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NYU PARIS

Probability & Statistics

MATH-UA 9235

In-Person / Remote Synchronous / Hybrid

Time zone+Daylight Savings

Fall 2020



We know that you may be taking courses at multiple locations this semester. If you are enrolled in this course 100% remotely and are not a Go Local/Study Away student for this course site, please make sure that you've completed the online academic orientation via NYU Classes so you are aware of site specific support structure, policies and procedures. **Please contact the site academic staff (include the email address/es)** if you have trouble accessing the NYU Classes site.

If you are attending in person, you will be assigned a seat on the first day and are expected to use that seat for the entire semester due to NYU COVID-19 safety protocol.

Instructor Information

-  Joachim Lebovits
-  Instructor office hours: Monday 3:45 pm to 4:45 pm

Course Information

-  MATH-UA 9235
-  Probability & Statistics
- Pre-Requisites:

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.

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



Class meeting

Lectures: Monday & Wednesday: 8:45 am-10:00 am.

Recitation: Monday: 14:15 pm-15:45 pm.

Course Overview and Goals

Upon Completion of this Course, students will be able to:

-  Get the fundamental mathematical tools to analyze random phenomena. Apply these tools to day to day situations as well as to every single branches of Mathematics.
-  Use math to solve problems coming from physics.

Course Requirements

Class Participation

You are expected to attend class in person or remote synchronously. Your active participation in class and attendance will be reflected in this part of the course requirements.

Grading of Assignments: The grade for this course will be determined according to the following formula:

Assignments/Activities	% of Final Grade
Homework	25%
Class Participation	10%
Midterm	25%
Final	40%

Required Textbooks & Materials





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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. Lopuhaa, and L.E. Meester, Springer (2005).

An electronic version of the book (PDF) is freely available on NYU Bobcat.

Resources

-  **Access your course materials:** [NYU Classes](https://nyu.edu/its/classes) (nyu.edu/its/classes)
-  **Databases, journal articles, and more:** [Bobst Library](https://library.nyu.edu) (library.nyu.edu)
-  **Assistance with strengthening your writing:** [NYU Writing Center](https://nyu.mywconline.com) (nyu.mywconline.com)
-  **Obtain 24/7 technology assistance:** [IT Help Desk](https://nyu.edu/it/servicedesk) (nyu.edu/it/servicedesk)

Course Policies

Attendance and Tardiness

%1 Study abroad at Global Academic Centers is an academically intensive and immersive experience in which students from a wide range of backgrounds exchange ideas in discussion-based seminars. Learning in such an environment depends on the active participation of all students. And since classes typically meet once or twice a week, even a single absence can cause a student to miss a significant portion of a course. To ensure the integrity of this academic experience, class attendance at the centers is mandatory, and unexcused absences will be penalized with a two percent deduction from the student's final course grade for every week's worth of classes missed. Students are responsible for making up any work missed due to absence. Repeated absences in a course may result in harsher penalties including failure.

%1 Unexcused absences affect students' grades: unexcused absences will be penalized with a 2% deduction from the students' final course grade.

%1 Absences are excused only for illness, religious observance, and emergencies.

Illness: For a single absence, students may be required to provide a doctor's note, at the discretion of the Associate Director of Academics. In the case of two consecutive absences, students must provide a doctor's note. Exams, quizzes, and presentations will not be made up without a doctor's note.

Religious Observance: Students observing a religious holiday during regularly scheduled class time are entitled to miss class without any penalty to their grade. This is for the holiday only and does not include the days of travel that may come before and/or after the holiday. Students must notify their instructor and the Academic Office in writing via email one week in advance before being absent for this purpose. If exams, quizzes, and presentations are scheduled on a holiday a student will observe, the Associate Director, in coordination with the instructor, will reschedule them.

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Please note: if you are unable to attend class, you are required to email your professors directly to notify them.

Late Assignment

Late submission or work will be accepted only with justifiable reasons of health or family emergency.

