

Textbook.

Differential Equations and Linear Algebra—A Custom Edition for Northeastern University by C. H. Edwards and D. E. Penney (with a bundled lab packet).

Class information.

Class times: MTuWTh, 1:30-3:10 PM, 260 West Village Building F.

Instructor: V. Toledano Laredo.

Office: 528 Nightingale Hall (NI).

Office Hours: TuW 5:15–6:45.

Phone: (617) 373 55 26.

Email: V.ToledanoLaredo@neu.edu

Webpage: <http://www.math.neu.edu/toledano/>

Supplementary instruction.

Free tutoring is available at the Math/Writing Center, 540B Nightingale, phone: 617-373-2438, at the following times: Mon–Wed 12-8PM and Thurs 12-3PM.

Homework.

Exercises will be assigned at the end of every class and **will be collected weekly**. I will go over the solution of some, **but not all** of these at the beginning of the next class. If you have a lot of questions on the homework, it is therefore essential that you go to tutoring or come to my office hours.

Exercises assigned on Monday and Tuesday of any given week, and Wednesday and Thursday of the previous week, will be collected on Thursday of the given week. **Late homework will not be accepted**. I will grade 3 exercises and give each a grade from 0 to 2.5. 2.5 extra points will be given for completeness.

Students may work jointly on the homework but the write-ups of these **must be done separately**.

Computer labs.

There will be four required computer labs. These are an essential component of the course: some important concepts will be introduced and explored, both visually and numerically. **Late labs will not be accepted**. The packet of labs is bundled with your textbook, and is also available on the Web. It is expected that students will work on the labs together; however, the write-ups of the labs **be done separately**. The Mathematics Dept. Computer Lab is in 553 Lake Hall; the DIFFS package for MATLAB is on the computers there.

Grading.

There will be **no curving of grades**.

HOMEWORK. The homework make up 30% of the course grade. The lowest homework score will be dropped. This policy applies even if a student has a perfectly justifiable excuse not to hand in a homework. Should that be the case, that homework will be one to be dropped.

COMPUTER LABS. The computer labs make up 10 % of the course grade.

1 HOUR EXAMS. There will be two one-hour exams on Thursday, May 22 and Thursday, June 12. Each will count as 15 % of the course grade.

FINAL EXAM. The two hour, common final exam will take place on Monday, June 23. This exam will count as 30% of the course grade. Please refer to www.registrar.neu.edu/finexsched.html for the room and building in which the exam will be held. All students without legitimate conflicts (approved by the instructor) must take the exam at the scheduled time. Do not make travel plans that conflict with it.

MATERIAL ALLOWED DURING EXAMS. No course material, notes or summary cards will be allowed during the hour long and final exams. The use of a calculator will not be allowed during the hour-long and final exam.

Course grades.

The course letter grades will be obtained from the numerical grades as follows:

	B₊ =87-89	C₊ =77-79	D₊ =67-69	
A =93 and over	B =83-86	C =73-76	D =63-66	F =below 60
A₋ =90-92	B₋ =80-82	C₋ =70-72	D₋ =60-62	

0.5 and more will be rounded up to 1, 0 to 0.49 to 0.

Concerns and Conflicts.

In case of concerns about the course, or the instructor that cannot be resolved by speaking with the instructor, contact the Undergraduate Director:

Professor A. Martsinkovsky
471 Lake Hall (LA)
phone: (617) 373 55 10
email: alexmart@neu.edu

It is the University policy that no grade, including an incomplete, can be changed after one year. Exceptions may be authorised by the Academic Standing Committee.

Course schedule

Week	Dates	Topic	Section	Assignment
1. May 5–11	May 6	Begin computer lab 2 (Euler’s Numerical Method)		1,2,3,4
		Separable equations and applications Linear First–Order Equations	1.4 1.5	3-6,8-11,19-22,40-42 3,5,13,20,37
2. May 12–18	May 13	Computer lab 2 due		1,2,3,4
		Substitution Methods and Exact Equations	1.6	3,7,21,22
		Population models	2.1	10,11,13,24
		Equilibrium Solutions and Stability	2.2	1,4,7,9 (no explicit soln.)
		Acceleration-Velocity Models	2.3	1-5
	Second-Order Linear Equations	5.1	1,9,11	
	General solutions of Linear Equation	5.2	discussion only	
	May 14	Begin computer lab 3 (The Runge–Kutta Method)		1,2,3,4
	<i>May 16: last day to drop a Summer 1 class without a W grade</i>			
3. May 19–25	<i>May 20: last day to file a Final Exam Conflict Form</i>			
	May 21	Computer lab 3 due		1,2,3,4
		Homogeneous Equations with Constant Coefficients	5.3	1,3,5,7,19,21,23,25,27
		Mechanical Vibrations	5.4	1,3,15,17,20
		Nonhomogeneous Equations and Undetermined Coefficients	5.5	1,2,3,9,12,13,31,32
	Forced oscillations and resonance	5.6	2,8,23	
	May 22: 1 hour exam			
	May 22	Begin computer lab 5 (MATLAB for Differential Equations)		1,2,3,4
4. May 26–Jun. 1	MAY 26: MEMORIAL DAY, NO CLASSES			
		Laplace Transform	10.1	1,3,5,7,9,13,15,16
		Transformation of Initial Value Problems	10.2	1,3,5,7,9,10
		Translation and Partial Fractions	10.3	11,13,15,17,29
		Derivatives, Integrals and Products of Transforms	10.4	1,2,7,8,15,16,29
	May 28	Computer lab 5 due		1,2,3,4
	May 29	Begin computer lab 4 (MATLAB for Linear Algebraic Systems)		1,2,3
5. Jun. 2–8		Periodic Input Functions	10.5	1,3,11,12,13,33
		Impulses and Delta Functions	10.6	1,2,4,5
		Matrices and Gaussian Elimination	3.2	1,11,15,20
		Reduced Row-Echelon Matrices	3.3	5-8
		Matrix Operations	3.4	1,9,10,19
	<i>June 6: last day to drop a Summer 1 class with a W grade</i>			
6. Jun. 9–15	Jun. 9	Computer lab 4 due		1,2,3
		Inverses of Matrices	3.5	1,7,9,19,23
		Determinants	3.6	1,3,5,33
		The Vector Space \mathbb{R}^3	4.1	1,5,11,17
		The Vector Space \mathbb{R}^n and Subspaces	4.2	1,4,5,7,12
		Linear Combinations and Independence	4.3	11,13,15
		Bases and Dimension for Vector Spaces	4.4	1,4,7,15,19
	Jun. 12: 1 hour exam			
7. Jun. 16–22		Eigenvalues and Eigenvectors	6.1	1,3,9,13,17
		First-Order Systems	7.1	1,3
		Matrices and Linear Systems	7.2	3-5
		Eigenvalue Method for Linear Systems	7.3	1,5,11,17
SUMMER I CLASSES END				
8. Jun. 23–29	Monday, Jun. 23, 1–3 PM: Final exam			

This syllabus.

The instructor reserves the right to alter this syllabus according to the needs which may arise during the semester. It is each student’s responsibility to be aware of any such changes which are announced in class, whether or not that student is present at the time of the announcement.