

# MATH-UA.0235 Probability and Statistics – Spring 2018

**Instructor:** Antoine Cerfon, Assistant Professor, CIMS

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Office hours: Monday: 1:30PM – 2:30PM, Wednesday: 11:00AM – 12:00PM

## Expected Schedule

Week	Dates	Topics	Tests
1	1/23-25	Outcomes, events, probability, combinatorics	
2	1/30-2/1	Conditional probability and independence	
3	2/6-8	Discrete random variables	<b>Quiz 1, February 6th</b>
4	2/13-15	Continuous random variables	
5	2/20-22	Expectation and variance	<b>Quiz 2, February 20th</b>
6	2/27-3/1	Computation with random variables, simulation	<b>Midterm 1, February 27th</b>
7	3/6-8	Joint distributions and independence, covariance and correlation	
8	3/20-22	The Poisson process	<b>Quiz 3, March 20th</b>
9	3/27-29	The law of large numbers	
10	4/3-4/5	The central limit theorem	<b>Quiz 4, April 3rd</b>
11	4/10-12	Exploratory data analysis, basic statistical models, samples	
12	4/17-19	Estimation of parameters	<b>Midterm 2, April 19th</b>
13	4/24-26	Method of least squares, regression, confidence intervals	
14	5/1-3	Testing hypotheses, review	
	<b>5/10</b>	<b>Final Exam 8:00 AM - 9:50 AM</b>	

## Prerequisites

Students who wish to enroll in this course must meet the following prerequisites:

MATH-UA 122 Calculus II or MATH-UA 212 Math for Economics II (for Economics majors) with a grade of C or better and/or the equivalent.

This course is not open to students who have taken MATH-UA 233 Theory of Probability and/or MATH-UA 234 Mathematical Statistics.

## Course Textbook

The textbook for the course is *A Modern Introduction to Probability and Statistics: Understanding Why and How* (Springer Texts in Statistics) by F.M. Dekking, C. Kraaikamp, H.P. Lopuhaä, and L.E. Meester, Springer (2005). **An electronic version of the book (PDF) is freely available on NYU Bobcat.**

## NYU Classes

The chief means of communication for this course will be the course Classes site, accessed through home.nyu.edu. Students are expected to check this for assignments, lecture notes, and announcements.

## Exams – Grades

Your course score will be determined as the following weighted average:

Item	Weight
Midterm with lowest grade	15%
Midterm with highest grade	25%
Quizzes	10%
Written Homework	10%
Classwork	5%
Final	35%

## Homework assignments

- Assigned weekly, except when the week precedes a midterm exam
- Written homework assignments: due on Thursdays after class

10 % penalty if assignment is submitted late on Thursday

An assignment will not be graded if it is submitted after Thursday. An assignment that is not graded will be given a 0 score.

Your two lowest scores will be dropped in the calculation of your written homework grade.

## Grading of written homework

Each problem will usually be worth 3 points.

Graders will grade each three-point part according to the following rubric:

Points	Description of Work
3	Work is completely accurate and essentially perfect. Work is thoroughly developed, neat, and easy to read. Complete sentences are used.
2	Work is good, but incompletely developed, hard to read, unexplained, or jumbled. <i>Answers which are not explained, even if correct, will generally receive 2 points.</i> Work contains right idea but is flawed.
1	Work is sketchy. There is some correct work, but most of work is incorrect.
0	Work minimal or non-existent. Solution is completely incorrect.

## Recitations

Recitations will take place every Friday from 2:00PM until 3:15PM in CIWW 202. A teaching assistant will lead class discussions on the course material and homework problems, and be there to answer your questions.

## Policy on out-of-sequence exams

We are only able to accommodate a limited number of out-of-sequence exams due to limited availability of rooms and proctors. For this reason, we may approve out-of-sequence exams in the following cases:

- A documented medical excuse.
- A University sponsored event such as an athletic tournament, a play, or a musical performance.  
Athletic practices and rehearsals do not fall into this category. Please have your coach, conductor, or other faculty advisor contact your instructor.
- A religious holiday.
- Extreme hardship such as a family emergency.

We will not be able to accommodate out-of-sequence exams and finals for purposes of more convenient travel, including already purchased tickets. Please note again the date of the final and plan your summer travel accordingly.

Scheduled out-of-sequence exams (those not arising from emergencies) must be taken before the actual exam. Makeups must occur within one week of the regularly scheduled exam otherwise a zero score will be given.

If you require additional accommodations as determined by the Center for Student Disabilities, please let your instructor know as soon as possible.

## Academic Honesty

Guidelines regarding cheating and plagiarism are laid out in the College of Arts and Sciences guidelines and will be adhered to strictly. Collaboration is permitted, in fact encouraged, for home and class assignments; however, all submitted assignments must be written up independently and represent the student's own work and understanding. Furthermore, collaborations must be acknowledged at the top of the assignment, by naming the participants in it.