

# Lesson 0

## Overview of Practical English 1

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# Inspiring Motivation





The standard high school curriculum traditionally has been focused towards physics and engineering. So **calculus, differential equations**, and **linear algebra** have always been the most emphasized, and for good reason—these are very important.

—Terence Tao

# Main Goals of Practical English (PE)

-  Main eventual goal — develop the capability to read research papers and monographs related to informatics and data science.
-  Main Goal of PE 1 — revise linear algebra, but in English.
-  Concrete goal of PE 1 — acquire the ability to understand in English "**The Mathematics of Web Search**".

# Pedagogical Philosophy






-  I am not so much your lecturer or teacher but your facilitator.
-  The “lecture” is not meant to be delivered to you as a passive recipient.
-  You take ownership of your own learning journey for your own objective of your own life.
-  I am here to facilitate (促進する) your own active learning.

# Why Facilitation?

People are usually more convinced by reasons they discovered themselves than by those found by others.

— **Blaise Pascal**

# Lesson Format

-  Assumption: You have done 線形代数 before in Japanese.
-  For each of the 7 weeks, you learn from online videos on linear algebra. There is also a tutorial assignment.
-  The tutorial assignment is mainly problem solving, to be completed within a week. A report, in English, is to be submitted electronically as a pair of latex file + pdf file each week.
-  You are encouraged to ask questions on bb9's **Discussion Board**.
-  Why use  $\text{\LaTeX}$ ?

- (1) \_\_\_\_\_
- (2) \_\_\_\_\_
- (3) \_\_\_\_\_

# Textbook and Broad Outlines



- Part 1 Chapters 1 to 3
  1. Vector and matrix
  2. System of linear equations
  3. Permutation and determinant






- Part 2 Chapters 4 to 6
  4. Linear space
  5. Linear mapping
  6. Inner product space

- Part 3 Chapter 7
  7. Eigenvalue and eigenvector






- Part 4 Presentation

# Helping You to Learn Effectively

## Quiz during “lecture”

-  Download the lesson material, videos, and the handout before class.
-  You have to complete the handout before 10:30 AM of Wednesday morning.
-  Submit your answers by the Word file provided.
-  You don't need to explain your answers for quiz questions.
-  40% weight

## Tutorial Assignment

-  Solve the tutorial problems independently.
-  Typeset your solutions (working + final answer) with  $\text{\LaTeX}$ .
-  Ask questions (bb9 Discussion Forum) or get help from your tutor if you are stuck.
-  Submit your report (latex source file and pdf file) before the due date.
-  60% weight

# Rubric for Weekly Tutorial Report

## Passing (C)

- (1)  $\geq 60\%$  questions correct
- (2) Minimum working
- (3) Little use of math concepts
- (4)  $\geq 60\%$  correct English
- (5) Report not so organized

## Satisfactory (B)

- (1)  $\geq 75\%$  questions correct
- (2) Some working
- (3) Some use of math concepts
- (4)  $\geq 70\%$  correct English
- (5) Report adequately organized










## Good (A)

- (1)  $\geq 90\%$  questions correct
- (2) Sufficient working
- (3) Great use of math concepts
- (4)  $\geq 80\%$  correct English
- (5) Report well organized

## Superb (S)

- (1) 100% questions correct
- (2) Thorough working
- (3) Thorough use of math concepts
- (4)  $\geq 90\%$  correct English
- (5) Report beautifully organized

## How does an S-rated tutorial report look like?


-  Refer to the **Sample**.
-  All the answers are correct.
-  Thorough yet concise explanation is provided for each question
-  Mention theorems and use technical key words to demonstrate a superior level of understanding and mastery of the concepts.
-  Clever use of mathematical notations
-  Natural English, no grammar error, no spelling error
-  Answers are highlighted in frame boxes or highlighted in a color box.
-  Name and student ID are provided, along with date of completing the report.
-  Question number and page number are provided.


## Incentive and Disincentive for Timeliness


Let  $T$  be the report submission time before the report deadline.


Let  $U$  be the report submission time after the report deadline.

  $T \geq 48$  hours before the report deadline: +2 bonus marks

  $48 < T \leq 24$  hours before the report deadline: +1 bonus mark

  $24 < T \leq 0$  hours before the report deadline: no bonus mark

  $0 < U \leq 180$  minutes after the report deadline: -2 marks

  $U > 180$  minutes after the report deadline:  $-3(1 + (U - 180))$  marks

# Inspiring Wisdom

**Live as if you were to die tomorrow. Learn as if you were to live forever.**

— **Mahatma Gandhi**