Torrey Pines High School Calculus C
MiraCosta College Math 155 Calculus and Analytic Geometry II

(4 semester units)

Note: Students in Calculus C passed the AP Calculus AB exam. They covered all topics for that exam as outlined in the *Advanced Placement Program Course Description: Calculus* published by The College Board.

Text: *Calculus: Early Transcendentals* by James Stewart, Sixth Edition, ©2008

Chapter 7 – Techniques of Integration
7.1 Integration by Parts
7.2 Trigonometric Integrals
7.3 Trigonometric Substitution
7.4 Integration of Rational Functions by Partial Fractions
7.5 Strategy for Integration
7.6 Integration Using Tables and Computer Algebra Systems
7.7 Approximate Integration*
7.8 Improper Integrals
Also L'Hospital's Rule

Chapter 8 – Further Applications of Integration
8.1 Arc Length
8.2 Area of a Surface of Revolution

Chapter 11 – Infinite Sequences and Series
11.1 Sequences
11.2 Series
11.3 The Integral Test and Estimates of Sums
11.4 The Comparison Tests
11.5 Alternating Series
11.6 Absolute Convergence and the Ratio and Root Tests
11.7 Strategy for Testing Series
11.8 Power Series
11.9 Representation of Functions as a Power Series
11.10 Taylor and Maclaurin Series
11.11 Applications of Taylor Polynomials

Chapter 9 – Differential Equations
9.1 Modeling with Differential Equations
9.2 Direction Fields and Euler's Method
9.3 Separable Equations
9.4 Models for Population Growth
9.5 Linear Equations
9.6 Predator-Prey Systems*

Chapter 10 – Parametric Equations and Polar Coordinates
10.1 Curves Defined by Parametric Equations
10.2 Calculus with Parametric Curves
10.3 Polar Coordinates
10.4 Areas and Lengths in Polar Coordinates
10.5 Conic Sections*
10.6 Conic Sections in Polar Coordinates*

Chapter 12 – Vectors and the Geometry of Space
12.1 Three-Dimensional Coordinate Systems
12.2 Vectors
12.3 The Dot Product
12.4 The Cross Product

*Chapter 6 – Applications of Integration**
6.1 Areas between Curves
6.2 Volumes of Solids of Revolution
6.3 Volumes by Cylindrical Shells

MiraCosta Course Student Learning Outcomes: For a given set of problems the student will demonstrate quantitative reasoning by developing a problem-solving strategy, performing appropriate analysis and computation, and critically assessing the meaning of the conclusion or outcome.

MiraCosta Core Competencies: Intellectual and practical skills, including quantitative literacy and problem solving, will be practiced extensively across the curriculum in the context of progressively more challenging problems, projects, and standards for performance.

Formal Definitions of Limits (Part of Chapter 2)
Finite Limits
Infinite Limits
Limits at Infinity
Infinite Limits at Infinity

*Topic covered in a previous course and reviewed or only covered briefly.