McMaster University

Mathematics and Statistics

$\int_M d\omega = \int_{\partial M} \omega$

Math 1AA3/1ZB3
Lecture Schedule

Week 1: January 8-12
- **Lecture 1** - 7.5 (Review of Integration)
- **Lecture 2** - 7.8 (Improper Integrals)
- **Lecture 3** - 7.8 (Improper Integrals, Continued), Appendix E (Mathematical Induction)

Week 2: January 15-19
- **Lecture 4** - Appendix E (Mathematical Induction, Continued), 11.1 (Sequences, omit Definition 2)
- **Lecture 5** - 11.1 (Sequences, continued)
- **Lecture 6** - 11.2 (Series)

Week 3: January 22-26
- **Lecture 7** - 11.2 (Series, Continued), 11.3 (The Integral Test and Estimates of Sums)
- **Lecture 8** - 11.3 (The Integral Test and Estimates of Sums, Continued)
- **Lecture 9** - 11.4 (The Comparison Tests, omit estimating sums)

Week 4: January 29 - February 2
- **Lecture 10** - 11.5 (Alternating Series)
- **Lecture 11** - 11.6 (Absolute Convergence and the Ratio and Root Tests)
- **Lecture 12** - 11.8 (Power Series)

Week 5: February 5-9
- **Lecture 13** - 11.9 (Representations of Functions as Power Series, omit Example 8(b))
- **Lecture 14** - 11.10 (Taylor and Maclaurin Series, omit multiplication and division of power series)
- **Lecture 15** - 11.10 (Taylor and Maclaurin Series, continued)

Week 6: February 12-16
- **Lecture 16** - 11.11 (Applications of Taylor Polynomials, omit applications to physics)
- **Lecture 17** - 8.2 (Area of a Surface of Revolution)
- **Lecture 18** - 8.3 (Applications to Physics and Engineering, only hydrostatic force and pressure)

Week 7: February 19-23 (Midterm Recess)

Week 8: February 26 - March 1
- **Lecture 19** - 9.1 (Modeling With Differential Equations)
- **Lecture 20** - 9.3 (Separable Equations)
- **Lecture 21** - 3.8 (Exponential Growth and Decay)

Week 9: March 4-8
- **Lecture 22** - 9.5 (Linear Equations)
- **Lecture 23** - 10.1 (Curves Defined by Parametric Equations)
- **Lecture 24** - 10.2 (Calculus with Parametric Curves)

Week 10: March 11-15
- **Lecture 25** - 10.2 (Calculus with Parametric Curves, Continued), 10.3 (Polar Coordinates)
- **Lecture 26** - 10.3 (Polar Coordinates, continued), 10.4 (Calculus in Polar Coordinates, derivatives only)
- **Lecture 27** - 14.1 (Functions of Several Variables)

Week 11: March 18-22
- **Lecture 28** Review/Catch Up
- **Lecture 29** - 2.3 (Limits, Squeeze Theorem only), 14.2 (Limits and Continuity, Omit Definition 1, and use the Squeeze Theorem in place of the precise definition to prove the existence of limits)
- **Lecture 30** - 14.3 (Partial Derivatives, Omit the Cobb-Douglas Production Function)

Week 12: March 25-28
- **Lecture 31** - 14.4 (Tangent Planes and Linear Approximations)
- **Lecture 32** - 14.5 (The Chain Rule)
- **Lecture 33** - 14.6 (Directional Derivatives and the Gradient Vector, Omit Tangent Planes to Level Surfaces and Significance of the Gradient Vector)

Week 13: April 1-5
- **Lecture 34** - 15.1 (Double Integrals over Rectangles)
- **Lecture 35** - 15.2 (Double Integrals over General Regions)
- **Lecture 36** - 15.2 (Double Integrals over General Regions, continued)

Week 14: April 8-10
- **Lecture 37** - Review
- **Lecture 38** - Review

(Classes end on April 10th)