



EEL 3120

Introduction to Linear Systems in Engineering

Section: U01

In Person

Spring Term 2026

Course Meeting Information

Examples:

Classes are scheduled from 5:00 PM to 6:15 PM, Mondays, and Wednesdays In EC 1107.

o

Professor Information

Jean Andrian

Roles: Primary Instructor

Email: andrianj@fiu.edu

Phone: 305 348 2115 or 786 523 8976

Office Hours: 2:00 PM to 3:00 PM Mondays and Wednesdays

Office Location: EC 3915

Department or Academic Unit: Eleectrical and Computer Engineering

Course Prerequisites

Course prerequisites, if any, are listed below.

Prerequisites: MAC2312 or MAC2282, PHY2049

Course Description

Applied Linear algebra.
(3 credits)

Textbook and Course Materials

'No Textbook Required for purchase'

Subtitle: N/A

Required/Recommended: N/A

Authors: N/A

Publisher: N/A

Publication Date: N/A

Copyright Date: N/A

ISBN 10: N/A

ISBN 13: N/A

Chapters/Pages: none

Panther Book Pack

Get all required course materials for \$20.50 per undergrad credit hour through Panther Book Pack. You'll be charged automatically unless you opt out within 3 days after the add/drop deadline.

For more details, to compare costs, and to learn how to access your course materials, visit the [Panther Book Pack information page on FIU OneStop](#).

Student Learning Outcomes/Objectives

- To give students the necessary mathematical tools for upper-level courses in communication systems, control systems, and digital signal processing

Expectations of the Course

Academic Misconduct: For work submitted, it is expected that each student will submit their own original work. Any evidence of duplication, cheating or plagiarism will result at least in at least a failing grade for the course.

Deadlines: Assignments are due at the beginning of the class period on the specified date. Assignments submitted late (within one week) will receive half credit.

Help: to get assistance, try to see me by appointment.

Students are encouraged to ask questions and to discuss course topics with the instructor and with each other.

Cell phones are not allowed to be used in class.

Instructor reserves the right to change course materials or dates as necessary

Assignments & Assessments

Assignment

Grading

--

Grading Scheme:

Homework	10%
Midterm	30%
Final Exam	30%
Project	30%
Total	100

Grading Scale:

Letter	Range (%)	Letter	Range (%)	Letter	Range (%)	Letter	Range (%)	Letter	Range (%)	Letter	Range (%)	Letter	Range (%)
A	95-100	A-	90-94	B+	86-89	B	83-85	B-	80-82	C+	76-79	C	
C-	70-72	D	60-69	F	0-59								

Canvas Schedule

Due Date	Assignment Name	Assignment Type	Points
	Midterm	Assignment	100
	Midterm Exam	Assignment	100
1/29/26	Homework 1	Assignment	100
3/2/26	Homework 3	Assignment	100
1/28/26	homework 2	Assignment	100
2/26/26	Homework 4	Assignment	100
3/19/26	Project : convolution	Assignment	100

Schedule of Topics

Week-1 : Vectors, vector addition, scalar-vector multiplication, inner products

Week-2 : Complexity of vector computation, linear functions, Taylor approximation, regression model.

Week-3 : Norm, distance, standard deviation, angle, complexity

Week-4 : Linear dependence, basis, orthogonal vectors, Gram-Schmidt algorithm.

Week-5 : Matrices, Zero and Identity matrices, transpose, addition, norm, matrix-vector multiplication.

Week-6 : Geometric transformation, convolution

Week-7 : matrix applications

Week-8 : practice and test 1

Week-9 : Linear and affine functions, linear function models, systems of linear equations.

Week-10 : Linear dynamical systems, population dynamics, epidemic dynamics, motion of a mass, supply chain dynamics.

Week-11 : Matrix-matrix multiplication, composition of linear equations, matrix power, QR factorization

Week-12 : Left and right inverses, inverse, solving linear equations, examples, pseudo-inverse.

Week-13: Least squares problem, solution, solving least square problems

Week-14 : Thanksgiving

Week-15: Practice

Week-16: Final exam and turning in the project.

This is a tentative outline of the course. It is subject to change with written notice.

Nondiscrimination Statement

The **Office of Civil Rights Compliance and Accessibility (CRCA)** is responsible for

ensuring that FIU maintains a workplace and learning environment free from discrimination, where current and prospective faculty, staff, and students are treated equitably. If any student, employee, or applicant has a sincere and reasonable belief that they have been discriminated against or harassed based on age, color, disability, marital status, ethnic or national origin, race, religion, retaliation, sex, or any other protected category, they can report their concerns to the CRCA team through report.fiu.edu.