NORTH CAROLINA STATE UNIVERSITY
Department of Mathematics
MA 241 Weekly Schedule
Fall Semester, 2017

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

Textbook: ***Calculus II for Engineers and Scientists (Franke, Griggs, Norris: accessible via WebAssign under Resources; $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 – if your section is a 5-day per week section.

Maple Homework Assignments: There are 5 scheduled Maple Homework assignments distributed throughout the semester. The "Start" and "Due dates" will be sent to you. The "start" dates have been adjusted so that the Maple Homework materials correspond to the lecture materials. Note that there will **no longer be formal Maple labs**. It is the responsibility of each student to (1) download the Maple Lessons from the web, (2) study the Lessons, and (3) complete the Maple Homework assignments on time.

All materials related to the Maple program can be found at the URL **http://www.math.ncsu.edu/calculus**.

Students with no previous Maple experience: Such students in MA 241 need to follow the instructions in the "***Introductory Materials***". These instructions are posted on the calculus with Maple homepage listed above.

Extensions on Maple Homework: Short extensions on Maple Homework assignments can only be given for extreme situations. If you feel you have a valid reason to request an extension, then you MUST request an extension from the Lecture Instructor in your course.

WebAssign: All instructors will have their students 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 Beginning Fall '17, a completely new version of WebAssign will roll out – it is a much better match with the new e-book.

MA241 Schedule Fall 2017

Week One: August 16 – August 18

- 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 21 – August 25

- 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: August 28 – September 1

- 1.3 Work (springs)
- 1.3 Work (variable force)
- 1.3 Work (force due to hydrostatic pressure)

Week Four: September 5 – September 8

- Labor Day (September 4)
- 1.3 (moments and centers of mass)
- 1.3 (centers of mass)
- Review for Test #1

Week Five: September 11 – September 15

- **TEST #1 (Monday, September 11)**
- 2.1 Trigonometric Integrals
- 2.2 Trigonometric Substitution

Week Six: September 18 – September 22

- 2.3 Partial Fractions
- 2.4 Table of Integrals
- 2.5 Numerical Integration

Week Seven: September 25 – September 29

- 2.6 Improper Integrals
- 3.1 Introduction to Differential Equations
- Review for Test #2

Week Eight: October 2 – October 4

- **TEST #2 (Monday, October 2)**
- 3.2 Separable Differential Equations; Orthogonal Trajectories
- Fall Break October 5, 6

Week Nine: October 9 – October 13

- 3.3 Applications of DEs; Tank Problems; Growth and Decay
- 3.3 Applications of DEs; Newton's Law of Cooling, Logistic Growth
- 3.4 Second Order DEs; Homogenous

Week Ten: October 16 – October 20

- 3.4 Second Order DEs; Homogeneous (continued)
- 3.5 Second Order DEs; Non-homogenous

Week Eleven: October 23 – October 27

- 3.6 Second Order DEs; Applications; Circuits
- 3.6 Second Order DEs; Applications; Springs
- Review for Test #3

Week Twelve: October 30 – November 3

- **TEST #3 (Monday, October 30)**
- 4.1 Sequences
- 4.2 Series; Infinite Geometric Series; Telescoping Series
- 4.3 Convergence Tests; Test for Divergence; Integral Test

Week Thirteen: November 6 – November 10

- 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 13 – November 17

- 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; Derivatives/Integrals of Power Series
- Review for Test #4

Week Fifteen: November 20 – November 21

- **TEST #4 (Monday, November 20)**
- 4.8 Taylor and Maclaurin Series; Binomial Series
- Thanksgiving Break November 22 – 24

Week Sixteen: November 27 – December 1

- 4.8 Taylor and Maclaurin Series; Algebra of Power Series
- 4.9 Taylor and Maclaurin Polynomials; Examples from Physics; Error Analysis

Reading Day: Wednesday, December 6 (after two days of final exams)
FINAL EXAMS: December 4 – December 13 (see exam schedule for day/time)