

# 1 Lecture - Course Introduction

## 1.1 Introduction of the course

- name of the course: Linear Algebra I/Recitation
- instructor name: Jan Brezina
- email: brezina@math.titech.ac.jp
- room: main building H219
- TA: Hiroki Murakami (email: murakami.h.ah@m.titech.ac.jp, room: H316)

### About lecture

- purpose of the course: learn abstract thinking and understand tools necessary to be able to calculate in other technical courses
- advantage over other courses: math and English at once
- why another language: thinking in another language gives you new ways of looking at things, ability to find new and better solutions to given problems
- why English: the universal language of the world of science is currently English and it seems to stay that way for the upcoming years
- lecture and exercise are a set and it is necessary to take both at the same time
- class is in English, tests too
- mathematical content is the same as in Japanese class

### Class materials

- personal notes
- book: Linear Algebra: A Modern Introduction by David Poole, ISBN-10: 0-538-73544-9
- handouts - photocopies of parts of the book will be distributed at exercise session
- any book in any language you find in a library or on the internet covering the basic linear algebra course will do

## Grading

- one grade together for class and exercise
- score 60 - 100 points is a pass
- depending on a person - just pass or care about good score - your choice

Midterm exam	60 points
Final exam	
Homework	10 points
Exercise tests	30 points

- midterm exam - May 2nd
- final exam - TBA
- no reexamination possible
- about homework
  - 6 homework
  - assignment: Thursday afternoon in OCW
  - submission: next week Tuesday after lecture
  - if you cant do homework it indicates you dont understand the lecture
  - each non-empty submitted homework is 2 points
  - the total maximum for all homework is 10 points
- Exercise tests - explained during exercise

## Publishing of materials

- on OCW-i
- what you can find there: contents of lectures and exercises, homework, solutions

## Consultation

- always welcome - me or TA
- setup an appointment (personally, by email)
- come in group preferably
- consult with classmates

## 1.2 The Geometry and Algebra of Vectors

- geometrical vectors, numerical vectors
- components of vector
- column vectors, row vectors
- zero vector,  $\mathbb{R}^2$
- vector addition, scalar multiplication, vector subtraction
- Vectors in  $\mathbb{R}^3$
- Vectors in  $\mathbb{R}^n$
- algebraic properties of vectors in  $\mathbb{R}^n$