Calculus III
MATH 203, Section LL, Fall 2015
T, Th 9am – 10:40am in NAC 6/113;
F 11am – 11:50am in NAC 1/511A.

Instructor: Jhevon Smith ("Jhevon" is fine.)
Email: JhevonTeaches@gmail.com
Office Hours: By appointment only.
My Website: http://math.sci.ccny.cuny.edu/people?name=Jhevon_Smith
Texts: 1. Stewart's Essential Calculus, 2nd edition, published by Cengage.
        2. Notes on MatLab (http://math.sci.ccny.cuny.edu/document/show/237)
Math Dept.: NAC 8/133   **Math Dept. website:** http://math.sci.ccny.cuny.edu
Math 203 website: http://math.sci.ccny.cuny.edu/courses?name=Math_20300

Websites: I gave you my website since I will be posting documents and instructions for the class there, such as: review problems, announcements, solutions to tests and quizzes, etc. I gave you the math 203 website because you will need to go to that website to access things like past finals, MatLab tutorials and even video tutorials for the class. I gave you the math. dept. website because, well, you should have it.

Calculator: Though a calculator might be used to complete certain homework problems, calculators are NOT allowed during quizzes or tests. So brush up on your arithmetic.

Grading: Grades will be assigned according to the following chart.

Letter Grade	G.P.A.	Grade	Letter grade	G.P.A.	Grade
A+	4.00	97-100	C+	2.33	77 - 79
A	4.00	94-96	C	2.00	70-76
A-	3.66	90-93	**D**	**1.00**	**60-69**
B+	3.33	87-89	**F**	**0**	**Below 60**
B	3.00	84-86			
B-	2.66	80-83			

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 your numerical grade will be as follows:

Quizzes: 15% (In general, you will have one quiz per week—I'll drop the worst two).
Homeworks: 5% (I will drop the worst two).
Participation: 5% (Based mostly on attendance).
MatLab Assignments and an exam: 5% (You will submit electronic and printed copies).
In-class tests: 30% (I plan on giving 4 exams and will count the best 3).
Final Exam: 40% (This will be a cumulative exam given at the end of the course).

You need a C to pass this class and move on to any class requiring it as a prerequisite, including MATH 391 and 392. However, if you are taking this course, chances are, you're an engineering, science (non-bio) or math major, and so getting an A or A+ would be far more appropriate.

You're going to get an A, right? Good. Glad we're on the same page. This is an important class; you should want to do well in it!

Make-up Exams/Quizzes: No way…

Attendance: Attendance will be taken at the beginning of class. You are *late* if you arrive after your name is called. If you are late twice, that is considered as one absence. You will, of course, lose attendance points whenever you're late or absent. You will be assigned a WU (failing) grade if you accumulate 5 unexcused absences. I shouldn't have to hold punishment over you for this, but students who show up regularly tend to do better. So do yourself a favor.

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. If you miss a class, it is your responsibility to catch up. You can see me during my office hours to discuss what was done in class, or catch up on your own. It's up to you. **To reiterate, there is no make-up for a missed quiz/homework/exam. Seriously! I drop your lowest scores to make up for the fact that there are no make ups.**

My Expectations:
Work ethic: You are not to slack off (more on this in class)! You are to read ahead! Very Important! Read each section before coming to class. 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 and ask intelligent questions. For this class, there are also video tutorials on the math website. Not all classes have this, so take advantage of this great resource. You can watch a lecture before coming to see that lecture in class. You'll learn that much more.

Homework: Assigned homework will be collected at the beginning of the class when it's due. We will review each homework in class, so be prepared to discuss your attempts and ask questions. The homework for a section is due once I complete that section in class (whether I announced that I completed it or not. Ask me if you're not sure, or follow along in the text). **Late homework will NOT be accepted.** The excuse does not matter. I will drop two homeworks to make up for the fact that late ones cannot be handed in.

