

Engineering Mathematics

I. Fundamental Info

- **Engineering Math, ITM426, 2024 Fall**
- **Friday 10:10 am** (to avoid traffic congestion)
- **Classroom: Frontier 316**
- This course is designed as “flipped learning.”
 - **Students must watch class video posted at e-class before the class meeting.**
 - **The offline class will be devoted for questions, answers, and discussions.**
 - Homework is not mandatory and not counted toward final grade, but **I highly encourage you to submit your work for receiving feedback.**
- This class will teach you to
 - Linear Algebra
 - Prepare to take advanced major courses, including but not limited to data mining and deep learning.
 - Be able to have access to advanced math/stat texts.
 - Write more efficient computer programs.

II. Professor

- Sim, Min Kyu. 심민규. mksim@seoultech.ac.kr
- Frontier Rm. 915
- Office hour: before and after the class time and by appointment. It is my policy that I do not leave the classroom until all students' question/concern are taken care of.

III. Class Material

- Sim, M.K. (2020), “Pre-college linear algebra” – *for the first few weeks*
- David C. Lay, Steven R. Lay, and Judi J. McDonald (2015). “Linear Algebra and Its Applications (5th edition)”, Pearson. (ISBN: 978-0321982384) – *your main textbook*
- Lecture Slides – *posted on e-class*

IV. Evaluation

Composition

1. Quizzes (70%)
 - **Three times**
 - **Sep 20 (3rd week), Oct 25 (8th week), Nov 22 (12th week)**
 - Final score will be determined by the following formula $0.2Q_1 + 0.25Q_2 + 0.25Q_3$

- In case that you may miss any of the quiz for official reason¹, the following substitution rule is applied.
 - If any $Q_i, 1 \leq i \leq 3$, is missing, then Q_i is the minimum of the following.
 - Score-wise minimum of the other two quizzes.
(Ex. Q_2 is missing, and $Q_1 = 70$ and $Q_3 = 95 \rightarrow Q_2 = 70$)
 - Rank-wise the worst of the other two quizzes.
(Ex. Q_2 is missing, and $\text{rank}(Q_1) = 10.5$ and $\text{rank}(Q_3) = 15 \rightarrow Q_2$ is the number that satisfy $\text{rank}(Q_2) = 15$)
 - In case you miss any of the quiz for unofficial reason², use the score will be the half of the value that is calculated by the above formula.
2. Final exam (30%)
- **On the last week of this semester (Dec 13)**
 - **Final exam is cumulative due to the nature of course contents**
 - For missing final exam for an official reason, then substitution by other scores is not going to happen, but a makeup exam will be given.
 - I must advise you making two sets of tests in an equal difficulty is a very hard task, and most professors are prone to make error on the side of “harder makeup exam”.
3. Attendance (0%)
- If you miss offline classes more than or equal to five times through this semester, your final grade may be F.

Final Grade

- If total score $\geq 90\%$, then guaranteed to get A.
- If total score $\geq 80\%$, then guaranteed to get B.
- **If total score $\leq 50\%$, then highly likely to get F.**
- More than 25% of class will get A
- More than 60% of class will get B or better.
- Good class performance and active participation will lower the cut lines.

Previous Tests

- Previous tests and solutions are archived at the following link.
- You must prepare yourself to be able to perform your work at the level of posted solutions in test settings.
- <https://github.com/aceMKSIm/teaching/tree/master/Linear%20Algebra>

¹ Officially justifiable reasons **must accompany with official documents that the university regulation supports**. Typical examples include family funeral, hospitalization, covid segregation, and so on.

² The unofficial reasons include all other personal issues that are not supported by university regulation. Typical examples include “sleeping late” or “alarm didn’t go off”.

IV. Homework

- **(What)** In the lecture notes, several exercises problems are suggested. You may submit your work and any question. You may submit all the suggested exercises, or a subset of the suggested exercises, or exercises problems that are not even suggested.
- **(Goal)** In my opinion on math subject, I believe that homework should be intended to prepare yourself for exams. So, I want you to make yourself “capable of doing quiz/final well” instead of “merely submitting nicely written homework”. This is the primary reason why I am not limiting a few exercise problems nor mandating your submission.
- **(How)** You may bring your work to offline class time, or you may put them in my office door’s inbox. Since I’d like to give you feedback with my handwriting, please do it in an old-fashioned way. For your work after feedback is written, you may have it back at offline class or collect from the door’s outbox.



- **(Tip)** I’d like to devote my grading timespan to give you effective feedback on your work. Please leave a few messages about unclear parts or specific feedback request and I will devote my effort on giving you requested feedback

V. Others

- During the offline class, no laptop and no cell phones. For taking notes, tablet device is allowed.
- You learn the best when you teach. You are highly encouraged to work homework with other classmates.
- This is a math class, and one thing to learn along with class contents is to grow your ability to identify/perform suitable sanity-check/cross-check, often using computing machine.
- Student code of conduct strictly applies. Cheating attempts will be reported to concerned authorities including department, college, and university.
- Appealing on quiz/exam is your right, but...
 - It must be made with written argument. Do not write or modify any to original work. Use a separate paper and staple together.
 - Within (7) days from the beginning of the distribution.

Quick survey to get to know you better

1. Name / The year of entering college (학번) / E-mail address

2. Major / Why you chose this major?

3. Academic / Career interest (공부 / 진로 관련 관심사)

4. Hobby

5. Any concern about course? / Anything you want to say to professor?

6. In case you want to consult with the professor in this week, list your available time blocks.