Grading of Assignments

The grade for this course will be determined according to the following formula:

Assignments/Activities	% of Final Grade
Homework	25%
Class Participation	10%
Midterm	25%
Final	40%

Letter Grades

Letter grades for the entire course will be assigned as follows:

Letter Grade	Points	Description
A	16-20	Outstanding
A-	15	Excellent
B+	14	Very Good
B	13	Good
B-	12	Satisfactory
C+	11	Above Average
C	10	Average

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C-	9	Below Average
D+	8	Unsatisfactory
D	7	Low Pass
D-	6	Low Pass
F	5	Fail

View Grades

Grades will be available on the NYU Classes site.

Course Schedule

Zoom links will be sent to students 5 minutes before the beginning of each classes.

Topics and Assignments

Course Schedule

Topics and Assignments

Week/Date	Topics	Reading	Assignment
Week 1	Outcomes, events, probability, combinatorics	Textbook	Will be given
Week 2	Conditional Probability and Independence	Textbook	Will be given
Week 3	Discrete Random variables	Textbook	Will be given
Week 4	Continuous Random variables	Textbook	Will be given
Week 5	Expectation and variance	Textbook	Will be given

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Week 6	Computation with random variables, simulation	Textbook	Will be given
Week 7	MIDTERM Exam	Textbook	Will be given
Week 8	Joint distributions and independence, covariance and correlation	Textbook	Will be given
Week 9	The Poisson process	Textbook	Will be given
Week 10	The law of large numbers	Textbook	Will be given
Week 11	The central limit theorem	Textbook	Will be given
Week 12	Exploratory data analysis, basic statistical models, samples	Textbook	Will be given
Week 13	Estimation of parameters & Method of least squares, regression, confidence intervals	Textbook	Will be given
Week 14	Testing hypotheses, review & Final Exam		Will be given

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-  **Assistance with strengthening your writing:** [NYU Writing Center](https://nyu.mywconline.com) (nyu.mywconline.com)
-  **Obtain 24/7 technology assistance:** [IT Help Desk](https://nyu.edu/it/servicedesk) (nyu.edu/it/servicedesk)
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Course Policies

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Hygiene/Physical Distancing policies

- Students will be assigned/choose a seat on the first day of class. For NYU COVID-19 Safety protocols, please use the same seat for the duration of the semester.

Attendance and Tardiness

Studying at Global Academic Centers is an academically intensive and immersive experience, in which students from a wide range of backgrounds exchange ideas in discussion-based seminars. Learning in such an environment depends on the active participation of all students. And since classes typically meet once or twice a week, even a single absence can cause a student to miss a significant portion of a course. **To ensure the integrity of this academic experience, class attendance at the centers or online through NYU Classes if the course is remote synchronous/blended, is expected promptly when class begins. Unexcused absences will affect students' semester participation grade. If you have scheduled a remote course immediately preceding/following an in-person class, you may want to discuss where at the Academic Center the remote course can be taken** Students are responsible for making up any work missed due to absence. Repeated absences in a course may result in failure.

Students are responsible for making up any work missed due to absence. This means they should initiate email and/or office hour discussions to address any missed lectures and assignments and arrange a timeline for submitting missed work.

Classroom Etiquette/Expectations

Things to consider:

- Please be mindful of your microphone and video display during synchronous class meetings. Ambient noise and some visual images may disrupt class time for you and your peers.
- If you are not using your cell phone to follow the lesson, cell phones should be turned off or in silent mode during class time.
- Make sure to let your classmates finish speaking before you do.
- Please do not eat during class and minimize any other distracting noises (e.g. rustling of papers and leaving the classroom before the break, unless absolutely necessary)
- If deemed necessary by the study away site (ie COVID related need), synchronous class sessions may be recorded and archived for other students to view. This will be announced at the beginning of class time.
- Students should be respectful and courteous at all times to all participants in class. Consider using the chat function or “raise hand” function in order to add your voice to class discussions especially if leaving the video on presents challenges.
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Final Exams

Final exams must be taken at their designated times. Should there be a conflict between final exams, please bring it to the attention of the site Academic representative as soon as this is known to facilitate alternate arrangements. Final exams may not be taken early, and students

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should not plan to leave the site before the end of the finals period.

