MONROE COUNTY COMMUNITY COLLEGE

Course Outcome Summary

Standard Course

Math 271, Calculus III

Course Information

Division	Science-Mathematics
Contact Hours	60
Total Credits	4

Prerequisites A grade of C or better in Math 172, Calculus II, within the last three years is highly recommended.

Course Description

Topics include vector algebra and functions; analytic geometry of curves (Frenet-Serret equations), planes, surfaces, and solids; functions of several variables and partial derivatives, optimization problems, Lagrange multipliers; curl, divergence, and gradient; line, surface, and volume integrals; vector fields and integration; flux, Green's theorem, Stokes' theorem, and the divergence theorem. Students will be expected to work with mathematics numerically, graphically, analytically, and verbally.

Course Outcomes

In order to evidence success in this course, students will be able to:

1. Represent equations for lines, planes (tangent planes), and surfaces using vectors.
2. Compute partial and total derivatives of multivariable and vector valued functions.
3. Solve multivariable optimization problems (Lagrange multipliers).
4. Compute line, flux, surface, and volume integrals using Cartesian, polar, and spherical coordinates.
5. Be able to apply Green's, Stokes', and the divergence theorem to appropriate problems.

Last Updated: February 1,2023
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