Sequence of Topics: Math 162 - 005

James Stewart. *Calculus, Early Transcendentals* (WebAssign eBook) 8ᵗʰ ed. Cengage Learning

➢ **Review** of prerequisite material from MATH 161 (FTC, area between curves, average value of a function, methods of judicious guessing and substitution, hyperbolic functions)

Chapter 7: Techniques of Integration

➢ **7.1** Integration by Parts
➢ Little oh and big oh notation (supplementary sources)
➢ **7.8** Improper Integrals (Types I, II, and mixed; Comparison Test)
➢ Introduction to Mathematica (supplementary sources)

Chapter 8: Further Applications of Integration

➢ **8.5** Probability (pdf, cdf, median, average/mean; If time permits: normal distributions)

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** Representations of Functions as Power Series
➢ **11.10** Taylor and Maclauren Series
➢ **11.11** *If time permits:* Applications of Taylor Polynomials

Chapter 6. Applications of Integration

➢ **6.3** Volumes by Disks, Washers and Cylindrical Shells
➢ **6.4** Work

Chapter 7: Techniques of Integration

➢ **7.2** Trigonometric Integrals
➢ **7.3** Trigonometric Substitution
➢ **7.4** Integration of Rational Functions by Partial Fractions
➢ **7.5** Strategy for Integration

Chapter 8: Further Applications of Integration

➢ **8.1** Arc Length
➢ **8.2** Area of a Surface of Revolution
➢ **8.3** *If time permits:* Applications to Physics and Engineering
➢ **8.4** *If time permits:* Applications to Economics and Biology

Chapter 10: Parametric Equations and Polar Coordinates

Chapter 9: Differential Equations *(As time permits)*

Abducted by an alien circus company,
Professor Doyle is forced to write calculus
equations in center ring.