Bossier Parish Community College
Master Syllabus

Course Prefix and Number: MATH 250   **Credit Hours:**   5-5-0

Course Title: Calculus I

Course Prerequisites: A grade of "C" or higher in MATH 102 and MATH 112, MATH 113, or consent of instructor.

Textbook(s) (when applicable): Thomas, George B. Calculus, 14th edition. Pearson, 2018. ISBN: 9780134439020

Course Description: Topics include limits; continuity; differentiation and application; integration; and applications of integration.

Learning Outcomes:
At the end of this course, the student will:
- A. Compute limits and determine continuity;
- B. Apply the basic rules of differentiation;
- C. Compute derivatives;
- D. Solve applications using derivatives;
- E. Perform integration; and
- F. Solve applications using definite integrals;

To achieve the learning outcomes, the student will or will be able to:
(The letter designations at the end of each statement refer to the learning outcome(s).)
1. find the average rate of change of a function; (A)
2. find the limits and one-sided limits of common functions; (A)
3. use the epsilon-delta definition of the limit; (A)
4. determine where a function is continuous; (A)
5. analyze asymptotic behavior of functions using limits; (A)
6. use limits to recognize the relationship between secant lines and tangent lines; (A)
7. use the formal definition of the derivative; (B)
8. compute derivatives of familiar functions; (B)
9. solve applications using first, second, and third derivatives; (B)
10. use implicit differentiation to compute derivatives; (C)
11. use logarithmic differentiation to find the derivative; (C)
12. solve related rate problems; (C)
13. linearize a function; (C)
14. find the extrema of a function on a given interval; (D)
15. determine the critical points and points of inflection of a function; (D)
16. determine over what intervals a function increases/decreases; (D)
17. determine over what intervals a function concave up/down; (D)
18. sketch a curve using first and second derivatives; (D)
19. apply l'Hopital's rule to find the limit; (D)
20. find the antiderivative; (E)
21. find area and estimate with finite sums; (E)
22. define sigma notation with limits of finite sums; (E)
23. compute the definite integral; (E)
24. apply the Fundamental Theorem of Calculus; (E)

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25. use the substitution method to compute indefinite integrals; (E)
26. find volumes using cross-sections and cylindrical shells; (F)
27. compute arc length; (F)
28. find areas of surfaces of revolution; (F)
29. analyze work and fluid forces; (F) and
30. analyze moments and centers of mass. (F)

Course Requirements: All students are required to take a comprehensive final exam. When this course is taken in an online environment, the department has established a minimum grade of 60% on the final exam required to earn a grade of "C" or higher in the course. If this minimum score is not obtained by the student, then the student shall refer to the policy outlined in the course syllabus which will supersede the course grading scale shown below.

Course Grading Scale:
90 – 100 = A
80 – 89 = B
70 – 79 = C
60 – 69 = D
0 – 59 = F

Attendance Policy: The college attendance policy is available in the BPCC Student Handbook.

Course Fees: This course is accompanied with an additional non-refundable fee for supplemental materials, laboratory supplies, software licenses, certification exams and/or clinical fees.

Nondiscrimination Statement: Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

Title VI, Section 504, and ADA Information
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Equity/Compliance Coordinator
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