Tests: There are 4 scheduled tests during the semester. The test dates have been coordinated with Physics and hence the test dates should not be changed.

Textbook: Calculus for Engineers and Scientists, Volume II (Franke, Griggs, Norris: accessible via WebAssign; $45)

Class Days: This class is scheduled to meet 5 days each week. The fifth day can be used as a catch-up or review day. It is recommended that you start the semester by meeting each day. As the semester progresses, you may find that you can give your students a day off occasionally – although this should be very rare.

WebAssign: Instructors will require their students to use WebAssign for homework. It is recommended that it count for 5% -10% of your students’ grades. Students pay a nominal fee to use WebAssign (http://webassign.ncsu.edu); the e-text is also linked to the WebAssign page under Resources. The textbook (e-book) is actually purchased via WebAssign.

MA241 Schedule Spring 2019

Week One: January 7 – January 11
- Course introduction; syllabus; begin Chapter 0 (review of Calc I)
- Chapter 0 (limits; continuity; derivatives)(review of Calc I)
- Chapter 0 (derivatives or trig/exponentials; incr/decr)(review of Calc I)
- Chapter 0 (antiderivatives; substitution; by parts; areas; volumes)(review of Calc I)

Week Two: January 14 – January 18
- 1.1: Arc Length
- 1.2: Average Value of a function
- 1.3: Work (springs)
- 1.3: Work (variable force)

Week Three: January 21 – January 25
- MLK, Jr. Holiday (Monday, January 21)
- 1.3: Work (force due to hydrostatic pressure)
- 1.3: Work (moments and centers of mass)

Week Four: January 28 – February 1
- 1.3: Work (centers of mass)
- Review for Test #1
- TEST #1 (Thursday, January 31)
- 2.1: Trigonometric Integrals
Week Five:  February 4 – February 8  
  •  2.2: Trigonometric Substitution  
  •  2.3: Partial Fractions (Linear Factors)  
  •  2.3: Partial Fractions (Irreducible Quadratic Factors) 

Week Six:  February 11 – February 15  
  •  2.4: Table of Integrals  
  •  2.5: Numerical Integration (Trapezoidal Rule)  
  •  2.5: Numerical Integration (Simpson's Rule) 

Week Seven:  February 18 – February 22  
  •  2.6: Improper Integrals  
  •  3.1: Introduction to Differential Equations  
  •  Review for Test #2 

Week Eight:  February 25 – March 1  
  •  TEST #2 (Monday, February 25)  
  •  3.2: Separable DEs  
  •  3.3: Applications of DEs (Tank Problems; Growth and Decay)  
  •  3.3: Applications of DEs (Newton's Law of Cooling; Logistic Growth) 

Week Nine:  March 4 – March 8  
  •  3.4: Second Order DEs (Homogeneous)  
  •  3.5: Second Order DEs (Non-homogeneous) 

Week Ten:  March 11 – March 15  
  •  Spring Break (March 11 – March 15) 

Week Eleven:  March 18 – March 22  
  •  3.6: Application of Second Order DEs (Circuits)  
  •  3.6: Applications of Second Order DEs (Springs)  
  •  4.1: Sequences 

Week Twelve:  March 25 – March 29  
  •  4.2: Series (Geometric Series; Telescoping Series)  
  •  Review for Test #3  
  •  Test #3 (Wednesday, March 27)  
  •  4.3: Convergence Tests (Test for Divergence; Integral Test; p-Series) 

Week Thirteen:  April 1 – April 5  
  •  4.3: Convergence Tests (Comparison Test; Limit Comparison Test; Estimation of a Sum)  
  •  4.4: Alternating Series  
  •  4.5: Absolute Convergence 

Week Fourteen:  April 8 – April 12  
  •  4.6: Power Series (Interval of Convergence)  
  •  4.7: Functions as Power Series  
  •  4.8: Taylor and Maclaurin Series (e^x; sin x; cos x)
Week Fifteen: April 15 – April 19
- 4.8: Taylor and Maclaurin Series (Derivatives/Integrals of Power Series)
- 4.8: Taylor and Maclaurin Series (Binomial Series)
- Review for Test #4
- **TEST #4 (Thursday, April 18)**
- *Spring Holiday (Friday, April 19)*

Week Sixteen: April 22 -- April 26
- 4.8: Taylor and Maclaurin Series (Algebra of Power Series)
- 4.9: Taylor and Maclaurin Polynomials (Examples from Physics; Error Analysis)
- Review for Final Exam

**FINAL EXAMS: April 29 – May 7** (See exam schedule for exam day/time for your section)