Special Topics in Functional English
English for basic mathematics as a tool for logical thinking and scientific research
Instructor: Fusa Katada

Course Outline

This course is designed for science and engineering students who wish to rediscover and reevaluate their English competence that might be hidden inside them, and to increase their comfort and proficiency in using English for academic purposes. To accomplish this objective, students will be trained to apply English to the scientific knowledge of their familiar subject, namely basic mathematics. Focusing on oral explanation of problem-solving processes, students will go through sections that test basic mathematical skills, understanding of elementary mathematical concepts, and the ability to solve quantitative problems.

Course Objectives

(1) Gain confidence and competence in applying English to academic fields.

(2) Able to teach basic mathematics to English-speaking children.

(3) Prepared to take the mathematics sections of Graduate Record Examination and Graduate Management Admission Test, which are often required for admission to graduate schools in North America.

(4) Prepared to take English-based aptitude tests that are often encountered in job searches.

Assigned work before/after class

Students are expected to spend at least 90 minutes per week to work on assigned math problems at home and practice explaining the solving processes in basic English.

Course Schedule (subject to change)

<The following is minimally covered.>

Session 1 Orientation (finding your strength and weakness)

Session 2 From words to algebraic expressions and vice versa (oral practice and short test)

Session 3 Rational numbers and operations (1) (oral practice and short test)

Session 4 Rational numbers and operations (2) (oral practice and short test)

Session 5 Permutations, combinations, and counting (oral practice and short test)

Session 6 Quantitative comparison (oral practice and short test)

Session 7 Presentation 1 (demonstration to teach basic math to young students)

Session 8 100 basic math terms and their definitions (oral practice and short test)

Session 9 Power and Root (oral practice and short test)

Session 10 Intersecting lines and Angles (oral practice and short test)

Session 11 Polygons and Polyhedron (oral practice and short test)

Session 12 Coordinate Geometry, Area, and Volume (oral practice and short test)

Session 13 GRE/GMAT Word problems (oral practice and short test)

Session 14 Presentation 2 (demonstration to teach basic math to young students)

Session 15 Final examination (comprehensive exam consisting of three parts)

Textbooks/Materials

Course materials will be prepared by the instructor and made available on Moodle.

Reference

Supplementary resource materials will be provided by the instructor throughout the course.

Evaluation

In order to pass this course, students must meet both 1 and 2.

1. Attendance: students must attend two-thirds (2/3) of the 15 sessions.

2. Achievement: students must achieve 60% of the total assessment criteria of the following.

(a) In-class short tests given in every session over the course (30%)

(b) Oral explanation and presentation of problem solving processes (30%)

(c) Final Examination (40%)

Note/URL

1.This is a practice-oriented course which welcomes students who are not sure of their English skills, as long as they are motivated to overcome uneasy feelings toward English.

2. It is important that students uphold fundamental standards of academic honesty consistent with Waseda University regulations (http://www.celese.sci.waseda.ac.jp/academic-honesty).