1 Class - Introduction to Eigenvalues and Eigenvectors

1.1 Introduction of the course: Linear Algebra III, IV

- instructor: Jan Brezina (Faculty of Arts and Science)
- email: brezina@artsci.kyushu-u.ac.jp
- room: Center zone 3, No. 3601

Aim of class

- basic - terminology and computation - necessary for other subjects
- essential - understanding of concepts - explains motivation and applications
- advanced - working with abstract structures - enhances problem solving skills

Style of class

- challenge based learning (pre-class preparation, in class peer review, short lecturing time)
- class style merits
  - does not make you sleepy
  - personalized learning
  - deeper understanding through discussion
  - self-reading, self-understanding, self-learning is a whole life process

Class preparation

- students **attempt** to solve challenges at home **before** the class
- students learn all the terminology and theory necessary to solve the challenges
- students report their progress through challenge bot by **rating the difficulty** of the challenge they solved/attempted to solve
- failure to provide rating (repeatedly) will influence your final score
- if you are **not coming** to a class (for whatever reason), use the command **class xx no** to let the challenge bot know before 11:00 am of the day of that class (**xx** stands for the number of the class)
- failure to provide attendance (repeatedly) will influence your final score

Class flow

- before entering the classroom (after 11:00 am of the day of the class) use the command **class xx** to check your assigned seat and sit accordingly
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Part	Duration	Content
I	60 min	pair work on last weeks challenges
II	30 min	lecture on a new topic

- Part I
  - students discuss solutions of last week challenges in an assigned pair
  - pairs will agree on a solution for each challenge
  - **only after that**, pairs will compare their solution with a solution provided by the instructor
  - the instructor is available for consultation at all time
  - sometimes a short (5 - 10 min) test happens in the beginning of the class
- Part II
  - lecture style overview of the next topic
  - lecture provides a guideline on main points to be learned
  - we shall combine blackboard and video presentations
  - challenges on the next topic are published
- the duration times or class structure might change without prior notice depending on our needs
- links to solutions of tests will be published in C1 LAF - Course info and solutions to tests challenge after the class
- if you find any mistake in challenges, solutions, software or have any other feedback please let me know

Class materials

- structurally we will follow Linear Algebra: A Modern Introduction (4th edition) by David Poole
- any source in any language you find and like (online classes like Khan Academy for example)

Grading

- A - D is a pass, F is a fail
- depending on a person - meet the minimum requirement (D) is enough or want to learn something (A-C) - your choice

Course grading

midterm exam	30%
final exam	30%
short tests	30%
attitude	10%

- midterm exam (60 minutes) - November 28th
- final exam (90 minutes) - February 6th
- short tests

  - 6 short tests, an average of 5 best tests count towards the grade
  - in the beginning of some classes, 5 - 10 minutes (don't be late not to lose time)
  - if you can't do short tests it indicates you don't follow the class properly and you should work harder (midterm or final won't be much better!)

- **active class participation/preparation expected**
- math can't be cramped, prepare little by little for each week
- do as much work as **you** need
- reexamination is possible only under **very special** circumstances
- **timely** and **polite** communication with the instructor is a key to solving any issue

Consultation

- students are always welcome for consultations
- setup an appointment (personally, by email)
- preferably come in group
- consult with classmates

1.2 Class schedule Room: 1307

3rd October	Thursday	13:00-14:30	1st class	
10th October	Thursday	13:00-14:30	2nd class	
17th October	Thursday	13:00-14:30	3rd class	1st test
31th October	Thursday	13:00-14:30	4th class	
7th November	Thursday	13:00-14:30	5th class	2nd test
14th November	Thursday	13:00-14:30	6th class	
21th November	Thursday	13:00-14:30	7th class	3rd test
28th November	Thursday	13:00-14:30	8th class	**Midterm exam**
5th December	Thursday	13:00-14:30	9th class	
12th December	Thursday	13:00-14:30	10th class	
19th December	Thursday	13:00-14:30	11th class	4th test
9th January	Thursday	13:00-14:30	12th class	
16th January	Thursday	13:00-14:30	13th class	5th test
23th January	Thursday	13:00-14:30	14th class	
30th January	Thursday	13:00-14:30	15th class	6th test
6th February	Thursday	13:00-14:30	**Final exam**	

1.3 Class challenges

- C1 Introduction to Eigenvalues and Eigenvectors