

Week 1A

Overview of Practical English I

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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

Pedagogical Principle

- ✳ 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 your own active learning.

Why Facilitation?

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

— **Blaise Pascal**

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.**”

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 End-of-course in-class quiz test?

Lesson Format

- ✳ Assumption: You have done 線形代数 (Linear Algebra) before in Japanese.
- ✳ For each of the 7 weeks, the lesson will be conducted via synchronous Teams or Zoom for 105 (= 90 + 15) minutes from 12:50 PM to 14:35 every Tuesday .
- ✳ Each lesson will be recorded for your revision.
- ✳ All the learning materials are available for download on Hirodai moodle .
- ✳ All the assignments are to be submitted to Hirodai moodle .
- ✳ Make sure you don't submit an empty document, or wrong assignment report, etc.

In-Class Exercise (ICE) 50%

- ✳ Each lesson comes with an ICE to help you stay alert and focused. The ICE questions are all MCQs.
- ✳ Use the Excel template provided to fill in your name (Eastern style in Kanji) and your student ID.
- ✳ Submit your completed Excel file to Hirodai moodle. Verify your submitted Excel file by opening it.
- ✳ You can submit as many times as you want; grading is based on your latest version.
- ✳ The deadline of ICE submission is 6 PM Tuesday .

Name	鈴木太郎
Student ID	b1vwxyz
ICE Q1	A
ICE Q2	B
ICE Q3	A
ICE Q4	C
ICE Q5	D
ICE Q6	C
ICE Q7	A
ICE Q8	B
ICE Q9	B
ICE Q10	D

To be graded by a Python code

Weekly Homework Assignment (WHAT) 50%

- ✦ Use the provided latex template to typeset your solutions to the WHAT problems.
- ✦ Never forget to include your name who is responsible and credited for the report.
- ✦ Must also include student ID, page number, and date.
- ✦ Don't just typeset the mathematical formulas, use the keywords and cite the theorems and definitions in the lecture slides.
- ✦ **Sense of beauty** is needed in preparing an enjoyable WHAT report.
- ✦ Use color to highlight the final answer of each question.
- ✦ **Submit both the source latex file and the resulting pdf file, and the Excel spreadsheet to Hirodai moodle.**

How does an S-rated WHAT 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.

Rubric for WHAT 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

Useful Software for Productivity Gain

MiKTeX

TeX Live

TeXstudio

Wish you an awesome learning journey!