Chapter I – Methods of Integration

- §1 –Definite and indefinite integrals
- §3 –First trick: using the double angle formulas
- §5 –Integration by Parts
- §6 –Reduction Formulas
- §8 –Partial Fraction Expansion
- §10 –Substitutions for integrals containing the expression $\sqrt{ax^2 + bx + c}$
- §11 -Rational substitution for integrals containing $\sqrt{x^2-a^2}$ or $\sqrt{a^2+x^2}$
- §12 –Simplifying $\sqrt{ax^2 + bx + c}$ by completing the square
- §14 –Chapter summary

Chapter II - Proper and Improper Integrals

- §1 –Typical examples of improper integrals
- §2 –Summary: how to compute an improper integral
- §3 –More examples
- $\S 5$ –Estimating improper integrals

Chapter III – First order differential Equations

- §1 –What is a Differential Equation?
- §2 –Two basic examples
- §3 –First Order Separable Equations
- §5 –First Order Linear Equations
- §7 –Direction Fields
- §8 –Euler's method
- §10 –Applications of Differential Equations

Chapter IV - Taylor's Formula

- §1 –Taylor Polynomials
- §2 -Examples
- §3 –Some special Taylor polynomials
- §5 –The Remainder Term
- §6 –Lagrange's Formula for the Remainder Term
- §8 –The limit as $x \to 0$, keeping n fixed
- §10 –Differentiating and Integrating Taylor polynomials
- §12 -Proof of Theorem (-)
- §13 -Proof of Lagrange's formula for the remainder

Chapter V – Sequences and Series

- §1 –Introduction
- §2 –Sequences
- §4 –Series
- $\S 5$ –Convergence of Taylor Series
- §7 –Leibniz' formulas for $\ln 2$ and $\pi/4$

${\bf Chapter~VI-Vectors}$

- §1 –Introduction to vectors
- §2 –Geometric description of vectors
- §3 –Parametric equations for lines and planes
- §4 -Vector Bases
- §5 -Dot Product
- §6 -Cross Product
- §7 –A few applications of the cross product
- §8 –Notation