Elements of Calculus and Statistics
MATH 209, Section LM, Spring 2014
T, Th, 10:00am – 11:40am, NAC 1/511E

Instructor: Jhevon Smith. ("Jhevon" is fine.)
Email: JhevonTeaches@gmail.com
Office Hours: By appointment only.
Website: http://math.sci.ccny.cuny.edu/people?name=Jhevon_Smith
Text: Grossman, E., <u>Mathematical Methods for the Life Sciences.</u> I would try obtaining this text from the math department before trying to get it from the bookstore.
Math Dept.: NAC 8/133   **Math Dept. website:** http://math.sci.ccny.cuny.edu
Math 209 website: http://math.sci.ccny.cuny.edu/courses?name=Math_20900

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 209 website because you will need to go to that website to access things like past finals, instructions for Excel and preprogramed Excel files. I gave you the math. dept. website because, well, you should have it.

Calculator: Scientific calculators are not only permitted, they are required for the course. Bring your calculator to every class. It must have the square root function ($\sqrt{\ }$) and exponential keys (y^x) and probability functions (factorials, combinations, permutations). *You are NOT allowed to use your smart phone as a calculator.* I do not recommend that you use graphing calculators. If you do, then I will have to wipe its memory before every test or quiz. This inconveniences everyone. An adequate non-graphing scientific calculator should be affordable to virtually everyone.

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).
Excel HW: 5% (You will submit electronic and printed copies, none will be dropped).
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).

Extra Credit: Not happening…

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. I will deduct 2^{n-2} points, where *n* is the number of times you are absent, $1 < n < 5$. 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. If you miss a class, it is your responsibility to catch up. You can see me during my office hour 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.

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 HW number *and* topic(s)** (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!

I also expect you to remember the math that you have done before this course. In particular, I expect you to remember your calculus I. I also expect you to be familiar with exponentials and logarithms and the calculus of them (if you took math 201 instead of 205, then you did not cover these topics, you need to cover them on your own). 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.

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.

So yeah, the above may seem like a joke, and it is somewhat, 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 $n = 1$!!!)
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.
3) Making the mistake of giving a probability value outside of 0 and 1.
4) Making the mistake of giving a correlation coefficient value outside of -1 and 1.

Avoid these mistakes at all costs. I will punish you severely for making them.

Contact: <u>You are to email me at the end of the first day of class, stating your name, your course and its section. I will deduct 5 points off your final grade if you fail to do this.</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 and Fridays 12pm – 4pm. There are also online resources available. 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.

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.

Important Dates (not exhaustive): (you may also consult the academic calendar on the CCNY website. I left out some dates that might be very important to some.)

In Janaury:
1/27 – FIRST DAY OF CLASSES – YAY!
1/31 – Last day to change your program (add or switch classes) AND last day to file for Pass/Fail Option. Be sure to research the consequences of doing this and the conditions under which you can do it BEFORE doing it (for example, this option cannot be done for classes in your major). It cannot be reversed! This is also the last day for the Audit Option.

In February:
2/12 – College Closed (Lincoln's birthday)
2/17 – College Closed (President's Day)
2/18 – Last day to drop classes without the grade of "W"
2/19 – Course withdrawal period begins (A grade of "W" is assigned to students who officially drop a class) – No Refund! Enrollment verification begins.
2/20 – Monday schedule

In April:
4/14 – 4/22 – College Open (Spring Break! w00t!!!)
4/24 – Course withdrawal period ends, last day to drop with the grade of "W". (You won't be able to officially drop a class after this date.)

