MAT* K254   **Calculus I**   Spring 2016

11397   T13   TR 12:00 – 1:40 pm   E 225

INSTRUCTOR: Dr. Kelly Molkenthin (pronounced "molk-in-tine")
Office: C 234, 860-215-9455
Email: kmolkenthin@trcc.commnet.edu

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Office Hours: Mondays 11:00 am – 12:00 pm
                    Tuesdays 10:50 am – 11:50 am
                    Wednesdays 11:00 am – 12:00 pm
                    Thursdays 10:50 am – 11:50 am
         and by appointment.
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REQUIRED MATERIAL:

- *Calculus: Early Transcendentals, 8th Edition.* Stewart. Cengage Learning, 2015.
  ISBN # 9781285741550

- Graphing calculators will be needed for many homework problems and it is REQUIRED that you
  bring one to **every class**. Cell phones may **not** be used as calculators.

GRADING:

3 Exams:	300 points (100 each)	
Weekly Quizzes:	200 points (20 each)	
Final Exam	200 points	
Attendance/Participation/Class Work	50 points	
Total:	750 points	

Your final grade is the total number of points you have received divided by the total possible number of
points. Final grades will be determined using the scale below:

A → 93% and above   **A-** → 90 - 92%

B+ → 87 - 89%   **B** → 83 - 86%   **B-** → 80 - 82%

C+ → 77 - 79%   **C** → 73 - 76%   **C-** → 70 - 72%

D+ → 67 - 69%   **D** → 63 – 66%   **D-** → 60 – 62%

EXTRA CREDIT: There will be **no** "extra credit" assignments for this course.

ATTENDANCE & PARTICIPATION: All students start the semester will 50 "bonus" Attendance/Participation points. Points will be deducted for unexcused absences, late arrivals, early departures, cell phone/tablet/computer use during class time and other distracting classroom behavior (determined by instructor). Attendance is required and will be taken for each class.   An absence is excused ONLY for valid reasons (to be determined by the instructor) and if notification is given **PRIOR** to a missed class (via email, phone message – **not** word of mouth from another student). Oversleeping, "colds" and "vacations" are examples that are **not** valid reasons for an absence.

All absences reported by phone or reported to instructor in person must be followed up with an email, or they will be considered unexcused. Do you best to not miss ANY classes!! Students are allowed a maximum of 2 excused absences per semester, excused absences will not affect your attendance and participation grade. Unexcused absences *will* lower your attendance and participation grade.

 Also, if you miss a class it is YOUR responsibility to get the class notes from another student (refer to your class list) and BE PREPARED for the next class meeting (this includes taking scheduled exams).***

Note: Class BEGINS at 12:00 pm.   It is expected that you will be in your seat and ready to go at 12:00 pm. Students arriving after 12:00 pm will lose attendance points for that class. Excessive "lateness" will not be tolerated, it is disruptive to both the instructor and the class. Excessive lateness will result in classroom doors being locked at 12:00 pm. Emergencies and special circumstances can typically be accommodated – especially when discussed with the teacher in advance. However, regular late arrivals and early departures are unwanted interruptions that affect the classroom as a whole. All students start the semester will 50 attendance and participation points. Points will be deducted for unexcused absences, late arrivals, early departures, cell phone/tablet/computer use during class time and other distracting classroom behavior (determined by instructor).

CLASS CANCELATION: In the unlikely event that a class needs to be canceled by the instructor, a notice will be placed on the classroom door prior to the start of class. If time permits, you will be notified by the instructor via email as soon as possible prior to the canceled class.
For college cancelations, pay attention to the radio & TV announcements, call the college's main phone number, 860-886-0177, or visit the college's home page, www.trcc.commnet.edu. It is also suggested all students register for **The myCommnet Alert Notification System**. This system is used to deliver important information to students, faculty, and staff regarding weather-related class cancellations. The system delivers both email messages, and text messages over cellular phones to those individuals who are registered. To register, log on to your myCommnet account at http://my.commnet.edu/ and follow the link to myCommnet Alert. Please DO NOT email instructor regarding weather delays/closings.

HOMEWORK AND QUIZZES: Homework will be assigned on a regular basis. It is expected that you complete your homework by the **next class meeting**. Our expectation is that you are spending 2-3 hours of reading and doing homework for this class for every one hour we meet in class. So, you should expect to spend *at least* **8-12 hours per week** on this class, every week! Please have a separate notebook for your homework, and BRING YOUR HOMEWORK NOTEBOOK TO EVERY CLASS MEETING. Homework notebooks may be collected at any time and may be used for attendance/participation grade and/or a quiz grade on any given week.
Your in-class quizzes will be testing the concepts emphasized from class that week and your homework assignments. There are no make-ups for missed quizzes. You will be given at least 12 quizzes throughout the semester, only your top 10 scores will count toward your final grade.

EXAMS: You will have three in-class exams and one two hour final exam. Exams are scheduled for the following dates:

- ♦ **Exam 1: Thursday 2/25**
- ♦ **Exam 2: Thursday 3/31**
- ♦ **Exam 3: Thursday 5/5**
- ♦ **Final Exam: Tuesday 5/17**

This may change (but hopefully not), depending on how we are doing. Make-ups for exams will be given only in **EXTREME** circumstances and if **PREVIOUS** arrangements are made. You must contact the instructor **PRIOR** to the start of the exam in order for a make-up exam to even be considered. No exam will be administered prior to the date/time of the scheduled exam and **if you miss an exam, you will receive a grade of 0 (zero)**. Your final exam is a **2 hour** final exam on Tuesday, 5/17.

