MA 241 COURSE SCHEDULE - FALL 2019
Calculus II for Engineers and Scientists
by Franke, Griggs, Norris

Week One: August 21
- Course introduction; syllabus; begin Chapter 0 (review of Calc I)
- Chapter 0 (limits; continuity; derivatives) (review of Calc I)
- Chapter 0 (derivatives of trig/exponentials; incr/decr) (review of Calc I)

Week Two: August 26 - August 28
- Chapter 0 (antiderivatives; areas; volumes; substitution; by parts) (review of Calc I)
- 1.1 Arc Length
- 1.2 Average Value of a Function

Week Three: September 4
- Labor Day (September 2)
- 1.3 Work (springs)
- 1.3 Work (variable force)

Week Four: September 9 - September 11
- 1.3 Force Due to Hydrostatic Pressure
- 1.3 Moments and Centers of Mass
- 1.3 (centers of mass)

Week Five: September 16 - September 18
- Review for Test #1
- **TEST #1 (Monday, September 16)**
- 2.1 Trigonometric Integrals
- 2.2 Trigonometric Substitution

Week Six: September 23 - September 25
- 2.3 Partial Fractions
- 2.4 Table of Integrals

Week Seven: September 30 - October 2
- 2.5 Numerical Integration
- 2.6 Improper Integrals
- 3.1 Introduction to Differential Equations

Week Eight: October 7 - October 9
- 3.2 Separable Differential Equations; Orthogonal Trajectories
- 3.3 Applications of DEs; Tank Problems; Growth and Decay

Week Nine: October 14 - October 16
- Review for Test #2
- **TEST #2 Wednesday, October 14**
- 3.3 Applications of DEs; Newton's Law of Cooling, Logistic Growth
- 3.4 Second Order DEs; Homogeneous

Week Ten: October 21 - October 23
- 3.4 Second Order DEs; Homogeneous (continued)
- 3.5 Second Order DEs; Non-homogeneous

Week Eleven: October 28 - October 30
- 3.6 Second Order DEs; Applications; Circuits
- 3.6 Second Order DEs; Applications; Springs

Week Twelve: November 4 - November 6
- Review for Test #3
- **TEST #3 (Monday, November 4)**
- 4.1 Sequences
- 4.2 Series; Infinite Geometric Series; Telescoping Series
- 4.3 Convergence Tests; Test for Divergence; Integral Test

Week Thirteen: November 11 - November 13
- 4.3 Convergence Tests; p-series; Comparison Test; Limit Comparison Test; Estimation of Sum
- 4.4 Alternating Series
- 4.5 Absolute Convergence

Week Fourteen: November 18 - November 20
- 4.6 Power Series; Interval of Convergence
- 4.7 Functions as Power Series
- Review for Test #4
- **TEST #4 (Wednesday, November 20)**

Week Fifteen November 25
- 4.8 Taylor and Maclaurin Series; $e^x \sin x$, $\cos x$; Derivatives/Integrals of Power Series
- 4.8 Taylor and Maclaurin Series; Binomial Series
- Thanksgiving Break November 27

Week Sixteen: December 2 - December 4
- 4.8 Taylor and Maclauring Series; Algebra of Power Series
- 4.9 Taylor and Maclaurin Polynomials; Examples from Physics; Error Analysis

Final Exam: Friday December 13, 1 -4 pm