Office: FEM 1E   **Office HRS**: MTW 8-9 or by appointment
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Math 5A - 55342: Calculus I
Class meetings: Reedley College CCI 206, 9:00-9:50, M-F, 1/12/15-5/22/15
Text: : <u>Calculus Early Transcendentals Single Variable</u>, Anton 10th edition, Wiley
Prerequisite: Mathematics 4B or equivalent or Mathematics 4C
Basic Skills Advisories: Eligibility for English 125 and 126

Description
Introduction to calculus, analytic geometry, differentiation and integration of polynomial, exponential, logarithmic and trigonometric functions; limits; curve sketching and applications.

Expectations / Responsibilities
Instructor
- Motivate and inspire student success.
- Provide a classroom climate in which the student takes responsibility for learning.
- Provide the necessary instruction and model the quality of work to be successful in Math 5A.
- Clearly communicate progress being made in a timely fashion.

Student
- Follow the class rule – **Be Nice**.
- Be in each class on time with *full participation* from *start to finish*.
- Stay off of your phone while in class.
- Study Calculus daily.
- Learn the material that is taught and *seek additional assistance* when necessary.
- All written work must be neat, complete, concise and accurate to receive full credit.
- Promptly communicate any class related issues.
- If you miss a class in the first 3 weeks you may be dropped.
- If you miss any class time it may be counted as an absence.
- If you have more than 3 absences, you may be dropped.
- If your Homework average is below 90% on 3/13, you may be dropped.
- If your Test average is below 60% on 3/13, you may be dropped.

Grading
       Scale   **A** 90-100%   **B** 80-89%   **C** 70-79%   **D** 60-69%

     Tests **80%**   There will be 5 tests and a final. There are **no make-up tests**. A test may be taken early with <u>prior approval</u>.

   Homework   Written assignments will be collected as assigned. **No late homework**
       20%   **is accepted.**

Testing Procedure

Tests are to be completed in pencil. There are **no make-up tests**. You may use a scientific calculator. No graphing calculator. **NO PHONE**.

If you are more than 10 minutes late for your arranged test, then the test will be a ZERO. The end time for the test is the end time for the class.

Once you have started the test, you must complete the test and turn it in before leaving the room.

You will be informed if notes, charts, and scantrons may be used for specific tests.

Academic Dishonesty

Cheating is the act or attempted act of taking an examination or performing an assigned, evaluated task in a fraudulent or deceptive manner, such as having improper access to answers, in an attempt to gain an unearned academic advantage. Cheating may include, but is not limited to, copying from another's work, supplying one's work to another, giving or receiving copies of examinations without an instructor's permission, using or displaying notes or devices inappropriate to the conditions of the examination, allowing someone other than the officially enrolled student to represent the student, or failing to disclose research results completely.

Plagiarism is a specific form of cheating: the use of another's words or ideas without identifying them as such or giving credit to the source. Plagiarism may include, but is not limited to, failing to provide complete citations and references for all work that draws on the ideas, words, or work of others, failing to identify the contributors to work done in collaboration, submitting duplicate work to be evaluated in different courses without the knowledge and consent of the instructors involved, or failing to observe computer security systems and software copyrights. Incidents of cheating and plagiarism may result in any of a variety of sanctions and penalties, which may range from a failing grade on the particular examination, paper, project, or assignment in question to a failing grade in the course, at the discretion of the instructor and depending on the severity and frequency of the incidents.

NOTE: If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act or section 504 of the Rehabilitation act please contact me as soon as possible.

Please refer to SCCCD policies for guidance on all matters relating to this course.

Objectives

In the process of completing the course, the student will:

- I.   analyze and sketch the graphs of simple functions.
- II.   determine the domain and range of compound and composite functions.
- III.   calculate limits and determine the continuity of functions.
- IV.   differentiate polynomial, trigonometric, rational, exponential, and logarithmic functions.
- V.   solve related rates and extrema problems using the derivative.
- VI.   perform calculations using the Fundamental Theorem of Calculus.
- VII.   perform indefinite and definite integration including the use of substitution.

Course Outline

A. Functions
1. Algebra and trigonometry review
2. Functions and the analysis of graphs
3. Properties of functions
4. Compound functions and composite functions
5. Applications of linear functions

B. Limits and Continuity
1. Intro to limits (intuitive)
2. Computational techniques
3. Theory of limits
4. Continuity
5. Squeezing theorem and limits involving trig functions

C. Derivatives
1. Secant lines, tangent lines, rate of change
2. The definition of the derivative
3. Techniques of differentiation
4. Derivatives of trig functions
5. The Chain Rule
6. Differentials

D. Logarithmic and Exponential Functions
1. Inverse functions
2. Logarithmic and exponential functions
3. Implicit differentiation
4. Derivatives of logarithmic and exponential functions
5. Derivatives of inverse trigonometric functions
6. Related rates
7. L'Hopital's Rule

E. Analysis of Functions and their Graphs
1. Increasing, decreasing functions and concavity
2. Relative extrema; First and Second Derivative Tests
3. Producing graphs of functions

F. Applications of the Derivative
1. Absolute maxima and minima
2. Applied maxima and minima problems
3. Applications to rectilinear motion
4. Rolle's Theorem

G. Integration
1. Finding areas under curves
2. The indefinite integral
3. Integration by substitution
4. The definite integral
5. The Fundamental Theorem of Calculus