RETENTION OF PAPERS: Students are expected to retain all graded work until final grades are received.

ACADEMIC DISHONESTY: Academic integrity is essential in all aspects of college coursework and learning. I have zero tolerance for academic dishonesty. It is expected that **YOU** complete all your assigned homework, quizzes and exams. Communication or collaboration of ANY sort is ABSOLUTEY PROHIBITED during any quiz or exam. Academic Misconduct is punishable in a number of ways, including a score of a zero on the assignment where the cheating took place, a grade of an F in the course and/or possible censure on your permanent record. All cases of academic dishonesty will be referred to the Academic Honor Council. Do not let yourself come under the suspicion of academic dishonesty.

COURSE OBJECTIVES: 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.

Upon Completion of the course, the 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.

ACCOMMODATIONS: Students with learning disabilities should contact the Learning Specialist, Chris Scarborough at 860-215-9289 or cscarborough@trcc.commnet.edu as soon as possible to ensure timely accommodations. Students with physical disabilities should contact Matt Liscum at 860-215-9265 or via email at mliscum@trcc.commnet.edu to facilitate accommodations. All testing accommodations MUST be discussed with the instructor in a timely manner. If accommodations are needed, arrangements must be made *at least* **two class meetings prior** to any scheduled test/quiz for which the accommodations are needed.

CELL PHONE POLICY: All cell phones must be turned OFF or MUTED before entering the classroom and properly placed in a bag or pocket (not left on a desk). Any cell phone ringing or beeping during a class is inappropriate and unacceptable.   Any cell phone use is also inappropriate and will not be tolerated. Students found using cell phones in any way in class will be asked to leave and will lose their attendance points for that class period. Cell phones may NOT be used for calculators in class. All cell phones must be completely out of sight for all quizzes and exams. Any visible cell phone during a quiz or exam will result in a 0 for that quiz or exam. If a 0 is received on a quiz due to a cell phone issue, that quiz will not be dropped and will count in your final grade.

DIGICATION: All students are required to maintain a learning portfolio in Digication that uses the (Three Rivers) College Template.

ACCEPTANCE POLICY: After reading this syllabus, choosing to stay registered for this course exemplifies your acceptance of the syllabus and all policies and consequences outlined in the syllabus,   If you do not agree with any of the terms in the syllabus, you are free to withdraw.

The key to success in this course is to attend every class and do all the homework when it is assigned. Ask questions when you have them!!. You will find it much easier to learn the new topics if you consistently keep up with the course material and homework problems!

The instructor has the right to change/modify this syllabus at any time with proper notification to the class

Week of:	Chapter(s):	Topics Covered:
1/21	Chapter 1	Chapter 1 - Review
1/26	Chapter 1 2.1, 2.2	Chapter 1 – Review The Tangent and Velocity Problems, The Limit of a Function ♦ **Quiz #1 – Thursday 1/28**
2/2	2.3, 2.4, 2.5	Calculating Limits Using the Limit Laws, The Precise Definition of a Limit, Continuity ♦ **Quiz #2 – Thursday 2/4**
2/9	2.5, 2.6, 2.7	Continuity, continued, Limits at Infinity, Derivatives and Rates of Change ♦ **Quiz #3 – Tuesday 2/9** ****No MAT 254 Thursday 2/11, Instructor out of town**
2/16	2.8, 3.1	Derivative as a Function, Derivatives of Polynomials and Exponential Functions ♦ **Quiz #4 – Thursday 2/18**
2/23		Catch up, Review ♦ **Exam #1 – Thursday 2/25**
3/1	3.2, 3.3, 3.4	The Product and Quotient Rules, Derivatives of Trigonometric Functions, The Chain Rule ♦ **Quiz #5 – Thursday 3/3**
3/8	3.5, 3.6, 3.7	Implicit Differentiation, Derivatives of Logarithmic Functions, Rates of Change in the Natural and Social Sciences ♦ **Quiz #6 – Thursday 3/10**
3/15	3.9, 3.10, 4.1	Related Rates, Linear Approximations and Differentials, Maximum and Minimum Values ♦ **Quiz #7 – Thursday 3/17**
3/22		**SPRING BREAK!!**
3/29		Catch-up, review ♦ **Exam #2 – Thursday 3/31**
4/5	4.2, 4.3	The Mean Value Theorem, How Derivatives Affect the Shape of a Graph, Summary of Curve Sketching ♦ **Quiz #8 – Thursday 4/7**
4/12	4.7, 4.8, 4.9	Optimization Problems, Newton's Method, Antiderivatives ♦ **Quiz #9 – Thursday 4/14**
4/19	5.1, 5.2	Areas and Distances, The Definite Integral ♦ **Quiz #10 – Tuesday 4/19** ****No MAT 254 Thursday 4/21, Instructor out of town**
4/26	5.3, 5.4, 5.5	****No MAT 254 Tuesday 4/26, Instructor out of town** The Fundamental Theorem of Calculus, The Definite Integral, The Substitution Rule ♦ **Quiz #11 – Thursday 4/28**
5/3		Catch-up, review ♦ **Exam #3 – Thursday 5/5**
5/10	6.1	Area Between Curves ♦ **Quiz #12 – Thursday 5/12**
5/17		♦ **Final Exam – Tuesday 5/17 (2 hour final exam)**