OAKLAND UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF MATHEMATICS AND STATISTICS
STUDENT INFORMATION SHEET AND SYLLABUS

COURSE: MTH 2775, Linear Algebra, 4 Credits

TERM: Winter 2025

Instructor	Email	Section	Time	Room
Nghia Tran	nttran@oakland.edu	005	5:30 – 7:17 TR	168 MSC

OFFICE: MSC 444

OFFICE HOURS: 4:25-5:25 Tuesdays & Thursdays.

TEXT: *Linear Algebra and Applications* by Steven J. Leon, **9th edition.** We will cover Chapters 1-6.

PREREQUISITES: The prerequisite for this course is MTH 1555, Calculus II, with a 2.0 (or C) grade or higher.

CATALOG DESCRIPTION: Study of general vector spaces, linear systems of equations, linear transformations and compositions. Eigenvalues, eigenvectors, diagonalization, modeling and or-thogonality. Provides a transition to formal mathematics.

CALCULATOR POLICY: You may use a calculator (**without matrix operations**) on all tests and the final exam. To receive full credit on exams, you are required to show all of the mathematical work necessary for setting up a calculation before using the calculator. No calculator or other device with external communications capabilities is permitted on any test or final exam.

HOMEWORK: Homework will be assigned after each class, but **will be not collected for grading**. However, it is imperative to do the homework in order to do well on exams.

QUIZZES: There will be five closed-book quizzes scheduled on **Thursdays: Jan 16, Jan 30, Mar 06, March 20, and April 10**. Each quiz is worth 20 points.

TESTS: There will be two in-class closed-book tests scheduled on **Thursday: Feb 13** and **March 27**. Each test is worth 100 points.

FINAL EXAM: The final examination is comprehensive and closed-book. It will be given on **Tuesday, April 22 at 7:00-10:00 p.m**. in the regular classroom. It is worth 200 points.

ATTENDANCE: Attendance at every class is highly expected. I am checking attendance everyday. If you do not miss any lecture, you will get a bonus 4% (20 points). If you miss one class (two classes), a bonus 3% (2%, respectively) will be added to your grade. If you miss more than two days, there will be no bonus. An attendance is checked when a student is **present at least 2/3 the whole lecture**.

GRADING POLICY: Your course grade will be based on the percentage of total points you have earned out of the 500 points available. There is no fixed grading scale for this course; a conversion method will be determined at the end of the

course. However, the following list the suggested grade that a given percentage will earn: **95% → A, 90% → A-, 85% → B+, 80% → B, 75% → B-,70 → C+, 65% → C, 60% → C-, 55% → D+, 50% → D.**

MAKE-UP POLICY: **No make-up exams will be given.** If you miss an exam with **a valid excuse**; your missing one will be replaced by the final exam after rescaling. This policy is only feasible for at most one missed quiz and one missed midterm. Travel and vacation plans do not constitute a valid excuse in this context.

CONDUCT: Attendance at every class is expected. Success in this course requires an atmosphere conducive to learning. As a courtesy to your fellow students and instructor, please come to class on time and refrain from extraneous conversation during class.

ACADEMIC HONESTY: Cheating is a serious academic crime. Oakland University policy requires that all suspected instances of cheating be reported to the Dean of Students Office for possible adjudication by the Academic Conduct Committee. Anyone found guilty of cheating in this course by the Academic Conduct Committee will receive a grade of 0.0, in addition to any penalty assigned by the Academic Conduct Committee. Receiving help from someone else or from unauthorized written material during an exam is cheating as is using a physical or electronic "crib sheet."

STUDY HABITS: Cultivating good work and study habits is necessary for doing well in mathematic courses. You should keep on top of the subject by doing large amounts of homework, regularly reviewing earlier, asking questions in class, and making good use of your instructor's office hours and the Tutoring Center. If you are having difficulty with some concept or mathematical procedure, you should get it clarified as soon as possible. If you make mistakes on exams, rework these problems with the idea that you will not make similar mistakes later. Regular reviewing of older material in the course will put you in good stead when the final exam comes around. This will help you to avoid the usual non-retention problems that students encounter at the end of the course. You should expect that doing all of these things will take more than two hours of work out of class for each hour in class. Many students find it helpful to spend some of this time working with others in study groups. Some of my former students who were very successful in APM 2555, MTH 2554, and **MTH 2775** generously shared their advice for prospective students at https://sites.google.com/site/ttanghia/teaching.

SPECIAL CONSIDERATIONS: Students with disabilities who may require special considerations should contact the Office of Disability Support Services. Such students should also notify their instructor as soon as possible.

VETERAN SUPPORT SERVICES: The Office of Veteran Support Services (VSS) is the campus office responsible for supporting student veterans and military families. Through VSS, veterans and their dependents can be connected to campus and community resources to help ensure they are receiving the benefits they have earned. Student veterans and military dependents who wish to learn more about the services should contact VSS, by visiting 116 North Foundation Hall, emailing VSS@oakland.edu, by phone at 248-370-2010 or visiting https://wwwp.okland.edu/veterans/.

IMPORTANT DATES: Please visit https://oakland.edu/registrar/important-dates/ for further details.

TENTATIVE SYLLABUS

	Tuesday	**Thursday**
01/07	Syllabus, 1.1 System of linear equations	1.2 Row echelon form
01/14	1.3, 1.4 Matrix arithmetic, Matrix Algebra	2.1 Determinant of a matrix **Quiz I**
01/21	2.2 Properties of determinants	3.1, 3.2 Definitions and examples, Subspaces
01/28	3.3 Linear independence	3.4 Basis and dimension **Quiz II**
02/04	3.5 Change of basis	3.6 Row space and column space
02/11	**REVIEW**	**EXAM I**
02/18	4.1 Definition and examples	4.2 Matrix representations of linear transformations
02/25	**WINTER RECESS**	**WINTER RECESS**
03/04	4.3 Similarity	5.1 The scalar product **Quiz III**
03/11	5.2 Orthogonal subspaces	5.4 Inner produce spaces
03/18	5.5 Orthonormal sets	5.5 (cont) Orthonormal sets **Quiz IV**
03/25	**REVIEW**	**EXAM II**
04/01	5.6 Gram-Schmidt orthogonalization process	6.1 Eigenvalues and eigenvectors
04/08	6.1 (cont) Eigenvalues and eigenvectors	6.2 Diagonalization **Quiz V**
04/15.	6.5 The Single-Value Decomposition	**REVIEW**
04/22 **FINAL EXAM 7:00-10:00 pm**		