



## IEEM 2010 Linear Algebra Syllabus, Spring 2019

### Language:

The syllabus, textbooks, lecture notes, exercises, and quiz/exam questions are **in English**.  
**The lectures will be offered in oral Chinese.**

### Textbook: Gilbert Strang [[Google Book Link](#)]

COURSE DESCRIPTIONS: A required math course for the sophomore in the IEEM department. The following contents will be covered:

Matrices

Gauss Elimination

Vector Spaces

Solving  $Ax=0$  and  $Ax=b$

Orthogonal vectors

Projections

Least squares

Basis

Gram-Schmidt Process

Eigenvalues and Eigenvectors

Minima, maxima, and saddle points

Test for PSD

SVD (singular value decomposition)

### Course Objective:

Learn linear algebra as the foundation of the later courses about operations research, data analytics, systems, and industrial engineering.

### Class meetings:

Tuesdays 10:10AM-12:00Noon,

Thursdays 11:10AM-12:00Noon

### Instructor:

Yu-Ching Lee, [ycllee@ie.nthu.edu.tw](mailto:ycllee@ie.nthu.edu.tw), 714 Engineering Building I. Office Hour: By appointment

### Teaching Assistants:

張祐禎 李喬瑋 黃文盈 翁婉容

### Course Format:

Electronic pad writing. The classroom note then will be uploaded to the website (every lecture)

### Course Website(s):

<https://sites.google.com/site/leeyuchingwebpage/courses/linear-algebra>

### Grading Weight:

Homework 10%; Group Exercises 25%; Quiz 1 10%; Quiz 2 15%; Final 40%.

### Letter Grades:

A+: 90 and above. A : 85-89 (round to the nearest integer) A- : 80-84 B+: 77-79

B : 73-76 B- : 70-72 (a pass for grad students) C+: 67-69 C : 63-66

C- : 60-62 (a pass for undergrads) D:50-59 F : 1~49 X: 0

### Homework Policies:

- Electronic submission ([Moodle](#))
- No late homework is accepted.

### Group Exercises Policies:

- Attendance required.
- Group members will work together on one assigned problem set.
- Students are encouraged to open any textbooks or reference books during the exercise. However, solution manuals are prohibited. The TA will check the reference books that will be used by the students before the exercise starts.
- A peer-assessment form should be filled after the exercise.
- The score is consisted of the total counts of correct answers, peer-assessment, and participation.

### Classroom Policies

- (Hopefully) 10 minutes break after every 50 minutes.
- Drinks are allowed during the class, but food is not.

### Exam Format:

Computational.

### Exam Policies:

- Closed book
- Engineering calculator and English dictionary is allowed.
- The use of cell phones, smart phones, laptops, and other electronic devices are prohibited during the exams.
- Discussing the answers to the questions during the exams is prohibited.

### Tentative Weekly Course Contents:

Check the course website for the course materials and calendar of last year