# Elements of Calculus <br> MATH 205, Section BC, Spring 2012 <br> M, W 10:00am - 11:40am in MR 410 

Instructor: Jhevon Smith
Email: Jhevon@gmail.com
Office and Office Hour: TBA
Website: http://math.sci.ccny.cuny.edu/people?name=Jhevon_Smith
Text: Calculus and Its Applications (Second Custom Edition for City College), by Goldstein, Lay \& Schneider, Prentice Hall
Math Dept.: NAC 8/133 Math Dept. website: http://math.sci.ccny.cuny.edu
Calculator: Calculators are not permitted in exams nor quizzes in this course.
Grading: Grades will be assigned according to the following chart.

| Letter Grade | G.P.A. | Grade | Letter grade | G.P.A. | Grade |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathrm{A}^{+}$ | 4.00 | $97-100$ | C | 2.00 | $74-76$ |
| A | 4.00 | $95-96$ | C- | $\mathbf{1 . 6 6}$ | $\mathbf{7 0 - 7 3}$ |
| $\mathrm{A}^{-}$ | 3.66 | $90-94$ | $\mathbf{D}$ | $\mathbf{1 . 0 0}$ | $\mathbf{6 0 - 6 9}$ |
| $\mathrm{~B}^{+}$ | 3.33 | $87-89$ | F | $\mathbf{0}$ | Below 60 |
| B | 3.00 | $84-86$ |  |  |  |
| B- | 2.66 | $80-83$ |  |  |  |

This is the first course in the 205-209 calculus sequence. You need a C to pass this class and move on to the next class, Math 209.

As department policy demands, the final exam is worth $40 \%$ of your grade in this course. The remaining $60 \%$ will come from your in-class grade, the breakdown of which is as follows:

Quizzes: 35\% (In general, I will try to give a quiz every Monday-I'll drop the worst two). In-class tests: $\mathbf{6 0 \%}$ (I will give 4 exams and count the best 3, each worth $20 \%$ of your grade). Participation: 5\% (Based mostly on homework and attendance).

Your final grade for the course, which will be converted to a letter grade as dictated in the table above, is computed as follows: Course grade $=0.6^{*}($ In-class grade $)+0.4^{*}$ (Final exam grade)

Extra Credit: At the moment, I have no intention of giving extra credit to any student for anything, but things change, so we'll see...

Attendance: Attendance will be taken at the beginning of class. You are late if you arrive after your name is called. You are considered absent if you arrive after 10:15a.m. If you are late twice, that is considered as one absence. For your $2^{\text {nd }}, 3^{\text {rd }}$, and $4^{\text {th }}$ absence, I will take 1,2 , and 4 point(s), respectively, off your final grade. You will be assigned a WU (failing) grade if you accumulate 5 unexcused absences.

To be excused for an absence (or lateness) you must email me no later than one day after that particular absence (or lateness) with the reason. Of course, proof is required where applicable. For example, if your absence or lateness was due to a doctor's appointment, I expect to see a doctor's note. There is no make-up for a missed quiz/homework/exam. Seriously!

My Expectations: You are to read ahead! Very Important! Read each section before coming to class (try some problems even). It's better if you have your mind working on the concepts before coming to class-it will be easier for you to keep up. Homework will be collected and we will try to review each homework ASAP, usually by the next class, so try to complete your assignments promptly. I will give you a due date, you have until one week after this date or before the next test (whichever comes first) to hand in the homework. If you miss a class, it is your responsibility to catch up.

I expect your hand-in homework to follow certain guidelines (you lose points otherwise):
(1) Your homework must be stapled if it consists of several pages.
(2) Your homework must be properly labeled: Your name, the topic number and section.
(3) Only one topic per stapled group. That is, if you are handing in the homework for several topics, do NOT staple them all together. But separate each topic and staple that group together. (4) Be neat! And write legibly, for Pete's sake!

I also expect you to remember the math that you have done before this course. There is simply not enough time to go over previous material, as much as I'd love to be thorough. You just have to take it upon yourself to review previous material (algebra, precalc, etc) when necessary. I will assume you are all experts at the lower level math courses. If this is not currently true for you, make it true, quickly.

Repeat the following to yourself 10 times a day. Five times when you wake up and five times before you go to sleep.

> I must NOT cancel across sums,
> I must NOT distribute powers across sums, I must NOT divide by zero, All these are blasphemy!' But I will use brackets when appropriate.

So yeah, the above may seem like a joke, but here's the part that's not funny: do NOT commit any of the blasphemies mentioned above! Doing so will result in an instant zero (0) on any exam or quiz in which such an offense is made! Regardless of how well you did otherwise.

Contact: You are to email me at the end of the first day of class, stating your name, your course and its section. I will be emailing important information from time to time; including progress reports, homework, announcements and advice as needed. Please read the emails. They might seem long sometimes (it shouldn't take you more than 5 minutes to read any one, 10 minutes max $(\cdot)$, but if I email you, it means it is important-important enough for you to have it in writing.

