The City College of New York

2010 Science, Technology, Engineering and Mathematics (STEM) Institute

Calculus I
Syllabus

Calculus I

Program Duration: Six weeks, Class meets fifteen hrs/week, three elective High School credits
Instructor: Prof. Dario Cardenas, Mathematic Department, **CCNY**
TAs: Mr. Isaiah Yim

Lesson	Objectives
1	**Pre-test to gauge students' educational background of subject material.**
	Locate students into *Calculus, Pre-Calculus, and Advanced Algebra* session.
2	**Section: 1.1** Functions and their representations.
	1.2 A catalog of essential functions.
3	**Section: 1.3** The limit of a function.
	1.4 Calculating limits.
4	**Section: 1.5** Continuity.
	1.6 Limits involving infinity.
5	**Section: 2.1** Derivatives and rates of change.
	2.2 A derivative as a function.
6	**Section: 2.3** Basic differentiation formulas.
	2.4 Product and quotient rules.
7	**Section: 2.5** The chain rule.
	2.6 Implicit differentiation.
8	**Section: 2.7** Related rates.
	2.8 Linear approximation and differentials.
	Review chapter 1 and 2.
9	Review chapter 1 and 2.
10	**Exam #1**(one hour)
	Review the exam and make sure students understand the material (theory and applications).
11	**Section: 3.1** Maximum and minimum values.
	3.2 The mean value theorem.
12	**Section: 3.3** Derivatives and the shapes of graphs.
	3.4 Curve sketching.
13	**Section: 3.5** Optimization problems.
	3.7 Antiderivatives.
14.	**Section: 4.1** Areas and distances.
	4.2 The definite integral.
15	**Section: 4.3** Evaluating definite integrals.
	4.4 The fundamental theory of calculus.

16 **Section: 4.5** The substitution rule.
Review Chapter 3 and 4.

17 **Exam # 2** (one hour)
Review exam and make sure students understand the material (theory and applications).

18 **Section: 5.1** Inverse functions.
5.2 The natural logarithmic function.

19 **Section: 5.3** The natural exponential function.
5.4 General logarithmic and exponential functions.

20 **Section: 5.5** Exponential growth and decay.
5.6 Inverse trigonometric functions.

21 **Section: 5.7** Hyperbolic functions.
5.8 Indeterminate forms and L'hospital's rule.

22 Review Chapter 5.

23 **Exam # 3** (one hour)
Review exam and make sure students understand the material (theory and applications).

24 Review for the Final exam.

25 Review for the Final exam.

26 **Exam # 4- mock-final exam** (one hour)
Review exam and make sure students understand the material (theory and applications).

27 Review for the Final exam.

28 Review for the Final exam.

29 **Final Exam** (2 hours)

30 Review of final exam and make sure students understand the material (theory and applications)

TEXT ***Calculus*** by Smith, Minton, 3th Edition (McGrawHill)

Instructor: *Dario Cardenas*
Email: *dacardenas@ccny.cuny.edu*

Grade computation:

Your class average is determined by:

Homework:	*5%*
Quizzes :	*20%*
In-class exams (3):	*35%*
Final Exam:	*40%*