MATH 1920 CALCULUS II

COURSE SYLLABUS

INSTRUCTOR INFORMATION

Instructor: Dr. Wandi Ding
Office: KOM 203G, **Phone:** 615-494-8936
E-mail: Wandi.Ding@mtsu.edu, **Web page:** http://www.mtsu.edu/~wding
Office hours: MWF 10:10 – 11:10am, R 9:00 – 11:00am, or by appointment

COURSE INFORMATION

Class Schedule: MWF 11:30-12:25, R 11:20-12:15

Prerequisites: This course requires a grade of C or better in Math 1910 or its equivalent. Familiarity with graphing calculators (TI-83, 84, etc) is required. You may not use graphing calculators with symbolic manipulation software (DERIVE, MAPLE, etc.) on exams.

Textbook: Calculus (Early transcendental functions), by Briggs and Cochran

Purpose: This is a course on integral calculus with an introduction to differential equations, sequences, and series. It is the second in a sequence of three courses designed to provide skills and concepts necessary for continued study in mathematics as well as in physics, computer science, and engineering. From the text we will cover material from Chapters 6 - 10 inclusive.

Learning Outcomes:

Upon completion of the course, the student will be able to:
1. interpret the area enclosed between curves as a definite integral and compute its value
2. set up the Riemann sum representing the volume enclosed by a geometric solid, convert the result to a definite integral and compute its value.
3. interpret a volume of revolution of a function's graph around a given axis as a (Riemann) sum of disks or cylindrical shells, convert to definite integral form and compute its value.
4. express the length of a curve as a (Riemann) sum of of linear segments, convert to definite integral form and compute its value.
5. express the surface area of revolution of a function's graph around a given axis as a (Riemann) sum of rings, convert to definite integral form and compute its value.
6. anti-differentiate products of functions by parts.
7. recognize and implement appropriate techniques to anti-differentiate products of trigonometric functions.
8. devise and apply a trigonometric substitution in integrals involving Pythagorean quotients
9. decompose a rational integrand using partial fractions
10. determine convergence of improper integrals with discontinuities in their domain or infinite limits of integration
11. use the concept of the limit at infinity to determine whether a sequence of real numbers

is bounded and whether it converges or diverges
12. interpret the concept of a series as the sum of a sequence, and use the sequence of partial sums to determine convergence of a series.
13. decide whether and to what value an infinite geometric series converges
14. recognize the embedded infinite geometric series in geometric applications.
15. use comparison with a corresponding integral with other series to decide whether infinite series (including *p*-series) converge or diverge
16. be able to decide whether an alternating series converges from the limit and monotonic decrease of the sequence of absolute values of its terms
17. distinguish between absolute and conditional convergence of series and be aware of the consequences of reordering terms in conditionally converging series
18. perform the ratio and root test to determine convergence of infinite series
19. interpret a converging power series as a function
20. determine the Taylor series of the nth order and determine an upper bound on its remainder.
21. establish Euler's Formula by comparing the Taylor series for the complex exponential and the trigonometric functions
22. manipulate Taylor series by substitution and (anti-) differentiation to obtain expansions for other functions.
23. distinguish among the main types of conic sections based on the discriminant criterion
24. devise parametric representations for conic sections and other relations
25. compute the length of a curve segment from its parametric representation.
26. apply basic anti-differentiation techniques to selected problems arising in various fields such as physical modeling , economics and population dynamics

COURSE REQUIREMENT:

In order to complete this course successfully, the learner is required to:
                a. Attend class lectures
                b. Participate in class activities
                c. Read and study class assignments
                d. Solve assigned problems sets
                e. Successfully complete homework and tests
                f. Use technology where appropriate.

Notes:
- **No late homework will be accepted** unless there are situations involving extreme extenuating circumstances beyond the student's control.
- Take all exams on the day they are scheduled. **If you miss one of the three in class exams, you will have one week to schedule a make-up.** Please understand the make-up exams will be different. If one week passes and no make-up exam has been rescheduled then a zero is recorded for that exam.

Chapters/Sections:
Chapter 6: 6.1-6.8
Chapter 7: 7.1-7.8
Chapter 8: 8.1-8.6

Chapter 9: 9.1-9.4
Chapter 10: 10.1-10.3

Grading Scale:
- Homework/project: 20%
- Exam 1: 20%
- Exam 2: 20%
- Exam 3: 20%
- Final Exam: 20%
- 90 – 100 A, 80 - 89 B, 70 - 79 C, 60 - 69 D, Below 60 F.

Final Exam: Friday, May 3, 10:00am – 12:00pm

ADDITIONAL INFORMATION:

Math Help Lab:
Math tutoring is available as a free service to MTSU students in KOM 204 and KOM 252. Tutoring is conducted by Graduate Teaching Assistants (GTA's), work study aids, and a faculty moderator.

The lab is closed on weekends and MTSU scheduled holidays. Days and times for tutoring specific topics are posted on the bulletin board outside room KOM 252. Please sign in with your name, course and instructor when you enter the lab. Forms for comments on your tutoring experience can be found at the sign in table and turned in to the secretary in KOM 223D.

Dates:
- January 30 - Last day to drop without a grade.
- March 29 - Last day to drop with a "W".
- A grade of I will be given only in accordance with the University Policy.

Lottery Scholarships
Do you have a lottery scholarship? A grade of C, D, F, W, or I in this class may negatively impact TELS eligibility. To retain Tennessee Education Lottery Scholarship eligibility, you must earn a cumulative TELS GPA of 2.75 after 24 and 48 attempted hours and a cumulative TELS GPA of 3.0 thereafter. You may qualify with a 2.75 cumulative GPA after 72 attempted hours (and subsequent semesters), if you are enrolled full-time and maintain a semester GPA of at least 3.0. Dropping a class after 14 days may also impact eligibility; if you withdraw from this class and it results in an enrollment status of less than full time, you may lose eligibility for your lottery scholarship. Lottery recipients are eligible to receive the scholarship for a maximum of five years from the date of initial enrollment, or until a bachelor degree is earned; students who first received the lottery scholarship in Fall 2009 or later will additionally be limited to 120 TELS attempted hours. For additional Lottery rules, please refer to your Lottery Statement of Understanding form via RaiderNet, review lottery requirements on the web at www.mtsu.edu/scholarships/telsconteligibility_scholarships.php, or contact Lisa Throneberry at lisa.throneberry@mtsu.edu.

Disability Assistance
 If you have a disability that may require assistance or accommodation, or you have questions related to any accommodations for testing, note takers, readers, etc., speak with me as soon as possible. Students must also contact the Office of Disabled Students Services (898-2783) with questions about scheduling such services.

Departmental Drop Policy:
No grade of W will be assigned after the official drop date except in situations involving extreme extenuating circumstances beyond the student's control. In particular, a W will not be granted merely because the student is failing. Students should be aware that missing the official drop date and thereby receiving an F can have ramifications on financial aid.