Feedback: I encourage you to give me feedback about my teaching or the class, whether positive or negative (just make it constructive please). You can email me or talk to me, or if you don't want to reveal your identity, there is an anonymous feedback page on my website.

Help: Tutoring is available in the Marshak Building, room 418S. I also tutor there sometimes. The hours for this semester are: Monday, Wednesday: $2 \mathrm{pm}-7 \mathrm{pm}$; Tuesday, Thursday: $12 \mathrm{pm}-$ 5 pm ; and Fridays: $12 \mathrm{pm}-4 \mathrm{pm}$. There are also online resources available. A great place to get math help, even at odd hours, is www.mathhelpforum.com. I help out there sometimes too, but even if I am not around, there are a significant number of brilliant people from varying time zones who decide to spend their free time helping others with math. Take advantage of it. Another great resource on the web is wolframalpha.com. You can use that site to check your answers. Brilliant site. Other online resources exist of course: youtube is a great one, Knan Academy another. And do not forget your classmates! You should get the contact information of at least one person that you can study with or get missed notes from if you are absent, etc. You're all in this together, help each other out. And, of course, there is always me! Don't be afraid to come to me if you have questions or concerns. You can contact me via email or see me after class or during my office hour.

Some class rules: You are not allowed to have your cell phone on during our class, please turn it off prior to class. Eating in class is NOT allowed. Drinking is permitted, as long as you remove your garbage afterwards.

Academic Integrity: Any act of academic dishonesty will be dealt with by applying the most stringent penalties permitted. Cheating includes, but is not limited to, receiving help during exams and submitting homework without properly acknowledging persons who assisted you. Please read carefully the Policy on Academic Integrity posted on the CUNY website with URL http://www1.cuny.edu/portal_ur/content/2004/policies/image/policy.pdf

## Topics and Assignments:

| \# | Topic | Assignment |  |
| :---: | :---: | :---: | :---: |
|  |  | Section | Problems |
| 1 | Some Important Functions | 0.2 | $1-37$, odd |
| 2 | The Slope of a Straight Line | 1.1 | $1-59$, odd |
| 3 | The Slope of a Curve at a Point | 1.2 | 1-10, all; $11-37$, odd |
| 4 | The Derivative | 1.3 | 1-59, odd; 63-77, odd |
| 5 | Limits and the Derivative | 1.4 | 1-71, odd |
| 6 | Some Rules for Differentiation | 1.6 | 1-63, odd. |
| 7 | More About Derivatives | 1.7 | 1-41, odd |
| 8 | The Derivative as a Rate of Change | 1.8 | 1-31, odd |
| 9 | The Product and Quotient Rules | 3.1 | 1-65, odd |
| 10 | The Chain Rule and the General Power Rule | 3.2 | $1-59$, odd |
| 11 | Test \#1: on topics 1 through 10 |  |  |
| 12 | Implicit Differentiation and Related Rates | 3.3 | 1-47, odd |
| 13 | Describing Graphs of Functions | 2.1 | 1-4, all; 5-17, odd; |
| 14 | The First and Second Derivative Rules | 2.2 | 1-43, odd. |
| 15 | Curve Sketching (Introduction) | 2.3 | 1 - 39, odd; 43, 45 |
| 16 | Curve Sketching (Conclusion) | 2.4 | 1-23, odd; 33 |
| 17 | Functions and Graphs in Applications | 0.6 | $1-35$, odd |
| 18 | Optimization Problems | 2.5 | $1-29$, odd |
| 19 | Further Optimization Problems | 2.6 | 1-27, odd |
| 20 | Applications of Derivatives to Business and Economics | 2.7 | 1-21, odd |
| 21 | Test \#2: on topics 12 through 20 |  |  |
| 22 | Exponential Functions | 4.1 | 1-41, odd |
| 23 | The Exponential Function $e^{x}$ | 4.2 | $1-45$, odd |
| 24 | Differentiation of Exponential Functions | 4.3 | 1-35, odd; 41, 43 |
| 25 | The Natural Logarithm Function | 4.4 | 1-41, odd |
| 26 | The Derivative of $\ln x$ | 4.5 | 1-27, odd |
| 27 | Properties of the Natural Logarithm Function | 4.6 | $1-49$, odd |
| 28 | Exponential Growth and Decay | 5.1 | 1-27, odd |
| 29 | Compound Interest | 5.2 | 1-23, odd |
| 30 | Further Exponential Models | 5.4 | 1,3,5,11 |
| 31 | Test \#3: on topics 22 through 30 |  |  |
| 32 | Antidifferentiation | 6.1 | 1-45, odd; 49 |
| 33 | Integration by Substitution | 9.1 | 1-39, odd |
| 34 | Areas and Riemann Sums | 6.2 | $1-17$, odd |
| 35 | Definite Integrals and the Fundamental Theorem | 6.3 | 1-39, odd |
| 36 | Evaluation of Definite Integrals | 9.3 | 1-25, odd |
| 37 | Areas in the $x y$-Plane | 6.4 | $1-23$, odd |
| 38 | Test \#4: on topics 32 through 37 |  |  |
| 39 | Final Exam: Date TBA |  |  |

