

**SINCLAIR COMMUNITY COLLEGE
DAYTON, OHIO**

**MATERIALS AVAILABLE FOR
MATH 204 - CALCULUS IV**

JUNE 11, 2007

XIII. Functions of Several Variables

1. Introduction to Functions of Several Variables

Calculus DVDs Disk 10, 13.1 (disk required)
WORKSHEET- "Functions of Several Variables"

2. Limits and Continuity

Calculus DVDs Disk 10, 13.2 (disk required)
WORKSHEET- "Limits of Functions of Two Variables"
WORKSHEET – "Continuity of Functions of Two Variables"

3. Partial Derivatives

201-204 CD Lectures Disk 11, 13.3
218 Video Examples 8.2
WORKSHEET- "Partial Derivatives"

4. Differentials

Calculus DVDs Disk 11, 13.4 (disk required)
WORKSHEET- "Differentials and Increments"

5. Chain Rules for Functions of Several Variables

Calculus DVDs Disk 11, 13.5 (disk required)
WORKSHEET – "Chain Rule and Differentiability"

6. Directional Derivatives and Gradients

Calculus DVDs Disk 11, 13.6 (disk required)
WORKSHEET – "Directional Derivatives and Gradients"

XIII. 7. Tangent Planes and Normal Lines

201-204 CD Lectures Disk 11, 13.7
WORKSHEET – “Tangent Planes and Normal Lines”

8. Extrema of Functions of Two Variables

218 Video Examples 8.3
WORKSHEET – “Extrema of Functions of Two Variables”

9. Applications of Extrema of Functions of Two Variables

218 Video Examples 8.3
WORKSHEET – “Applications of Extrema of Functions”

10. Lagrange Multipliers

218 Video Examples 8.5
WORKSHEET – “Lagrange Multipliers”

XIV. Multiple Integration

1. Iterated Integrals and Area in the Plane

Calculus DVDs Disk 11, 14.1 (disk required)

2. Double Integrals and Volume

201-204 CD Lectures Disk 11, 14.2
Calculus II 6.3-6.4
218 Video Examples 8.6

3. Change of Variables: Polar Coordinates

Calculus DVDs Disk 11, 14.3 (disk required)

4. Center of Mass and Moments of Inertia

5. Surface Area

Calculus DVDs Disk 11, 14.5 (disk required)

6. Triple Integrals and Applications

Calculus II 6.5

XIV. 7. Triple Integrals in Cylindrical and Spherical Coordinates

201-204 CD Lectures Disk 12, 14.7

XV. Vector Analysis

1. Vector Fields

Calculus DVDs Disk 12, 15.1 (disk required)

Chalkdust Video 4 All Sections (vectors, dot, cross, lines and planes)

EV 6054 “Dot Product and Length”

EV 6055 “Vector Component Computations”

EV 6056 “Vector Cross Product”

2. Line Integrals

201-204 CD Lectures Disk 12, 15.2

3. Conservative Vector Fields and Independence of Path

4. Green’s Theorem

201-204 CD Lectures Disk 12, 15.4

5. Parametric Surfaces

6. Surface Integrals

7. Divergence Theorem

Calculus DVDs Disk 12, 15.7 (disk required)

8. Stokes’s Theorem

201-204 CD Lectures Disk 12, 15.8