

FALL2 2010(DIRECTED STUDY)

Syllabus: Art Mark, Professor, GMC

Office: Opposite Room 15(Martinez) (706) 651-7329

Home Phone: (803) 642-9225(best time to call is after 2200H to reach me directly)

Hours: (By Appointment) (Room 11or Room 15A)M-TH 12-2 PM, T & TH 2-3 PM:

E-mail: artmarkii@bellsouth.net

MAT 201 CALCULUS I

PREREQUISITE: MAT 110 or MAT 112 or Satisfactory placement exam score.

QUARTER HOURS: 6

COURSE DESCRIPTION: This course introduces ideas and concepts that are basic to modern statistics; to gather, formulate, and analyze data; to explain how to formulate decisions either through descriptive or inductive statistics; and to show applications of statistical procedures in business and industry.

STUDENT LEARNING OBJECTIVES: The student will be able to:

1. Find the limit of a function when it exists using various rules and techniques
2. Determine when a function is continuous
3. Find the derivative of a function using various rules and techniques
4. Use implicit differentiation
5. Determine whether a function is increasing or decreasing over a given interval
6. Use derivatives to locate the minimum and maximum function values
7. Determine concavity and points of inflection
8. Find derivatives of trigonometric functions
9. Calculate the anti-derivative of a function
10. Apply the fundamental theorem of calculus
11. Use appropriate technology to solve mathematical problems
12. Use Newton's method to solve problems

COURSE CONTENT:

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| A. Definition of a limit | L. Extrema of functions |
| B. Techniques for finding limits | M. Mean value theorem |
| C. Continuity | N. Applied maxima/minima problems |
| D. Definition of a derivative | O. Concavity and inflection |
| E. Tangent lines and rates of change | P. Anti-derivatives |
| F. Techniques of differentiation | Q. Fundamental Theorem of Calculus (optional) |
| G. The Chain Rule | |
| H. Derivatives of trigonometric functions | |
| I. Related rates | |
| J. Newton's method | |
| K. Implicit differentiation | |

COURSE MATERIALS: Textbook: ESSENTIAL CALCULUS, by Wright, Hurd, & New with course CD and license (Purchase license on line or in book store) Other Materials: **TI-83/84 calculator required (TI-83 will be used in instruction and is the recommended calculator) Students will use NUCALC & MAPLE computer software(on computers in the math lab) to effect lab projects.**

COURSE OUTLINE: The course is divided into sections according to the text topics. The instructor will provide more detail on daily and weekly assignments, quizzes and exams, and Lab Projects.

Week	Material Covered	Graded Exercises
1	Introduction/Review of precalculus Chapter 1, 1.5-1.8	Homework Lab Project
2	Functions and Graphs , Limits Chapter 2, 2.1,2.5. Chapter 9, 9.1	Homework, Lab Project
3	Prelude to Calculus, Basic Derivatives: Chapter 3, 3.1-3.5	Homework Lab Project Exam#1
4	Applications & Differentials Chapter 4, 4.1-4.6	Homework, Lab Project
5	Derivatives: Rules and derivatives of exponential and logarithmic functions& Chain Rules. Chapter 5, 5.1-5.4	Homework Lab Project Exam #2
6	Derivatives of Trigonometric functions & Applications Chapter 5, 5.5 & Chapter 9, 9.2	Homework, Lab Project
7	Anti-Derivatives Chapter 6, 6.1	Homework Exam #3 Lab Project
8	Final Exam Review	Final Exam

DROPPING COURSES AND WITHDRAWING FROM THE COLLEGE:

A student may drop any course before the end of the drop/add period by presenting to the Registrar's Office a withdrawal form signed by his/her instructor. A student who withdraws from a course but who does not follow this procedure will receive a failing grade for that course. A student who withdraws from any or all courses at any time after the drop/add period and prior to the first day of mid-term will receive the grade "W" for each course in which he/she was enrolled at the time of withdrawal. After such date, the student will receive either the grade of "WP" if passing a course at the time of withdrawal or the grade of "WF" if failing a course at the time of withdrawal. However, with the approval of the class instructor, the student may petition the Dean for incomplete grade (I) if the withdrawal is due to nonacademic extenuating circumstances and the student is passing all courses in which enrolled at the time of withdrawal. Failure to meet the terms of the approved petition will result in the final grade "F" in the incomplete course. Exceptional cases will be reviewed on an individual basis. The timing of withdrawals, in order to avoid academic penalty, is the responsibility of the student.

ETHICS: GMC emphasizes character and ethical behavior in all aspects of the curriculum. During the quarter ethical issues/dilemmas will be discussed as they pertain to the study of Statistics. Statistics is used in writing mathematical rules, laws and codes and making decisions. Students will be asked to identify areas of every day life where misuse of statistics can occur and what consequences can result.

Since the primary goal of education is to increase one's own knowledge, academic dishonesty will not be tolerated at GMC. Students and faculty are expected to abide by the **GMC Honor Code:** I will neither lie, cheat, steal, nor tolerate those who do. If a student is reported for an honor violation(e.g. cheating, stealing, falsifying information, etc.) by either a member of the faculty, staff, or another student, he or she will be subject to appropriate disciplinary action. Cheating on an exam or an assignment will result in a grade of F or Zero for the exam or assignment and referral of the incident to the assistant dean or director for further action, such as action by the student honor council or dismissal from the college. **NOTE! In a course where individual work is done on line on a computer (i.e., MAT 200, 109, 201,202) it is an honor violation to give or receive help on a test, an exam, or the final exam. Students, however, may work together and seek aid on homework certification and homework writing assignments.**