

Math 387
Office Hours: Tues & Thu: 10-11:15pm

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Linear Algebra II

Textbook: “Advanced Linear Algebra” by Hugo J. Woerdeman, CRC Press, ISBN 9781-4987-5403-3

Material to be covered: While a first Linear Algebra course tends to focus on matrix operations, computational algorithms for solving systems of equations, solving for eigenvectors, etc., we will focus in this course more on the algebraic structures and apply the general linear algebra techniques well beyond the case of vectors with real entries. Among other things, we will cover vector spaces, linear transformations, canonical forms, special matrices, inner product spaces, and applications of the material. The course is more proof oriented compared to a first Linear Algebra course.

Things to know: The course assumes a working knowledge of a first course in linear algebra (Solving systems of linear equations (row reduced echelon form, pivots), matrix algebra, rank, determinants, vector spaces, linear independence, span, eigenvalues and eigenvectors, orthogonality, diagonalization). In addition, it is helpful if you are able to work with complex numbers (algebraic operations, solving for complex roots, complex conjugate, absolute value, argument).

Homework/Quizzes: Due on Thursdays.

Midterm: Will be given in week 5.

Video on an application: Due in week 8.

Final Exam: Will be given during the assigned time during final exam period.

Assessment: Homework/Quizzes: 30%
Midterm: 25%
Video: 15%
Final: 30%

Changes to syllabus: Any changes to the syllabus will be communicated in class and via email.

Useful resources:

The Theory of Matrices - by Peter Lancaster, Miron Tismenetsky

Linear Algebra and its Applications - by Peter D. Lax

Applied Linear Algebra - by B. Noble, J. Daniel

Linear Algebra - by Kenneth Hoffman, Raymond Kunze

Linear Algebra Done Right - by Sheldon Axler

Linear Algebra - by Stephen Friedberg

Learning objectives:

- Being able to comprehend the main Linear Algebra concepts.
- Being able to state and fully comprehend the statements of the main results.
- Being able to fully understand the proofs of the main results.
- Being able to write complete proofs of related statements.
- Being able to apply the results in solving problems.
- Becoming aware of some of the applications of the main results.

Important University policies:

- http://www.drexel.edu/provost/policies/academic_dishonesty.asp
- http://drexel.edu/studentlife/community_standards/studentHandbook/
- <http://www.drexel.edu/oed/disabilityResources/students/>
- http://www.drexel.edu/provost/policies/course_drop.asp

Here are links to the key Drexel academic policies that apply to this course, including information on dates, deadlines and processes:

ACADEMIC HONESTY:

http://www.drexel.edu/provost/policies/academic_dishonesty.asp

Resources for Students with Disability

<http://drexel.edu/oed/disabilityResources/students/>

Course Add/Drop Policy

<http://www.drexel.edu/provost/policies/course-add-drop>

STATEMENT OF POLICY The course registration adjustment period for adding or dropping courses begins with the opening of a student's time ticket assignment for course registration through Sunday at midnight of week 1.

Course Withdrawal Policy

<http://drexel.edu/provost/policies/course-withdrawal>

STATEMENT OF POLICY Students may withdraw from a course during the withdrawal period beginning at the end of the course Add/Drop Period through Friday of Week 7. A withdrawal from a course will result in a grade of “W” being reflected on a student’s transcript with no impact to the student’s term and cumulative grade point average (GPA). A course withdrawal is not permitted in situations involving academic dishonesty. A course withdrawal that was processed before a final sanction of academic dishonesty is applied will revert to the grade assigned by the instructor in accordance with the Academic Integrity Policy.

Incomplete (INC) grade policy:

https://drexel.edu/provost/policies/incomplete_grades/

Policy Statement

At the discretion of an instructor, the grade of "INC" (Incomplete) may be reported in place of a letter grade for any course in which the instructor deems that the work has not been completed and that the student can complete the work within an agreed upon time, which must be in accordance with University policy and the statute of limitations governing grade changes.

The conditions and terms for the completion of the course are at the discretion of the instructor and are to be mutually agreed up on by the instructor of the course and the student.

If a final grade is not submitted within one year, the "INC" will turn into an "F" on the student's record and will be reflected in the student's GPA. The grade of "F" will be considered a permanent grade unless there are extenuating circumstances.

Grade appeals:

<https://drexel.edu/provost/policies/grade-appeals/>

STATEMENT OF POLICY

Students wishing to appeal a final grade must follow the grade appeal process. In addition, the appeal must be completed by the end of the subsequent term in which the original grade was received.

Grades may be appealed by contacting the instructor of the course. If the student is not satisfied with the outcome, the grade can be appealed in writing to the Department Head or Program Director in which the course is located. If the appeal is not resolved, the student may appeal in writing to the Dean of the College in which the course was taken.

The Dean may consult with:

The Vice Provost for Undergraduate Education for undergraduate courses and students

The Vice Provost for Graduate Education for graduate courses and students

If a conflict of interest exists for the Dean for a specific case, the respective Vice Provost will make the final decision

You might find the following Drexel online resources helpful:

Student Resources and Academic Support including the Drexel Writing Center, CLASS, Math Resource Center, and others: <https://drexel.edu/coas/academics/student-resources-support/>

To get **help with technology/online teaching tools**, contact the IT Help Desk at 215.895.2020 or email helpdesk@drexel.edu, or you can visit the IT site: <https://drexel.edu/it/>

Student Code of Conduct

https://drexel.edu/studentlife/community_standards/code-of-conduct/