function defined by the graph.

20. Know the Mean value and Rolle's Theorem.

21. Use the first and second derivatives to find the shape of a graph, show where the function is increasing/decreasing, concave up/concave down; find the inflection points. Use the First and Second Derivative Tests to find relative extrema.

22. Sketch the graph of a function (show all critical points, inflections, asymptotes, etc.)

23. Find the absolute maximum and absolute minimum of a function on a given interval.

24. Solve optimization problems.

25. Find antiderivatives.

26. Know the definition of a definite integral, area and distance problems that lead to the definite integral.

27. Know the Fundamental Theorem of Calculus; recognize the differentiation and integration as two inverse processes.

28. Perform the indefinite and definite integration using basic integration rules, substitution method.

29. Find the average value of a function on a given interval.

30. Solve problems on applications of integration to geometry, physics, and engineering.