MA 241-001: Calculus II
Summer 1 2020

Instructor: Jai Aslam
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Office Hours: My office hours are by appointment. I can make something work M-F, just send me an e-mail to set up a Zoom meeting. If you have questions, I encourage you to set up meetings frequently. It's much easier for me to address small questions multiple times throughout the week, than it is for me to attempt to explain an entire week's worth of material right before the exam.

Prerequisites: MA 141 with grade of C- or better or AP Calculus credit. Mastery of algebra, trigonometry and derivatives is essential for success in MA 241.

Content: Second of three semesters in a calculus sequence for science and engineering majors. Techniques and applications of integration, elementary differential equations, sequences, series, power series and Taylor's Theorem. Use of computational tools.

Textbook: Calculus II for Engineers and Scientists (Franke, Griggs, Norris). This ebook is accessible on WebAssign after log in.

Course Grade: Your final grade will be assigned using the plus/minus grading system

A+: 98-100	**A:** 93-97.99	**A-:** 90-92.99
B+: 88-89.99	**B:** 83-87.99	**B-:** 80-82.99
C+: 78-79.99	**C:** 73-77.99	**C-:** 70-72.99
D+: 68-69.99	**D:** 63-67.99	**D-:** 60-62.99

Grade Calculation: Your final grade in this course will be determined by marks earned on the online homework assignments, three tests and one cumulative final exam. The components of your grade are weighted as follows:

WebAssign	10%
Tests	60%
Final Exam	30%

WebAssign (10%): Due dates, other than the introductory assignments, are set for the last day of class (*Tuesday, June 16th, 2020*). I encourage students to collaborate on homework, but you are expected to maintain academic integrity by adhering to the NCSU Code of Student Conduct. While I have set the due dates for the end of the semester, I recommend working through the problems on the week the relevant topics are covered in the lectures.

Three Tests (60%): These tests will take place on *Wednesday, May 20th, Monday, June 1st and Monday, June 8th.* These tests will be open-book and open-notes. All use of other online resources is **prohibited**. Collaboration of any kind with anyone is **prohibited**. A scientific calculator is permitted, but not required. Graphing calculators are **not** allowed. If it improves your overall grade, then I will replace your lowest test score with your final exam score. Tests will become available at 8am on the testing day and remain available until 8am the following day. I will write the tests to last approximately 1 hour. After you open your test on Moodle you will have 1.5 hours to solve the problems and upload your solutions to Moodle, after which time submissions will not be accepted. This extra half hour should give you ample time to scan your work and upload it.

     Note: If you think there was a grading error on your test please send me an email explaining in detail what you think the error was, within one week after the test is returned. Grade changes will not occur outside of this timeframe.

Final Exam (30%): The final exam is mandatory and cumulative. It will be held on Thursday, June 18th, 2020. The final exam will open at 8am on June 18th and close at 8am on June 19th. I will write the final exam to last approximately 3 hours. After you open your test on Moodle you will have 3.5 hours to solve the problems and upload your solutions to Moodle, after which time submissions will not be accepted. This extra half hour should give you ample time to scan your work and upload it.

Attendance: This class is entirely online and there will be no attendance recorded. The lecture videos are available online for access at any time. It is imperative for your success in the class to watch all of the assigned lecture videos each week as well as the problem sessions. The problem sessions will be held live through Zoom on Tuesdays and Thursdays. These sessions will be recorded and posted on the Moodle page. These are not mandatory to attend, but you do need to watch the recordings if you cannot attend them.

Make-up Test Policy: All anticipated absences must be excused in advance of the test date and a make-up test scheduled in advance of the absence. Excused emergency absences must be reported within 2 days of returning to class and must be appropriately documented. All make-up exams for students with excused absences are given within 3 days of returning to class.

Academic Integrity: I assume that anything turned in with your name on it is your own work. Each time you submit a test or WebAssign you affirm the honor pledge: "I have neither received nor given unauthorized aid on this assignment." The minimum penalty for cheating is a grade of

zero on the assignment; violators will be reported to the Academic Integrity Review Board, which can impose additional sanctions. The code of student conduct can be found at http://studentconduct.dasa.ncsu.edu/code/

Disability Services: Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accomodations, students must register with the Disability Resource Office: https://dro.dasa.ncsu.edu/enrolled-students/

MA 241 Tentative Schedule
This schedule is subject to necessary change.

Optional Review	§0.1 - 0.8	Calculus 1 Review
May 13 - Wednesday	§1.1	Arc Length
May 14 - Thursday	§1.2 - 1.3	Average Value **Problem Session**
May 15 - Friday	§1.3	Work: Springs Work: Move "Slices"
May 18 - Monday	§1.3	Force Due to Hydrostatic Pressure
May 19 - Tuesday	§1.1-1.3	Test 1 Review **Problem Session**
May 20 - Wednesday	**§1.1 - 1.3**, 2.1	**Test #1**, Trigonometric Integrals (sin/cos) Optional: Trigonometric Integrals (sec/tan)
May 21 - Thursday	§2.2	Trigonometric Substitution **Problem Session**
May 22 - Friday	§2.2-2.3	Trigonometric Substitution Partial Fraction Decomposition
May 25 - Monday	**No class.**	**Memorial Day**
May 26 - Tuesday	§2.5	Trapezoidal Rule **Problem Session**
May 27 - Wednesday	§2.5, 2.6	Trapezoidal Error Improper Integrals: Infinite Limits
May 28 - Thursday	§2.6	Improper Integrals: Infinite Limits **Problem Session** Optional: Improper Integrals: Vertical Asymptotes

May 29 - Friday	§3.1	Differential Equations Intro Slope Fields
June 1 - Monday	**§2.1-2.3, 2.5-2.6**, 3.2	**Test #2**, Separable Differential Equations
June 2 - Tuesday	§3.4	2nd Order DEs: 2 Real Roots, Double Root, Complex Roots **Problem Session**
June 3 - Wednesday	§3.5, 4.1	2nd Order Nonhomogeneous (Exponential/Polynomial) Sequences Optional: 2nd Order Nonhomogeneous (Sin/Cos)
June 4 - Thursday	§4.2	Series: Infinite Geometric Series **Problem Session**
June 5 - Friday	§4.2	Series Series: Telescoping, Harmonic
June 8 - Monday	**§3.1-3.2, 3.4-3.5**, 4.2	**Test #3** Series: Test for Divergence, Integral Test
June 9 - Tuesday	§4.3	Comparison Test, Limit Comparison Test **Problem Session** Optional: p-Series
June 10 - Wednesday	§4.3-4.4	Estimation of Sum, Alternating Series Alternating Series Estimation
June 11 - Thursday	§4.5	Absolute Convergence, Conditional Convergence **Problem Session**
June 12 - Friday	§4.6-4.7	Power Series: Ratio Test: Interval of Convergence Functions as Power Series Optional: Power Series: Ratio Test: Interval of Convergence Pt 2
June 15 - Monday	§4.8	Taylor Series: Maclaurin Series Taylor Series: Maclaurin Series: e^x, sin
June 16 - Tuesday	§4.8 - 4.9	Binomial Series Algebra of Power Series **Optional (but likely quite useful):**

		Problem Session
June 18 - Thursday	§1.1 - 1.3, 2.1-2.3, 2.5-2.6, 3.1-3.2, 3.4-3.5, 4.1-4.9	Final Exam