

NYU Paris

MATH-UA 9140

Linear Algebra

Instructor Information

- Joachim Lebovits
- Office Hours: to be precised
- joachim.lebovits@nyu.edu

Course Informations

MATH-UA 9140
Linear Algebra

- Class meeting
Lecture: To be precised
Recitation: To be precised

Required Textbook & Materials

- *Applied linear Algebra, Springer (Undergraduate texts in mathematics) Olver Peter J. & Shakiban Chehrzad, 2nd edition 2018.*

Chapters concerned in this reference are 1, 2, 3, 4, 5, 7 and 8.

Optional Textbook

- *Introduction to Linear Algebra, Gilbert Strang, Fifth Edition 2016*

There is no pre requisite for this course. However please have a look to the link below to see what skills are important to attend successfully to this course.

<https://math.nyu.edu/dynamic/courses/undergrad/math-ua-140/>

Course Overview and Goals

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

- Get the fundamental mathematical tools of Linear Algebra in order to apply it to every

single branche of Mathematics.

- Get a conceptual understanding and of solving linear equations, vector spaces and subspaces, orthogonality, determinants, eigenvalues and eigenvectors, linear transformations and selected applications

Course Requirements

Class Participation

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	5%
Project	15%
Midterm	25%
Final	30%

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

C-	9	Below Average
D+	8	Unsatisfactory/Low Pass
D	7	Fail

Course Schedule

Topics and Assignments

Week/Date	Topics	Reading	Assignment Due
Week 1	<p>First part: Vectors, dot and Matrices</p> <p>Second part: Linear systems/elimination Matrix operations</p>	Texbook	Will be given in class
Week 2	<p>First part: Inverses and PA = LU factorization</p> <p>Second part: Vector spaces Nullspace</p>	Texbook	Will be given in class
Week 3	<p>First part: Complete solutions and Independence/dimension</p> <p>Second part: Four subspaces and orthogonality</p>	Texbook	Will be given in class
Week 4	<p>First part: MIDTERM</p> <p>Second part:</p> <ol style="list-style-type: none"> Projections & Least squares Eigenvalues & Diagonalization 	Texbook	Will be given in class
Week 5	<p>First part: Projections & Least squares</p> <p>Second part: Symmetric Matrices</p>	Texbook	Will be given in class
Week 6	<p>First part: Singular value, Linear transformations & Change of basis.</p> <p>Second part: Final Exam</p>	Texbook	Will be given in class

Resources

- **Access your course materials:** [NYU Classes](http://nyu.edu/its/classes) (nyu.edu/its/classes)
- **Databases, journal articles, and more:** [Bobst Library](http://library.nyu.edu) (library.nyu.edu)
- **Assistance with strengthening your writing:** [NYU Writing Center](http://nyu.mywconline.com) (nyu.mywconline.com)

- Obtain 24/7 technology assistance: [IT Help Desk](https://nyu.edu/it/service/it-helpdesk) (nyu.edu/it/service/it-helpdesk)

Course Policies

Attendance and Tardiness

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

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.

Clean work

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

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:*

- a sequence of words incorporated without quotation marks*
- an unacknowledged passage paraphrased from another's work*
- the use of ideas, sound recordings, computer data or images created by others as though it were one's own*
- submitting evaluations of group members' work for an assigned group project which misrepresent the work that was performed by another group member*
- altering or forging academic documents, including but not limited to admissions materials, academic records, grade reports, add/drop forms, course registration forms, etc.*

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

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.