MAT 176: Calculus II Syllabus

MAT176 Calculus II: *4 hours, 4 credits.* Riemann sums, logarithmic and exponential functions, integration of functions, applications of the definite integral, including area, volume, and arc length, infinite series and power series in one variable.
Prerequisite: A grade of C (or better) in MAT 175 or placement by the department.
Corequisite: MAT 156 Calculus I Computer Laboratory

Instructor: *Your instructor will provide contact info, office hours and meeting times for your section.*

Grading Policy

Expectations: Students are expected to learn both the mathematics covered in class and the mathematics in the textbook and other assigned reading. Completing homework is part of the learning experience. Students should review topics from prior courses as needed using old notes and books.
Homework: Approximately four hours of homework will be assigned in each lesson as well as additional review assignments over weekends.
Exams: There will be regular quizzes, two midterms and a final exam during finals week. Students who do not pass the departmental final exam will not pass the course.
Grades: *The precise grading policy for your section will be distributed by your instructor.*

Materials, Resources and Accommodating Disabilities

Textbook: Briggs, et al. Calculus Early Transcendentals. (Custom Lehman Edition.) Consult with your instructor before purchasing anything, MyLab access may be required.
Tutoring: Departmental tutoring is available in Gillet Hall 233. *For updated information please visit the following website (http://www.lehman.edu/academics/math-lab.php)*
Reliable Web Resources: See https://www.lehman.edu/mathematics/calculus.php
Accommodating Disabilities: Lehman College is committed to providing access to all programs and curricula to all students. Students with disabilities who may need classroom accommodations are encouraged to register with the Office of Student Disability Services. For more info, please contact the Office of Student Disability Services, Shuster Hall, Room 238, phone number, 718-960-8441.

Course Objectives

At the end of the course students should be able to:

1. Find Integrals (as part of dept objectives a, b, & e)
2. Solve physics and geometric problems (a, b, c, & e)
3. State and apply the Fundamental Theorem of Calculus and Riemann Sums (b & e)
4. Compute Taylor series and verify convergence of power series (a & b)

These objectives will be assessed on the final exam along with other important techniques.

Course Calendar

This course and its corequisite are carefully timed to match topics, so stay on schedule.

Brief Review: Antiderivatives, Area, Riemann Sums, and Definite Integrals (Ch. 5)
Lesson 1: Fundamental Theorem of Calculus (5.3)
Lesson 2: Substitution (5.5)
Lesson 3: Logs and Inverse Trig Functions (7.1)
Lesson 4: Computation of Area (6.2)
Lesson 5: Volumes: Disk Method (6.3)
Lesson 6: Volumes: Shell Method, Arc Length, Surfaces of Revolution (6.4, 6.5, 6.6)
Lesson 7: Basic Integration Rules (8.1)
Lesson 8: Integration by Parts (8.2)
Lesson 9: Review for Exam I
Lesson 10: Exam I
Students who do poorly on this exam should consider dropping this course and attending a class on precalculus before taking calculus. Please consult with your professor or math advisor for more personalized advice. Bring your exam and homework with you when seeking advice.

Lesson 11: Trigonometric Integrals (8.3)
Lesson 12: Trigonometric Substitution (8.4)
Lesson 13: Partial Fractions (8.5)
Lesson 14: L'Hopital's Rule (4.7)
Lesson 15: Improper Integrals (8.9)
Lesson 16: Sequences and Infinite Series (10.2, 10.3)
Lesson 17: Divergence and Integral Tests for Infinite Series (10.4)
Lesson 18: Comparison of Series, Limit Comparison and Direct Comparison (10.5)
Lesson 19: Alternating Series (10.6)
Lesson 20: Ratio and Root Tests (10.7)
Lesson 21: Review For Exam II
Lesson 22: Exam II
Review all prior homework problems.

Lesson 23: Taylor Approximations (11.1)
Lesson 24: Power Series and Taylor Series (11.2, 11.3)
Lesson 25: Taylor Series Continued (11.4)
Lesson 26: Ordinary Differential Equations: Growth and Decay (9.1)
Lesson 27: Separation of Variables in Ordinary Differential Equations (9.3)
Lesson 28: Review for the final exam

Final Exam: The Final Exam will be given during Finals Week covering the entire course especially topics needed in future courses.

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