I expect your hand-in homework to follow certain guidelines (**you lose points otherwise**):
(1) Show all your work. This goes for homework and *everything* else you do in this class. If anything at all can be written down to show how you got from point A to B, then write it!
(2) Your homework must be stapled if it consists of more than one page.
(3) Your homework must be properly labeled: **Your name, the Section # *and* topic # a.k.a HW #** (see the syllabus for what these are).
(4) Only ONE HW number per stapled group.
(5) Be neat! And write legibly, for Pete's sake!

Previous coursework: I also expect you to remember the math that you have done *before* this course. In particular, I expect you to remember your algebra, precalc, calculus I and calculus II very well. 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; like by the end of the week.

And now, the matra:

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.

The above requirement 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.**

There are other offenses that will incur a similar penalty. Making any one of the following mistakes will result in you getting a zero for the problem you make the mistake in.

1) Making the mistake of thinking $\int 1/x^n\, dx = \ln(x^n) + C$ (this is NOT true unless $n = 1$!!!), or similarly, the mistake that $\int 1/f(x)\, dx = \ln(f(x)) + C$, when $f(x) \neq x$.
2) Making the mistake of thinking the derivative (or integral) of a product (or quotient) is just the product (or quotient) of the derivatives (or integrals). That sounded confusing, I'll explain this in class.

Be sure that you can recognize when these mistakes are made, and avoid them at all cost. I will punish you severely for making them. And yes, "+C" is required when doing indefinite integrals.

Contact: <u>You are to email me at the end of the first day of class, stating your name, your course and its section. This carries the weight of five homeworks, and I will not hesitate to deduct the points if it is not done on time.</u> I will be emailing important information from time to time; including progress reports, announcements and advice as needed. Please read the emails. If I email you, it means it is important—important enough for me to take the time to write an email so that you will 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: FREE tutoring is available in the Marshak Building, room 418S. I am also a tutor there. The hours for this semester are: Mondays through Thursdays 12pm – 5pm. There are also online resources available. The math 203 website has video tutorials, taught by a professor at City College, so you may want to check those out to have another spin on things. A great place to get math help, even at odd hours, is www.mathhelpforum.com. 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 this great service. Another great resource on the web is wolframalpha.com. You can use that site to check your answers. Brilliant site. Of course, there are other online contenders like YouTube, Khan Academy, etc. Check them out. And don't 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. I know after talking about punishment for blasphemies and whatnot I might come off as scary, but I'm actually quite approachable…

Some class rules: Please silence your cell phones and don't use them when in 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

I really don't like cheating. Please don't do it. There, I asked nicely.

Topics and Assignments:

#	Topic	Section	Problems
			Assignment
		Section	Problems
1	Three-Dimensional Coordinate Systems	10.1	1 – 15 odd, 21 – 37 odd.
2	Vectors	10.2	1 – 25 odd.
3	The Dot Product	10.3	1 – 23 odd, 29 – 35 odd, 41.
4	The Cross Product	10.4	1 – 33 odd, 37, 39, 45, 53.
5	Equations of Lines and Planes	10.5	1 – 53 odd.
6	Cylinders and Quadric surfaces	10.6	1 – 31 odd.
7	Vector Functions and Space Curves	10.7	1 – 29 odd, 33, 39 – 45 odd, 49 – 53 odd, 59 – 65 odd.
*	**Test #1: on topics 1 through 7**		
*	Parametric Surfaces (examples)	13.6	Hmm… skip
8	Functions of Several Variables	11.1	1 – 21 odd, 41 – 45 odd.
9	Limits and Continuity	11.2	1 – 15 odd, 21 – 31 odd.
10	Partial Derivatives	11.3	5 – 33 odd, 39 – 59 odd, 66, 69.
11	Tangent planes; Linear Approximations	11.4	1 – 5 odd, 11 – 23 odd, 25 – 31 odd.
12	The Chain Rule	11.5	1 – 9 odd, 13 – 29 odd, 37, 39.
13	Directional derivatives; Gradient Vector	11.6	1 – 25 odd, 31, 33, 35, 39, 41, 49.
14	Maximum and Minimum Values	11.7	1 – 13 odd, 23 – 27 odd, 31 – 35 odd, 43.
*	**Test #2: on topics 8 through 14**		
15	Double integrals over rectangles	12.1	1, 11 – 35 odd, 39.
16	Double integrals over general regions	12.2	1 – 29 odd, 31, 33, 37 – 47 odd.
17	Double integrals in polar coordinates	12.3	1 – 4 all, 5 – 25 odd, 27, 29.
18	Applications of double integrals	12.4	1 – 11 odd.
19	Surface area	13.6	33 – 41 odd.
20	Triple integrals	12.5	1 – 19 odd, 21(a), 25 – 35 odd.
21	Triple integrals in cylindrical coordinates	12.6	1 – 29 odd.
22	Triple integrals in spherical coordinates	12.7	1 – 27 odd, 37, 39.
*	**Test #3: on topics 15 through 22**		
23	Sequences	8.1	1 – 41 odd.
24	Series	8.2	1 – 31 odd, 35 – 39 odd.
25	Integral test, comparison test	8.3	1 – 31 odd.
26	Other tests for convergence	8.4	1 – 9 odd, 13, 14, 19 – 39 odd, 43, 45.
27	Power series	8.5	1 – 23 odd.
28	Representing functions as power series	8.6	1 – 19 odd, 25 – 31 odd.
29	Taylor series and Maclaurin series	8.7	5 – 17 odd, 27 – 35 odd, 43, 45, 51, 53, 59 – 65 odd.
*	Applications of Taylor polynomials	8.8	Meh, skip…
*	**Test #4: on topics 23 through 29**		
*	**Final Exam: Monday, Dec 21, 1-3:15pm. Location TBA**		

