

# Calculus III–Math 2243

**Effective:** Spring 2003

**Course:** Math 2243, Calculus III

**Text:** *Calculus*, Fourth Edition, James Stewart, Brooks/Cole, ISBN: 0-534-35949-3

**Lab Text:** (Optional–Instructor’s choice) *Multivariable Calculus*, Art Belmonte and Philip Yasskin, Brooks/Cole, ISBN: 0-534-36444-6

<b>Section</b>	<b>Required/Optional</b>	<b>Comments/Suggested Exercises</b>
<b>13 Vectors and the Geometry of Space</b>		
13.1 Three-Dimensional Coordinate Systems	Cover	
13.2 Vectors	Cover	
13.3 The Dot Product	Cover	
13.4 The Cross Product	Cover	
13.5 Equations of Lines and Planes	Cover	
13.6 Cylinders and Quadric Surfaces	Cover lightly	
13.7 Cylindrical and Spherical Coordinates	Cover lightly	
<b>14 Vector Functions</b>		
14.1 Vector Functions and Space Curves	Cover	
14.2 Derivatives and Integrals of Vector Functions	Cover	
14.3 Arc Length and Curvature	Cover lightly	
14.4 Motion in Space: Velocity and Acceleration	Optional	

<b>15 Partial Derivatives</b>			
15.1 Functions of Several Variables	Cover		
15.2 Limits and Continuity	Cover		
15.3 Partial Derivatives	Cover		
15.4 Tangent Planes and Linear Approximations	Cover		
15.5 The Chain Rule	Cover		
15.6 Directional Derivatives and the Gradient Vector	Cover		
15.7 Maximum and Minimum Values	Cover		
15.8 Lagrange Multipliers	Cover		
<b>16 Multiple Integrals</b>			
16.1 Double Integrals over Rectangles	Cover		
16.2 Iterated Integrals	Cover		
16.3 Double Integrals over General Regions	Cover		
16.4 Double Integrals in Polar Coordinates	Cover lightly		
16.5 Applications of Double Integrals	Cover lightly		
16.6 Surface Area	Cover lightly		
16.7 Triple Integrals	Cover		
16.8 Triple Integrals in Cylindrical and Spherical Coordinates	Cover	lightly	or
	Omit		
16.9 Change of Variables in Multiple Integrals	Cover	lightly	or
	Omit		
<b>17 Vector Calculus</b>			
17.1 Vector Fields	Cover		
17.2 Line Integrals	Cover		
17.3 The Fundamental Theorem for Line Integrals	Cover		
17.4 Green's Theorem	Cover		
17.5 Curl and Divergence	Cover		
17.6 Parametric Surfaces and Their Areas	Cover		
17.7 Surface Integrals	Cover lightly		
17.8 Stokes' Theorem	Cover		
17.9 The Divergence Theorem	Cover		
17.10 Summary	Cover	lightly	or
	Omit		