

COURSE OUTLINE

Revision: R. Dorman and T. Coskey, May 2008

DEPARTMENT: Academic Programs

CURRICULUM: Mathematics

COURSE TITLE: Vector Calculus

COURSE NUMBER: MATH 224

TYPE OF COURSE: Academic Transfer
Special Requirement Met: QSR

AREA(S) OF KNOWLEDGE: The Natural World: Science, Technology and the Environment/ The Language of Science

COURSE LENGTH: 1 quarter

CREDIT HOURS: 5

LECTURE HOURS: 55

LAB HOURS: 0

CLASS SIZE: 35

PREREQUISITES: Math 153 with a 2.0 or better or placement exam

COURSE DESCRIPTION:

Extension of math 153, includes vector-valued functions, vector and scalar fields, line and surface integrals, the theorems of Green, Stokes and Gauss, partial and directional derivatives, the gradient vector, and multiple integrals.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Computation- Identify, interpret and utilize higher level mathematical and cognitive skills (for those students who choose to move beyond the minimum requirements as stated above.)

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STUDENT LEARNING OUTCOMES ADDRESSED: (cont.)

2. Communication – Read and listen actively to learn and communicate
3. Critical Thinking and Problem Solving – Think critically in evaluating information, solving problems, and making decisions.
4. Technology – Select and use appropriate technology tools for personal, academic and career tasks.

GENERAL COURSE OBJECTIVES:

1. To introduce students to topics of advanced Calculus in preparation for further academic study.

TOPICAL OUTLINE:

- I. Partial derivatives
- II. Multiple integrals
- III. Vector analysis

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SLO #	Included in Course Objective Number	SSCC Student Learning Outcomes
SLO 1.1		Communication - Read and listen actively
SLO 1.2		Communication - Speak and write effectively
SLO 2.1	1	Computation - Use mathematical operations
SLO 2.2	1	Computation - Apply quantitative skills
SLO 2.3	1	Computation - Identify, interpret, and utilize higher level mathematical and cognitive skills
SLO 3.1		Human Relations - Use social interactive skills to work in groups effectively
SLO 3.2		Human Relations - Recognize the diversity of cultural influences and values
SLO 4.1	1	Critical Thinking and Problem Solving -
SLO 5.1	1	Technology - Select and use appropriate technological tools
SLO 6.1		Personal Responsibility - Be motivated and able to continue learning and adapt to change
SLO 6.2		Personal Responsibility - Value one's own skills, abilities, ideas and art
SLO 6.3		Personal Responsibility - Take pride in one's work
SLO 6.4		Personal Responsibility - Manage personal health and safety
SLO 6.5		Personal Responsibility - Be aware of civic and environmental issues
SLO 7.1		Information Literacy - Access and evaluate information
SLO 7.2		Information Literacy - Use information to achieve personal, academic, and career goals, as well as to participate in a democratic society

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