Calculus II Lab Syllabus

General Information

MAT156 Calculus II Laboratory: *2 hours, 1 credit*. Calculus computer software will be used to illustrate ideas in MAT 176. COREQ: MAT 176.

Instructor: *Your instructor will provide contact information, 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 and, if needed, go to their instructor's office hours, to the Math Lab or to problem sessions regularly.

Homework: Approximately two hours of homework will be assigned in each lesson as well as additional review assignments.

The precise grading policy for your section will be distributed by your instructor.

Course Description

This lab is designed to supplement Calculus instruction through the use of relevant and accessible technology platforms. Instructors are encouraged to use class time to review appropriate mathematical topics relevant to the corequisite Calculus course and to facilitate by-hand problem solving sessions. Software, such as Maple, MS Excel, WolframAlpha, and the Graphing Calculator, is expected to be incorporated into the labs, as well. These programs should be used to help students to visualize, analyze, and understand Calculus ideas and to verify their by-hand calculations.

Materials, Resources, and Accommodating Disabilities

Textbook: Same as MAT 176

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, contact the Office of Student Disability Services, Shuster Hall, Room 238, 718-960-8441.

Course Objectives

At the end of the course, students will be able to:

1. Use technology to verify by-hand Calculus computations.
2. Use technology to visualize area under/between curve(s).
3. Use technology to compute Riemann Sums.
4. Use technology to solve integrals.
5. Use technology to compute Taylor Series.

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

Last Updated: Fall, 2014

Course Topics

The Department maintains a repository of suggested lessons using suggested technology platforms. However, an instructor is free to design their own lessons using accessible software as they see fit. Instructors who design their own lessons are kindly asked to share these lessons with the Department so that they may be added to the repository and used by future instructors. In addition, the Department asks that instructors adequately familiarize their students with any incorporated technology before it is used.

The following is a suggested list of topics that can be covered in your lab throughout the semester. All instructors must dedicate a portion of the first several labs to a review of Calculus I topics; this is consistent with the Department's uniform MAT 176 syllabus. In addition, all instructors must cover topics so that the course objectives can be tested on the final exam.

- **Calculus I Review**
    - Antidifferentiation
    - Riemann Sums (Left-Hand, Right-Hand Sums, Midpoint Sums, Trapezoidal Rule)
    - The Fundamental Theorem of Calculus
    - Substitution

- **Integration**
    - Integration By Parts
    - Partial Fractions
    - Improper Integrals

- **Sequences and Series**
    - Sequences and Their Limits
    - Series Convergence Tests
    - Taylor Polynomials

Department of Mathematics and Computer Science, Lehman College, City University of New York