Late Assignment

Late submission or work will be accepted only with justifiable reasons of health or family emergency.

Clean work

Failure to present a clean examination or homework paper will result in lower grades

Incomplete Grade Policy

An “incomplete” is a temporary grade that indicates that the student has, for good reason, not completed all of the course work. This grade is not awarded automatically nor is it guaranteed; rather, the student must ask the instructor for a grade of “incomplete,” present documented evidence of illness, an emergency, or other compelling circumstances, and clarify the remaining course requirements with the instructor.

In order for a grade of “incomplete” to be registered on the transcript, the student must fill out a form, in collaboration with the course instructor and the academic administration at the site; it should then be submitted to the site’s academic office. The submitted form must include a deadline by which the missing work will be completed. This deadline may not be later than the end of the following semester.

Academic Honesty/Plagiarism

At NYU, a commitment to excellence, fairness, honesty, and respect within and outside the classroom is essential to maintaining the integrity of our community.

Plagiarism: *presenting others' work without adequate acknowledgement of its source, as though it were one's own. Plagiarism is a form of fraud. We all stand on the shoulders of others, and we must give credit to the creators of the works that we incorporate into products that we call our own. Some examples of plagiarism:*

%1 a sequence of words incorporated without quotation marks

%1 an unacknowledged passage paraphrased from another's work

%1 the use of ideas, sound recordings, computer data or images created by others as though it were one's own

%1 submitting evaluations of group members' work for an assigned group project which misrepresent the work that was performed by another group member

%1 altering or forging academic documents, including but not limited to admissions materials, academic records, grade reports, add/drop forms, course registration forms, etc.

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For further information, students are encouraged to check www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/academic-integrity-for-students-at-nyu.html

For guidelines on academic honesty, clarification of the definition of plagiarism, examples of procedures and sanctions, and resources to support proper citation, please see:

[NYU Academic Integrity Policies and Guidelines](#)

[NYU Library Guides](#)

Religious Observances

Students observing a religious holiday during regularly scheduled class time are entitled to miss class without any penalty to their grade. This is for the holiday only and does not include the days of travel that may come before and/or after the holiday.

Students must notify their professor and the local Academics team in writing via email at least 7 days before being absent for this purpose.

Disability Disclosure Statement

Academic accommodations are available for students with disabilities. Please contact the Moses Center for Students with Disabilities (212-998-4980 or mosescsd@nyu.edu) for further information. Students who are requesting academic accommodations are advised to reach out to the Moses Center as early as possible in the semester for assistance.

Inclusion, Diversity, Belonging and Equity

NYU is committed to building a culture that respects and embraces diversity, inclusion, and equity, believing that these values – in all their facets – are, as President Andrew Hamilton has said, “...not only important to cherish for their own sake, but because they are also vital for advancing knowledge, sparking innovation, and creating sustainable communities.” At NYU PARIS, we are committed to creating a learning environment that:

- fosters intellectual inquiry, research, and artistic practices that respectfully and rigorously take account of a wide range of opinions, perspectives, and experiences; and
- promotes an inclusive community in which diversity is valued and every member feels they have a rightful place, is welcome and respected, and is supported in their endeavours.

Moses Accommodations Statement

Academic accommodations are available for students with documented and registered disabilities. Please contact the Moses Center for Student Accessibility (+1 212-998-4980 or mosescsd@nyu.edu) for further information. Students who are requesting academic

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accommodations are advised to reach out to the Moses Center **as early as possible in the semester for assistance**. Accommodations for this course are managed through the site sponsoring the class once you request it.