Calculus II
MAT 176 Syllabus
Fall 2007

Lectures: Mo, Wed 7:45–9:25 PM in G 333.

Instructor: Laurentiu Maxim, G 100B.

E-mail: laurentiu.maxim@lehman.cuny.edu

Office Hours: Monday 3:00–6:00 PM or by appointment.

Remark: This class has a web site, where you will be able to find the homework assignments and other information (also see below for more on homework). The URL is:

http://comet.lehman.cuny.edu/calculus/176.html

Text: Larson, Hostetler, Edwards: Calculus of a Single Variable (Early transcendental functions), Fourth Edition, Houghton Mifflin, Boston, New York.

Prerequisites: MAT 175, **Corequisite:** MAT 156.

Quizzes: There will be regular quizzes every other week. The problems will be entirely from the homework assigned.

Homework: Homework is assigned weekly but is not checked. The students are strongly advised to work on all the homework problems to make sure they are keeping pace with the class and do well in the quizzes.

Exams: There will be two midterm exams (see the class schedule below). There will be review sessions on the previous lectures. You must bring your student ID at the exams. The exams are closed book and closed notes.

Grading system: Quizzes: 20%, Each midterm: 20% , Final: 40%.

Topics to be covered in class and Homework assignements:

- **Lesson 1: §5.1: Antiderivatives, Distance, Displacement, Average Velocity**
  HW §5.1: 1, 3, 17, 19, 21, 25, 27, 35, 87, 89, 91, 101, 103.

- **Lesson 2: §5.2: Area**
  HW §5.2: 7, 25, 27, 35, 47, 57, 81.

- **Lesson 3: §5.3: Riemann sums, definite integrals**
  HW §5.3: 1, 3, 5, 7, 11, 25, 27, 35, 41, 65, 67, 69, 71, 77, 79.
  Review the Definition of Derivative (3.1) before Lesson 4.

- **Lesson 4: §5.4: Fundamental Theorem of Calculus**
  HW §5.4: 45,47,51,57,67,69,81,83,87,89,91,95,101,111.
  Review the Chain Rule (3.4) before Lesson 5.

- **Lesson 5: §5.5: Substitution** (5.6 will be taught in MAT 156)
  HW §5.5: 1, 2, 6, 8, 11, 13, 17, 19, 20, 22, 25, 27, 47, 50, 54, 57, 61, 66, 68, 74, 77, 84,

91, 149, 150.

- **Lesson 6: §5.7-8: Logs and Inverse Trig functions**
  HW §5.7: 1, 2, 4, 6, 7, 11, 13, 17, 19, 25, 32;
  HW §5.8: 1, 3, 4, 7, 10, 11, 13, 17, 20, 24, 27.

- **Lesson 7: §7.1: Area**, §7.2: **Volumes: disk method**
  HW §7.1: 43, 44, 45, 48, 85, 86, 90, 91, 92, 93, 94;
  HW §7.2: 1, 2, 3, 4, 6, 7, 8, 11, 13, 17, 20, 22, 32, 47, 48, 49, 50, 55, 59, 68, 69, 74.

- **Lesson 8: §7.3: Shell method**, §7.4: **Arc-length, surfaces of revolution** (if time allows)
  HW §7.3: 1, 2, 4, 6, 7, 8, 13, 20, 22, 25, 27, 41, 42, 46, 50;
  HW §7.4: 1, 3, 5, 11.

- **Lessons 9-10: Review and Exam I on lessons 1-8**
  Extra credit assignment related to §7.6 on **Moments** could be assigned.

- **Lesson 11: §8.1: Basic integration rules**
  HW §8.1: 6, 7, 8, 11, 13, 17, 25, 27, 41, 42, 46, 50.
  Review the Product Rule (3.3) before Lesson 12.

- **Lesson 12: §8.2: Integration by parts** (simple examples)
  HW §8.2: 11, 13, 17, 20, 27, 30, 35, 48, 50, 55, 83, 84.

- **Lesson 13: §8.3: Trigonometric integrals**
  HW §8.3: 6, 8, 11, 19, 20, 22, 25, 27, 54, 65, 69.

- **Lesson 14: §8.4: Trigonometric substitution**
  HW §8.4: 6, 7, 8, 10, 13, 17, 22, 25, 27, 32, 35, 26, 50, 65, 66.

- **Lesson 15: §8.5: Partial fractions** (especially distinct linear factors)
  HW §8.5: 7, 8, 11, 20, 25, 27, 28, 57, 58.
  Review §2.2-2.3 on **Limits** before Lesson 16.

- **Lesson 16: §8.7, 9.1: L'Hopital's rule and Sequences**
  HW §8.7: 11, 13, 20, 77, 78, 84, 87, 88, 91, 92, 93, 106, 108.
  HW: §9.1: 1, 2, 6, 11, 13, 37, 47, 50, 54, 57, 65.

- **Lesson 17: §8.8, 9.2: Improper Integrals and Series** (emphasizing geometric vs harmonic)
  HW §8.8: 1, 2, 4, 6, 7, 8, 17, 19, 20, 22, 25, 27, 32, 35.

HW: §9.2: 1, 6, 24, 25, 27, 35, 36, 41, 47, 50, 57, 61, 65, 84, 85.

- **Lesson 18: §9.3-4: Integral test and Comparison of series**
  HW §9.3: 3, 4, 10, 11, 17, 20, 22, 25, 27, 51, 54.
  HW §9.4: 3, 6, 8, 11, 17, 20, 22, 25, 27, 51, 54.

- **Lesson 19: §9.5: Alternating series (AC vs. CC)**
  HW §9.5: 11, 13, 15, 16, 17, 19, 20, 25, 27, 47, 50, 54, 61, 71, 74, 84, 85.

- **Lesson 20: §9.6: Ratio test** (omit root test)
  HW §9.6: 13, 15, 16, 20, 22, 25, 27, 32, 34, 35.

- **Lesson 21-2: Review and Exam II: (on Lessons 9-18 or 1-18)**

- **Lesson 23: §9.7-9.8: Taylor Approximations and Power series**
  HW §9.7: 1, 2, 6, 14, 19, 37, 47, 57, 65
  HW §9.8: 4, 6, 8, 11, 13, 20, 25, 26, 27, 32.

- **Lesson 24: §9.9: Taylor series** (especially near $x = 0$)
  HW §9.9: 1, 6, 24, 25, 26, 35, 36, 41, 47, 57, 62.

- **Lesson 25: §9.10: Taylor series** (continued)
  HW §9.10: 1, 2, 3, 7, 8, 17, 20, 22, 29, 32, 35, 36, 47, 54, 68, 70.

- **Lesson 26: §6.2-3: ODE: growth and decay**
  HW §6.2: 1, 3, 5, 7, 9, 11, 17, 19, 49, 53.

- **Lesson 27: §6.3: Separation of Variables**
  HW §6.3: 1, 5, 7, 13, 15, 35 and applications relevant to your major.

- **Lesson 28: Review for the final**.

- **Final during Finals Week**.