MATHEMATICS 243 – 1000 — Vector Calculus, Honors, Fall 2009

CLASS HOURS: 10:00 – 10: 50 AM MWF, Room 301 Snow Hall, Class Number: 38597

INSTRUCTOR: Prof. **Bozenna Pasik-Duncan**, e-mail: bozenna@math.ku.edu,

Personal web page: http://www.math.ku.edu/ksacg/Bozenna.html

OFFICE: 503 Snow Hall, **PHONE**: 785-864-5162

OFFICE HOURS: 11:00 – 11:30 MWF or by appointment

TEXTBOOK: Vector Calculus, Colley, Prentice Hall, 3rd ed

PREREQUISITES FOR THE COURSE: Math 122 or Math 142 or equivalent, and invitation from the Department of Mathematics.

ENROLLMENT CHANGES: All changes (drops, adds) must be made in the Enrollment Center—151 Strong Hall.

CLASS PROCEDURES AND GRADING:

1) **LECTURES**: Members of the class are expected to attend the lectures, which will be used to explain new material, to work typical examples and to answer some questions. The course will cover most of the text. Also, a few topics related to the material in the book will be assigned.

2) **HOMEWORK**: Homework assignments will be collected at the beginning of the lectures on Wednesdays. **NO LATE HOMEWORK WILL BE ACCEPTED**. Each assignment will be graded on the basis of ten (10) points. Please use 8 1/2 x 11 paper that is folded in half lengthwise.
On outside write:

   Name
   Date
   Assignment number

Homework is a major part of the learning process in Mathematics and it is essential that students work their own problems and do the homework on a regular basis.

3) **READING ASSIGNMENTS**: Reading assignments for the lectures will be given. You are strongly urged to read the material before the lecture(s) and to begin the homework assignments early.

4) **EXAMINATIONS**:
   EXAM I: First week of October, **Friday, October 2**
   EXAM II: Second week of November, **Friday, November 13**
   FINAL EXAMINATION: The final examination is on **Monday, December 14, 7:30-10:00 AM**. This examination will cover all the material of the course.

5) **MISSED EXAMS**: Students who have a valid reason for missing an exam should discuss alternate arrangements with Professor before the exam. Almost no excuse will be accepted for missing the final exam. (In particular, airline tickets, jobs, weddings, athletic events, are not considered valid excuses for missing a common exam.)

6) **GRADING SYSTEM**: Your grade in this course will be determined on a point system. A maximum of 1000 points
can be accumulated as follows:

    Exam I = 200 points
    Exam II-Midterm = 200 points
    Final Exam = 300 points
    Homework = 200 points
    Quizzes/Projects = 100 points
    Total = 1000 points

7) **EXTRA CREDIT**: Students in this class will have the opportunity to earn extra points while participating in the class workshops, or attending and reporting on guest speaker lectures.

8) **FINAL GRADES**: Students wishing an early report of their results should leave a stamped postcard or envelope with Professor Pasik-Duncan prior to the final examination. Final grades will NOT be posted.

9) **WITHDRAWALS**: The withdrawal rules are those of the College of Liberal Arts and Sciences.

*   NOTE: Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact the instructor to discuss accommodations necessary to ensure full participation in this course.

*   NOTE: Any student in this course who plans to observe a religious holiday which conflicts in any way with the course schedule or requirements should contact the instructor to discuss alternative accommodations.

*   CHANGES: The instructor reserves the right to modify the schedule announced in this syllabus if the conditions arise during the semester, which make such changes desirable.

10) **COURSE DESCRIPTION**:

Multivariable Calculus, Multiple Integration, Vector Calculus, Enrichment Applications.

Topics

Chapter 1, Review of vectors and Euclidean geometry,
Chapter 2, Partial derivatives, directional derivatives,
Chapter 3, Vector valued functions,
Chapter 4, Maxima and minima in several variables,
Chapter 5, Multiple integrations,
Chapter 6, Line integrals,
Chapter 7, Surface integrals and fundamental theorems of vector calculus
Chapter 8, Vector Analysis in Higher Dimensions

    * This course focuses on scientific Creativity built on making Connections with other disciplines and on good Communication skills. It demonstrates the power, beauty and excitement of mathematics with its cross boundaries nature.