

MAT 241 - Calculus III

COURSE DESCRIPTION:

MAT 241. Calculus III (4) (Fall). **SUN#MAT 2241**. Multivariable calculus. Includes multiple integration, partial differentiation, optimization, vector calculus, line integrals, and parametric curves. Note: Computer use and graphing calculator required (TI-83/84 recommended). Prerequisite: MAT 230. Reading Proficiency. Four lecture.

COURSE CONTENT:

1. Vectors
2. Planes and surfaces
3. Cylindrical and spherical coordinates
4. Functions of several variables
5. Partial differentiation
6. Optimization
7. Multiple integration
8. Integration techniques
9. Vector calculus

LEARNING OUTCOMES:

1. Solve problems using vectors in 3-space. (1) (QLO 1,3,4,5)
2. Use equations of planes and surfaces to solve problems. (2) (QLO 1-5)
3. Solve problems using cylindrical and spherical coordinate systems. (3) (QLO 1-5)
4. Find partial derivatives. (4,5) (QLO 1,2,4,5)
5. Find extremes of functions of two variables. (4-6) (QLO 1-5)
6. Find differentials, directional derivatives, gradients, and tangent planes. (4-6) (QLO 1-5)
7. Integrate multiple integrals. (7,8) (QLO 1-5)
8. Solve applied problems requiring multiple integrals. (8,9) (QLO 1-6)
9. Define and identify vector fields. (9) (QLO 1-6)
10. Find line and surface integrals. (9) (QLO 1-6)
11. Use Divergence, Curl, Green's Theorem, Stokes' Theorem, and the Divergence Theorem. (9) (QLO 1-6)

4.000 Credit hours

4.000 Lecture hours

0.000 Lab hours

Levels: Credit

Schedule Types: Additional Activity, [Lecture](#)

Foundation Studies Division

Mathematics Department

Course Attributes:

Numeracy, SUN# MAT 2241

Restrictions:

May not be assigned one of the following Student Attributes:

Underage Student

Prerequisites:

Credit level [MAT 230](#) Minimum Grade of C and (YC Reading Proficiency Met Y or AIMS Reading Score 705 or ACT Reading 17 or ASSET Reading 38 or Accuplacer Reading 061 or Compass Reading 70 or SAT Critical Reading 400 or Credit level [ENG 083](#) Minimum Grade of C)