

Syllabus for MATH 3C - LEC 2
Probability for Life Sciences Students
Department of Mathematics, UCLA
Fall Quarter 2013

Lecture: MWF: 14:00-14:50, Moore 100

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Prerequisites: Course 3B with a grade of C- or better.

Textbook: We will cover Chapter 12 in the textbook *Calculus for Biology and Medicine*, C. Neuhauser, 3rd Ed., Prentice Hall.

Material to be Covered: Elementary probability, probability distributions, random variables, and limit theorems. See a tentative list of topics at the end of the syllabus.

Homework: The following rules apply to homework:

- Homework will be assigned on a weekly basis, with problems taken from the textbook. It is crucial that you do the homework if you want to understand the material taught in class. Furthermore, the midterms and final exam problems will be very similar (sometimes even identical) to the homework problems.

- **Due date:** Homework must be handed in at **the end of the lecture on Monday**, and will be returned graded in the discussion sessions from the following week. The only exception to this rule is the homework due on Wednesday, November 13, since Monday, November 11 is holiday.
- **Write-up:** You must always justify your solution to each homework problem. Correct final answers without a correct or incomplete justification will receive zero or very few points.
- **Group work:** It is ok to work together on the homework, **in groups of size at most 5**. However, when it comes time for you to write up the solutions, I expect you to do this on your own. It would be best for your own understanding if you put aside your notes from the discussions with your classmates and write up the solutions entirely from scratch. Working together on the exams is, of course, expressly forbidden.
- **Submission format:** Please attach the cover page (found at the end of this syllabus) as the first page to each and every homework assignment you hand in.
- **Material covered:** Homework collected on a given Monday will cover the material taught in the (usually 3) lectures before the Monday of the previous week (including the lecture and the discussion session from that previous Monday). In other words, you will always have one week between the last lecture and discussion session which are covered by the homework, at the time when you submit your homework.

Midterms: First midterm: Friday, October 18. Second midterm: Monday, November 18.

Final exam: Thursday, December 12, 11:30 AM - 2:30 PM.

Exams: The midterms and final exam are all in class. Please bring your photo ID to the exams. On the exams, you should show whatever work you use to get your answers. You may **not** use any electronic devices (calculators, cell phones, iPads, etc.) during the exams. For all the exams, you are allowed to bring a cheat sheet, of size 1/4 of a regular page (8.5 by 11 inch or 216 by 279 mm), and you may use both sides.

Quizzes: During the Discussion Session of weeks 4, 7 and 10 the last twenty minutes will be dedicated to do a Quiz, where you will be asked to solve one of the exercises assigned as homework that has been handed in on the Monday of that week. You may **not** use any electronic devices (calculators, cell phones, iPads, etc.) during the quiz.

Dropping of lowest grades: The lowest 2 homework grades will be dropped when calculating the average of your homework grade. Also, the lowest midterm grade will be dropped, and similarly the lowest quiz grade will be dropped.

Makeup or alternate exams and late homework submission: Neither late homework submissions nor alternate times for the midterms or quizzes shall be accommodated (this is why the lowest two homework grades are dropped, and the lowest midterm and quiz grade is also dropped). An alternate time for the final exam will be allowed only for religious reasons. Please consult the *Policy on Alternate Examination Dates* section at the following link <http://www.registrar.ucla.edu/calendar/final.htm>

Final letter grade:

- Your final grade is calculated from the average homework (scaled to the range 0-100), average midterm and final exam grades as a weighted average with the following weights:

Average homework grade		10%
Average quiz grade		10%
Highest midterm grade		40%
Final Exam		40%

- The numeric cut-offs for computing the final letter grade will take into account the overall performance of the class, as well as the departmental policy against grade inflation. The following may only be used as a rough guideline: approximately 25-30% of the highest scores will receive an A grade (A+/A/A-), the next 30% will get a B grade (B+/B/B-), while the remaining students with scores greater than 50 will receive a C grade (C+/C/C-). Finally, students with scores less than 50 will receive a D or F grade, so you definitely do not want to be in this "danger" zone. Again, the above is just a guideline and the final cut-offs and conversion policies may deviate from it.

Appeals:

- As a rule of thumb, you should only appeal on correctness, and not on the amount of partial credit you received.
- Appeals for the midterms must be submitted to the instructor within one week of the exam grading.
- Note: a randomly chosen sample of the homework and midterms will be photocopied and kept by the course staff to prevent any sudden mysterious changes/additions to the work, after it has been returned graded. This randomly chosen sample will be significantly larger for the midterms than for the homework.

- The final exams are not returned, and any appeals must be submitted to the instructor within two weeks of the exam grading.

Tentative schedule					
Week	Lecture	Date	Section	Topic	Due
0	1	09/27 F	12.1	Counting	
1	2	09/30 M	12.2.1	Probability: Basic Definitions	
	3	10/02 W	12.2.2	Equally Likely Outcomes	
	4	10/04 F	12.3.1	Conditional Probability	
2	5	10/07 M	12.3.2	The Law of Total Probability	Homework 1
	6	10/09 W	12.3.3	Independence	
	7	10/11 F	12.3.4	The Bayes Formula	
3	8	10/14 M	12.4.1	Discrete Distributions	Homework 2
	9	10/16 W	12.4.2	Mean and Variance	
	10	10/18 F	Midterm I	Lectures 1-6	
4 (Quiz 1)	11	10/21 M	12.4.2	Joint Distributions	Homework 3
	12	10/23 W	12.4.3	Binomial Distribution	
	13	10/25 F	12.4.4	Multinomial Distribution	
5	14	10/28 M	12.4.5	Geometric Distribution	Homework 4
	15	10/30 W	12.4.6	Poisson Distribution (1)	
	16	11/01 F	12.4.6	Poisson Distribution (2)	
6	17	11/04 M	12.5.1	Density Functions	Homework 5
	18	11/06 W	12.5.2	The Normal Distribution (1)	
	19	11/08 F	12.5.2	The Normal Distribution (2)	
7 (Quiz 2)	20	11/11 M	Veterans Day	-	Homework 6
	21	11/13 W	12.5.3	The Uniform Distribution	
	22	11/15 F	12.5.4	The Exponential Distribution (1)	
8	23	11/18 M	Midterm II	Lectures 1-22	Homework 7
	24	11/20 W	12.5.4	The Exponential Distribution (2)	
	25	11/22 F	12.6.1	The Law of Large Numbers	
9	26	11/25 M	12.6.1	The Law of Large Numbers	Homework 8
	27	11/27 W	12.6.2	The Central Limit Theorem (1)	
	28	11/29 F	Thanksgiving	-	
10 (Quiz 3)	29	12/02 M	12.6.2	The Central Limit Theorem (2)	Homework 9
	30	12/04 W	12.7.1	Describing Univariate Data	
	31	12/06 F	12.7.3	Linear Regression	
-	-	12/12 Th	Final	Final Exam 11:30 AM - 2:30 PM	

Math 3C- LEC 2 Homework Cover Page

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Homework #	
Last name	
First name	
Student ID	
Return in section (section time and name of TA)	

Worked with (list at most 4 full names):

1.	
2.	
3.	
4.	