Also note: MatLab Assignments will be assigned as we go along. Guidelines to be provided.

Also note 2: And remember, you first assignment is to email me according to the "Contact" requirement above.

Course Learning Outcomes

1. model spatial problems with vectors, lines, planes, curves and surfaces in three-dimensional space   a,b,c

2. use differentiation to compute tangent lines and tangent planes   a,b,c

3. use differentiation for multivariate functions to find relative extrema and rates of change   a,b,c

4. set up and evaluate multiple integrals for regions in the plane and in space a,b

5. use iterated integrals to measure areas, compute volumes and find centers of mass   a,b,c

6. analyze infinite series for convergence using a range of tests   a,e1,e2

7. find intervals of convergence for power series and represent functions with power series   a,b,c,e1,e2

8. use MATLAB to analyze and solve geometric, computational, and symbolic problems for topics above   d

Course assessment tools

Please describe below all assessment tools that are used in the course. You may also indicate the percentage that each assessment contributes to the final grade.
1. several in-class exams
2. departmental final exam

Departmental aims:

The mathematics department, in its varied courses, aims to teach students to
a. perform numeric and symbolic computations
b. construct and apply symbolic and graphical representations of functions
c. model real-life problems mathematically
d use technology appropriately to analyze mathematical problems
e. state (e1) and apply (e2) mathematical definitions and theorems
f. prove fundamental theorems
g. construct and present (generally in writing, but, occasionally, orally) a rigorous mathematical argument.

Questionnaire (Anonymous)

What is your major? _____

Are you sure you need this class? _____ (think about that again, then answer).

What is the highest level of math you *have to* complete for your major? _____

How did you get into this class? (Passed the prerequisite course, placed here upon college entry, placed by an advisor, etc)

_____

_____

Are there any dates during the Fall for which you will not be able to take an exam/quiz due to religious reasons? If so, please state the date(s) and "occasion(s)" below.

_____

_____

How good would you say you are at Algebra? ____ Precalc? _____ Calc 1? ____Calc 2? _____
(Enter 5 for "I can do it in my sleep!", 4 for "I'm not the best at it, but pretty awesome.", 3 for "I'm just OK; I'm good at the basics.", 2 for "I'm not the worst, but far from the best.", 1 for "The class was a blur that got more obscure over time!")

With the same scale as above, rate your comfort level with math: _____

Any general feelings or concerns towards this course? (For example, are you: Scared? Excited? Curious? Indifferent? Based on your perceived ability in math, what grade are you expecting? etc)

_____

_____

_____

_____

Are there any other relevant comments that you wish to add?

_____

_____