In May:
5/15 – LAST DAY OF CLASSES
5/16 – Reading Day or Final Exam
5/16 – 5/23 – Final Exams
5/26 – College Closed (Memorial Day)
5/29 – Last day for grade submissions – Spring 2014
5/30 – Commencement

In June:
6/2 – Summer Session Begins

Topics and Assignments:

HW #	Section	Topic	Problems to do
1	1.1- 1.2	Differentiation & Integration (mostly review)	1.4 Exercises: 1 - 37 all
2	Appendix A	Introduction to Excel	A.5 Exercises: 4, 5, 6, 8, 9, 10, 11
3	2.1 – 2.2	Intro. to ordinary differential equations, separation of variables	2.5 Exercises: 1 - 15 odd
4	2.3	Exponential growth	2.5 Exercises: 17, 19, 22, 23, 25
5	3.1-3.3	Euler's Method and Modified Euler's Method	3.6 Exercises: 1 - 11 odd, 13(a), 15, 17 - 19 all
*	**Test #1**	**Covers chapters 1 through 3**	**Given in class**
*	4.1 – 4.2	Steady state solutions of autonomous ODEs	Covered by HW 6
*	4.3	Geometric analysis	Covered by HW 6
6	4.4	Stability	1 - 33 odd
7	5.1 – 5.2	Malthus model, harvesting	5.5 Exercises: 1, 3, 5, 6, 7, 14
8	5.3	Logistic model	5.5 Exercises: 9, 11, 12, 13, 15
9	6.1- 6.2	Intro to systems of ODEs; competition models	6.8 Exercises: 1 - 4 all
10	6.3	Steady States & Phase Plots	6.8 Exercises: 5 - 7 all
11	6.4 – 6.5	Stability, null-clines; applications to epidemics	6.8 Exercises: 8, 9, 12, 14, 15, 19(a)-(c)
*	**Test #2**	**Covers chapters 4 through 6**	**Given in class**
12	7.1 – 7.2	Histograms	7.9 Exercises: 1, 3
13	7.3 – 7.4	Measures of centrality and spread	7.9 Exercises: 5, 9, 13, 15, 19
14	7.5 – 7.6	Box plots & estimation	7.9 Exercises: 11, 17, 21, 23, 26, 28
15	8.1 – 8.3	Scatter plots, correlation coefficient	8.7 Exercises: 1 - 9 odd, 15
16	9.1 – 9.2	Method of least squares	9.9 Exercises: 1, 3, 5, 9, 15
17	9.3	Prediction	9.9 Exercises: 7, 16
*	10.1 – 10.2	Intro. to Probability	Covered by HW 18
*	10.3 – 10.4	Classical probability, counting	Covered by HW 18
18	10.5	Probability rules	10.7 Exercises: 1 - 17 odd, 12, 18
*	11.1	P(A or B)	Covered by HW 19
19	11.2	Independence	11.5 Exercises: 1 - 11 odd, 15
20	11.3	Conditional probability & Bayes' Theorem	11.5 Exercises: 13
*	**Test #3**	**Covers chapters 7 through 11**	**Given in class**
21	13.1 – 13.2	Discrete Random variables	13.7 Exercises: 1, 2, 3, 5, 6,
22	13.3	Binomial distribution	13.7 Exercises: 9, 11, 12, 15, 18, 19
23	13.4	Poisson distribution	13.7 Exercises: 13
24	14.1 – 14.2	Continuous random variables; uniform distribution	14.8 Exercises: 1, 4
25	14.3	Standard normal distribution	14.8 Exercises: 5, 8
26	14.4	Normal distributions	14.8 Exercises: 6, 13, 15, 17
27	14.5	Normal approximation to the binomial distribution	14.8 Exercises: 7, 9, 11
*	15.1 – 15.3	Statistical Inference – confidence intervals	We're skipping this! But I might mention a few things about it if we have time
*	**Test #4**	**Covers chaptes 13 through 14**	**Given in class**
*	**Final Exam**	**Covers Everything!**	**Date, Time, Location TBA**

Your real first assignment is to email me, as in the "Contact" instructions above.

Questionnaire

What is your major? _____

Are you sure you need this class? _____

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

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 spring 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.

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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)

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

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