INFORMATION AND SYLLABUS
21-640-119 – Basic Calculus – Spring 2010

Instructor: Dr. Li Guo; **Office:** Smith 308; **Phone:** 973-353-3917; **E-mail:** liguo@rutgers.edu
Office Hours: T Th 1:30-2:30 pm **Wed address:** http://newark.rutgers.edu/~liguo
Teaching Assistant: Mr. Pritam Ghosh; **Office:** Smith 232; **Phone:** (973) 353-5156 ext 1637;
E-mail: pritam@rutgers.edu; **Office Hours:** W. 2:30-3:30 pm
Department web address: http://math.newark.rutgers.edu/

Important Note: Basic Calculus is intended for students who will NOT be taking Calculus I or further calculus courses. Students will NOT receive credit for both (21&62:640:119) Basic Calculus, and (21&62:640:135) Calculus I. If your major requires calculus courses beyond Basic Calculus, then this course is NOT for you. It is intended for students majoring in information systems, business, social science, or liberal arts.

Text Book: Calculus and Its Applications, 12th edition, by Goldstein, Lay, Schneider and Asmar, Prentice Hall (ISBN: 978-0321571304). Should compare homework if use 11th ed.

Grading Policy: There will be one final exam (200 points), two midterm exams (100 points each) and 11 quizzes (20 points each). Your highest 9 grades from the 11 quizzes will count for the total grade. The formula of the total points is

$$20 \text{ (attendance)} + 180 \text{ (9 quizzes)} + 200 \text{ (2 midterms)} + 200 \text{ (final)} = 600 \text{ points (total)}$$

The course grades will be given on a curve based on the total points.

Exams: The exams (except the final) will be given in this classroom.

First Exam: Tuesday, February 16;
Second Exam: Tuesday, April 6;
Final Exam: Tuesday, May 11 (tentative).

Make-up exams will be allowed only in extreme situations (death in the family, serious illness) with written documents, and I must be notified BEFORE the exam. In case of a delay, you should still come to campus to find me and take the exam the same day. A make-up exam might cover different materials and might be more difficult than the regular exam. There are no make-up quizzes.

Homework: The homework will be assigned in each lecture. Even though the homework problems will not be collected, they should be studied carefully. Doing homework is the most important component of the course work. The exams and quizzes will be closely related to the homework.

Classes: The students are expected to attend the lectures on time and remain until the end of the lectures. Attendance check will be given from time to time, and absence will reduce your course grade. If you have any problem about this course, please discuss it with me as early as possible. Don't wait until the end of the semester when getting an unwanted grade and paying the tuition is usually the only solution.

FREE tutoring: Bradley Hall, Room 140. Monday - Friday. 973-353-5608.
http://lc.newark.rutgers.edu. Check the web site for schedules.

Course Outline(tentative):

Chapters, Sections	Topics
§0.1-0.6	Functions
§1.1-1.8	The Derivative
§2.1-2.7	Application of the Derivative
§3.1-3.3	Techniques of Differentiation
§4.1-4.6	The Exponential and Natural Logarithm Functions
§5.1-5.2	Application of the Exponential and Natural Logarithm Functions
§6.1-6.5	The Definite Integral
§7.1-7.4	Functions of Several Variables

Lecture schedule and homework assignments: See next page.

Weekly Outline (tentative)

Lect	Date	Sections	Homework	Topics
1	1/19	§0.1	1,5,7,11,15,17,21,23,25,33,37,53	Functions and graphs
		§0.2	3,5,7,15,21,27,29	Important functions
2	1/21	§0.3	1,3,5,9,11,13,21,25,29,35	Algebra of functions
		§0.4	5,7,13,19,25,27,35	Zeros of functions
3	1/26	§0.5	9,15,25,37,43,51,63,71,81,85,89,95	Exponents and power functions
		§0.6	3,5,11,15,21,25,33,35	Applications
4	1/28	§1.1	5,9,13,17,21,25,29,31,35	Slope of a straight line
		§1.2	3,9,19,23,25,33,	Slope of a curve
5	2/2	§1.3	5,9,11,15,17,23,27,37,43,49,55	The derivatives
		§1.4	7,9,11,17,21,29,35,39,45	Limits and the derivatives
6	2/4	§1.6	3,5,11,17,23,25,31,37,39,43	Rules for derivatives
7	2/9	§1.7	1,7,11,15,19,21,27,29	More about derivatives
		§1.8	1, 5, 9, 11,15,29	Rate of change
8	2/11	Review 1		
9	2/16	Exam 1		
10	2/18	§2.1	3,5,11,13,17,19,21,27	Describing graphs of functions
		§2.2	1,3,5,7,11,13,23,25,27,29,31,33	First and second derivative rules
11	2/23	§2.3	1,7,9,15,21,23,27,35	Curve sketching I
		§2.4	3,7,9,11,17,23,31	Curve sketching II
12	2/25	§2.5	1,3,5,9,15,19,21	Optimization problems
		§2.6	11,13,15,17	Further Optimization problems
13	3/2	§2.7	3, 5, 9, 11	Application to business and economics
		§3.1	1,7,9,11,15,23,29,31,35	Product and quotient rules
14	3/4	§3.2	1,5,9,11,15,19,21,29,33,37,41,45,47	Chain rule and general power rule
		§3.3	3,15,19,23,25,39,45	Implicit differentiation and related rates
15	3/9	§4.1	1,7,13,15,17,25,31,35	Exponential functions
		§4.2	13,17,19, 31, 33, 39	Exponential function e^x
16	3/11	§4.3	3,5,13,15,21,27,33,35	Differentiation of exponential functions
		§4.4	3,7,9,17,19,21,23,29,37,39	Natural logarithm function
17	3/23	§4.5	1,5,11,15,25,27,31	Derivative of $\ln x$
		§4.6	1,7,9,21,23,33,45	Properties of $\ln x$
18	3/25	§5.1	3,5,9,13,21	Exponential growth and decay
		§5.2	3,5,11,15	Compound interest
19	3/30	Catch up		
20	4/1	Review 2		
21	4/6	Exam 2		
22	4/8	§6.1	1,3,7,9,15,17,23,25,27,29,33,35,39,45	Antidifferentiation
		§6.2	1,5,11	Areas and Riemann sums
23	4/13	§6.3	1,5,7,11,17,21,25,29,31,39,41	Definite integrals
		§6.4	1,5,9,11,15,19,21	Areas in the xy-plane
24	4/15	§6.5	1,5,7,11	Applications of definite integral
25	4/20	§7.1	1,5,11,15,17	Functions of several variables
		§7.2	1,5,9,15,19,23,25	Partial derivatives
26	4/22	§7.3	1,3,7,9,11	Maxima and minima in several variables
		§7.4	1,3,5,7,9	Lagrange multipliers
27	4/27	Catch up		
28	4/29	Review 3		
	5/11	Final Exam		