Course Title: Calculus III
Semester Course Prefix and Number: MATH 2543
Old Quarter Course Prefix and Number:

Number of Credits: 4
Number of Lecture Credits: 4
Number of Lab Credits: 0
Number of Lab Hours: 0

Semester(s) Offered: Spring
Class Size: 35
Negotiated by AASC on: (date)

Course Purpose Code:
_____ 0 – Developmental Courses
_____ 1 – Non-transferable
_____ 2 – Technical course related to career programs
_____ 3 – College course which has the primary goal of applying certain concepts (e.g. vocal ensemble)
_____ 4 – Other college course not considered a part of MNTC (e.g. computer science, health, physical education)
   ___ 5 – Course which is intended to fulfill the Minnesota Transfer Curriculum (MNTC) requirements or intended for transfer.
   ___ 9 – Continuing Education/Customized Training specialized credit course (not occurring in 0-5)

Catalog Description:
This course covers vectors and analytic geometry in space; vector-valued functions and motion in space; calculus of functions of several variables; multiple integration and applications; vector analysis including line integrals, surface integrals, Green’s Theorem, Stokes’ Theorem, and the Divergence Theorem. In addition the student will study matrices and determinants and their use in solving systems of linear equations.

Prerequisites and/or recommended entry skills/knowledge:
Course Prerequisite(s):
Reading Prerequisite:
Composition Prerequisite:
Mathematics Prerequisite: Calculus II

Career Programs and Transfer Majors Accessing this Course:

Minnesota Transfer Curriculum Goal(s) partially met by this course if applicable:
(Notes: No more than two goals may be met by any one course. AASC review and the Chief Academic Officer’s approval are required.)

0. _____ None
1. _____ Communications
2. _____ Critical Thinking
3. _____ Natural Sciences
4. ___ Mathematical/Logical Reasoning
5. ___ History and the Social and Behavioral Sciences
6. _____ The Humanities and Fine Arts
7. _____ Human Diversity
8. ____ Global Perspectives
9. ____ Ethical and Civic Responsibility
10. __ People and the Environment
**Learning Outcomes:** (including any relevant competencies listed in the Minnesota Transfer Curriculum)

Upon completion of this course, the student will be able to:

Find and interpret dot and cross products of vectors in a plane and in space
Graph and write equations for surfaces in space
Differentiate and integrate functions of two or more independent variables
Solve problems to find volumes, surface area, mass, moments, and average values
Integrate in vector fields and apply to fluid motion
Use matrices to solve a system of linear equations and evaluate determinants

**Student Assessment Methods:**
Graded Exams and Homework

**Use of Instructional Technology:** (includes software, interactive video and other instructional technologies):

TI-89 or Voyage 200

**Additional Special Information:** (special fees, directives on hazardous materials, etc.)

**Transfer Information:** (Please list colleges/majors that accept this course in transfer.)

**Affiliated Mesabi Range College Courses and Programs:**

IRE (Itasca Community College)

**Approvals:**

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<th>Representative Signatures</th>
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<td>Faculty Association</td>
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**Distribution:** Original – Instructional Services
**Copies:** Transfer Specialist, Originating Faculty Member, Records
**Revised:** December 2012