# http://www.dessci.com/en/products/mathtype/site/license\_dept.htmMath 5A-56339 Math Analysis 1 REEDLEY COLLEGE

Mr. Jim Gilmore Fall 2011

**Office**: FEM 1M EXT. 3365

**Office** **Hours**: M, W, Th 10:00-10:50 **Meeting** **Room**: FEM 4E

**E-Mail**: jim.gilmore@reedleycollege.edu **Meeting Days:** Daily 12:00-12:50

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

## **Basic Skills Advisories:** Eligibility for ENGL 125 AND ENGL 126

**Subject Prerequisites:** MATH 4B or MATH 4C or equivalent

**TEXT:** Anton, Calculus: Early Transcendentals, ed. 9th Wiley, 2009. ISBN 978-0470-18204-8

**REQUIRED NOTES:** Notes are available in the bookstore and are required.

**ATTENDANCE:** Students are expected to attend all class meetings, be on time, and be in class the entire class session. Calling me to tell me you will be absent **does not** excuse you. **STUDENTS LEAVING CLASS BEFORE THE END OF CLASS WILL BE COUNTED AS BEING ABSENT!** **Three (3) absences** may result in a drop from the course. However, if you decide to drop the course, it is **your** responsibility to make the drop official in the Administrations and Records office or else possibly receive a grade of **F.**

**Behavioral Standards:** Your classmates and I would greatly appreciate that students in the class take care of any personal needs (i.e., using the restroom, getting a drink, sharpening a pencil) before class begins. Please turn your phone off when entering the class. You may not use your phone as a calculator. I would appreciate that you not bring guests to class.

**NOTE:**  The drop deadline is **October 14, 2011**.

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**TARDIES:** Students are expected to be on time. It is distracting, rude and unfair to fellow classmates and to the instructor when a student is late. If you are not present when roll is taken you will be counted as absent.

**HOMEWORK:** **NO LATE HOMEWORK WILL BE ACCEPTED!**  When a student has not satisfactorily completed 3 homework assignments they will be dropped

**TESTS:** There are no makeup exams for missed tests.

**FINAL EXAM:** A two-hour comprehensive final exam worth 1 test will be given at the end of the semester during finals week. You are required to take the final exam, however the final exam will replace your lowest test score.

Students are required to participate in all class discussions and activities. You may not start the homework during class. You may not study for another class or read a book during class.

**GRADING:**

* *Homework*: Homework will be worth 20% of the grade. Homework worth 10 points and homework worth 15 points will count the same.
* *In Class Tests*: All of your test percentages will be averaged and will count as 80% of your grade.

Percent of Total Points Grade

89-100 A

79-88 B

70-78 C

60-69 D

0-59 F

## **WHERE TO FIND YOUR GRADE:**

Available at <http://sc.webgrade.classmanager.com/ReedleyCollege/> Your class will be identified by schedule number. Username and password is sent to your email that you have on record with Blackboard.

**SPECIAL NEEDS REQUESTS:** 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 (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

**Academic Dishonesty**

Students at Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share the responsibility to ensure that this education is honestly attained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences.

**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 a 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.

**Course Objectives**

1. Analyze and sketch the graphs of simple functions.
2. Determine the domain and range of compound and composite functions.
3. Calculate limits and determine the continuity of functions.
4. Differentiate polynomial, trigonometric, rational, exponential, and logarithmic functions.
5. Solve related rates and extrema problems using the derivative.
6. Perform calculations using the Fundamental Theorem of Calculus.
7. Perform indefinite and definite integration including the use of substitution.

**Course Outcomes**

Upon completing this course students will demonstrate the ability to:

1. Determine limits and continuity using graphical, analytical, and tabular techniques.
2. Explain and apply the techniques of differential calculus to construct derivatives graphically, numerically, and analytically.
3. Interpret and analyze information to develop strategies for solving problems involving related rates, optimization, and approximation by linear models including translating problems from the physical, life, and social sciences into workable mathematical form.
4. Compute anti-derivatives of functions, relate definite integrals to areas, and evaluate definite integrals using the Fundamental Theorem of Calculus.

**COURSE CONTENT OUTLINE:**

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| 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. 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  E. Applications of the Derivative  1. Absolute maxima and minima  2. Applied maxima and minima problems  3. Applications to rectilinear motion  4. Rolle’s Theorem | F. Integration 1. Finding areas under curves 2. The indefinite integral 3. Integration by substitution 4. The definite integral 5. The Fundamental Theorem of Calculus  G. 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 |

## *Important Dates*

August 15 Class Begins

September 5 Labor day

October 14 Last day to drop

November 11 Veteran’s Day

November 24-25 Thanksgiving

December 14 Final for 12:00-1:50

**The final is a test. Be sure you plan to be there!**