MAT 252
Unified Calculus and Analytics

Course Designation

MAT 252. UNIFIED CALCULUS AND ANALYTICS. Concepts and applications of integration, differentiation and integration of logarithmic, exponential, and inverse trigonometric functions. Prerequisite: Grade of C or higher in MAT 251. 3 hours

Text


General Course Objectives

Upon completion of the course, the student will be able to:

1. Demonstrate an understanding of the concept of the antiderivative of a function.
2. Demonstrate an understanding of the concept of an indefinite integral of a function.
3. Approximate the value of a definite integral using Riemann sums.
4. Approximate the value of a definite integral using numerical methods.
5. Use techniques of integration to evaluate antiderivatives and definite integrals.
6. Calculate the area between two curves in a plane.
7. Calculate the volume of a solid of revolution using the disk/washer method.
8. Calculate the volume of a solid of revolution using the shell method.
9. Calculate the arc length of a function.
10. Calculate the average value of a function.
11. Determine the derivatives and antiderivatives of exponential, logarithmic, trigonometric and inverse trigonometric functions.
12. Solve exponential growth and decay problems.
13. Solve problems using L’Hospital’s Rules
14. Solve problems involving applications of the definite integral to physics and other areas of scientific study.

Subject Matter or Content to be Studied

1. The derivative and antiderivative
2. Techniques of integration which include substitution, integration by parts, partial fractions, trigonometric integrals, use of tables of integrals, approximation techniques, and improper integrals
3. Applications of the definite integral involving geometry and physics

Student Activities and Requirements

1. Class attendance, as determined by the regulations of the university and the department.
2. Homework exercises to be completed by the student and graded at the discretion of the instructor.
3. Participation in class discussion.
4. Scheduled tests and quizzes will be given periodically throughout the semester. Students will be given adequate notice.
5. A comprehensive final examination will be given as scheduled at the end of the semester.
6. Regular and punctual attendance is necessary for successful completion of this course.

Presentation Methods

Lecture with demonstration to include the use of graphing calculators and computer software as well as cooperative learning (75%); class discussion (25%).

Evaluation and Grading

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<th>Component</th>
<th>Weight</th>
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<tr>
<td>4 tests</td>
<td>100%</td>
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<td>Daily grade (to include homework, quizzes)</td>
<td>The combined grade of quizzes and homework will be computed for the daily grade, which will count like a major test.</td>
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<tr>
<td>Final examination grade</td>
<td>A 100 point comprehensive final exam.</td>
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The final examination grade may be used to replace the lowest test grade. The final exam grade will count a minimum of 1/4 of the course grade. The average of the four test grades and the homework grade will constitute 3/4 of the course grade.

Exam Date: Wednesday, May 4, 2016 at 8 a.m.

Grading Scale

Grades will be assigned according to the following scale:

A (90% - 100%)  B (80% - 89%)  C (70% - 79%)  D (60% -69%)  F (below 60%)

Cheating and plagiarism are not tolerated. If it is established that a violation has occurred, the instructor may determine the penalty, or he may report the offense to the department chair and dean of the school. The usual penalty involves a grade of zero on the test, examination, or paper in question.

Make up Tests, Class Attendance, and Tardiness

Prompt and regular attendance is necessary for success in this course. You are expected to be on time for class and stay the full class period. Three late arrivals or early departures will be counted as an absence. A student absent from class and missing a scheduled test is entitled to a make up test if evidence is presented to the instructor that the absence was due to personal illness or death in the immediate family. Absences authorized by the Vice President for Academic Affairs for official purposes (athletics,
performing groups, student government, etc.) also entitle a student to make up test privileges. Any absence from scheduled work must be covered by an excuse from the Vice President for Academic Affairs, Student Health Services, or a doctor before the student is allowed to make up that work. Any exception to this rule must be arranged before the missed work! Each student is directly responsible to the individual faculty member for making up work missed due to excused absences. **ALL** makes up work must be completed with **one week** after returning to class. In order to receive credit in this course, a student must attend a minimum of **75%** of the class meetings. Students in this class will be allowed no more than **11 absences**, excused and unexcused. If a student exceeds the allowable number of absences, a grade of "F" will be assigned in the course. Absences accrue from the first day the class meets; not the first day a student attends the class. If you are late registering for the class, any class meeting you missed prior to the first class meeting you attend will be considered an absence. In order to be counted present, a student must arrive on time for class and remain in class the entire time. When a student is tardy for a class, it is the student's responsibility to talk to the faculty member about changing the recorded absence to a tardy. This must be done on the day that the tardy occurred. Failure to do so will result in a recorded absence.

**Classroom Policies**

1. Please turn off cell phones and pagers upon entering the classroom. Do not check messages or send text messages during class; you will be asked to leave. If you are seen using a cell phone during a test, I will assume you are cheating. You are not allowed to use cell phone calculators.
2. Do not sleep during class.
3. Do not bring guests, including children, to class.
4. Come to class on time.
5. Be prepared to start class at the scheduled time. Have paper, pencil, book, homework, etc., out and ready.
6. Do not ask to leave class early. Schedule any appointments at times that do not conflict with classroom time.
7. Calculator use is permitted and encouraged on all homework assignments and tests.
8. Be sure to show all work on homework assignments and tests. **No partial credit can be given if no work is shown.**
9. Homework will be collected and graded at the discretion of the instructor. Homework must be turned in at the time when it is requested. No late homework will be accepted.
10. If a student has a disability that qualifies under the American with Disabilities Act and requires accommodation, he should contact Dr. Richard Houston in the office of Disability Services at 846-4690.

**Important Dates**

Students who remain in the course more than one week after the first test and who then elect to drop the course will receive a grade of **W** if passing or a grade of **F** if failing the course at the time of the drop. A drop is not effective and complete unless the drop slip has been signed by all designated parties and turned in to the registrar’s office. No course may be dropped after **April 29**. If you plan to audit this class, you must notify the instructor by **January 25**. You will not be allowed to change your status from credit to audit after this date.
Instructor: Dr. Paula Norris

Instructor’s Office: Walters 209D Office Phone: 846-4515

Instructor’s e-mail address: pnorris@deltastate.edu

Instructor’s Office Hours:

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