MAS 109: Introduction to Linear Algebra (Fall 2021)

◇ **Overview:**

Linear Algebra is one of the basic subjects that is widely used in computer science, engineering, chemistry, biology, economics, actuarial sciences and business. The fundamental question of this subject is how to solve various systems of linear equations. The primary aim of this course is to provide applications that are most likely to have practical values to the students with the modest background rather than theoretical understanding. Among other things, we will cover matrix algebra including the formula for the inverse matrix, the basics of linear transformations, diagonalization and three useful theorems on decomposition of matrices, i.e., the LU-decomposition, the QR-decomposition and the singular value decomposition.

◇ **Course Sections:**

Section	Time	Instructor
A,B	Mon./Wed. 10:30–11:45	Prof. Baek, Sanghoon (Ext7307, E6-1, 4406)
C,D	Mon./Wed. 09:00–10:15	Prof. Im, Bo-Hae (Ext2713, E6-1, 3406)
E,F	Mon./Wed. 13:00–14:15	Prof. Devyatov, Rostislav
G,H	Tues./Thurs. 14:30–15:45	Prof. Kwak, Sijong (Ext2731, E6-1, 3407)
I,J	Tues./Thurs. 13:00–14:15	Prof. Zhang, Qing (Ext2746, E6-1, 4417B)
K,L	Tues./Thurs. 09:00–10:15	Prof. Shin, Sujin

Course Coordinator: Baek, Sanghoon (sanghoonbaek@kaist.ac.kr)

Head TA: Lee, Jongwon (jwlee18math@kaist.ac.kr)

Vice-head TA: Kwak, Jinwoong (jw-kwak@kaist.ac.kr)

Matlab TA: Kim, Seongeun (mireiffe@kaist.ac.kr)

◇ **Textbook:**

Contemporary Linear Algebra by H. Anton and R.C. Busby (John Wiley & Sons, Inc.)

◇ **Class Webpage:** http://klms.kaist.ac.kr

◇ **Exams:**

There will be one midterm and one final exam. Anyone who misses one or both of these exams will fail the course (No makeup exams).

◇ **Homework Assignments:**

Selected exercises from our textbook will be posted in our course webpage together with their solutions (no submission required). You can practice with these problems to prepare for quizzes and exams.

Every week, MATLAB homework problems are assigned. You have to hand in your MATLAB homework. There will be MATLAB problems in the midterm and final exams.

◇ **Recitation and Quiz:**

There will be one-hour recitation class on each Friday. You have to register for one of the recitation classes during the first week. There will be a written quiz in each recitation class. One of the worst scored quizzes will be excluded from the total score.

◇ **Class Attendance:**

Students are expected to attend all classes. There will be an attendance check for each class from the second week (the policy may differ by instructors). The result of attendance check will add up to the total score for the final grade of the course. Any single cheating of dishonest act in attendance check or throughout the course will be punished severely.

◇ **Course Grade:**

The final grade is determined as follows:

Class attendance (10%) + Midterm exam (35%) + Final exam (40%) + Quiz (9%) + MATLAB homework (6%)

◇ **Weekly Schedule:**

Week	Section in Text (Topics)	Recitations & Quizzes
08.30 $\sim$ 09.05	2.1, 2.2, 3.1	
09.06 $\sim$ 09.12	3.2, 3.3, 3.4	Recitation 1 (Orientation)
09.13 $\sim$ 09.19	3.5, 3.6	Recitation 2, Quiz 1
09.20 $\sim$ 09.26	3.7, 4.1, 4.2	No recitation (KAIST-POSTECH)
09.27 $\sim$ 10.03	4.3, 4.4	Recitation 3, Quiz 2
10.04 $\sim$ 10.10	6.1, 6.2	Recitation 4
10.11 $\sim$ 10.17	6.3, 6.4	Recitation 5, Quiz 3
10.18 $\sim$ 10.24	Midterm Exam	
10.25 $\sim$ 10.31	7.1, 7.2, 7.3	
11.01 $\sim$ 11.07	7.4, 7.5	Recitation 6, Quiz 4
11.08 $\sim$ 11.14	7.6, 7.7, 7.8	Recitation 7
11.15 $\sim$ 11.21	7.9, 7.10, 7.11	Recitation 8, Quiz 5
11.22 $\sim$ 11.28	8.1, 8.2	Recitation 9
11.29 $\sim$ 12.05	8.3, 8.4	Recitation 10, Quiz 6
12.06 $\sim$ 12.12	8.6	No recitation (Undergraduate Admission Interviews)
12.13 $\sim$ 12.19	Final Exam	