10th April 2021

BASIC MATHEMATICS – SPRING TERM 2021
COURSE INFORMATION

Forms of instruction

The instruction consists of a series of video-recorded lectures, posted online, and exercise classes in a classroom. If the situation so demands, the exercise classes may also be held online during some part, or all, of the term.

All course material will be published through the course home page on NUCT:
https://ct.nagoya-u.ac.jp/portal/site/2021_0051321

Course content

The course covers the following topics, each of which will be the subject of one video-recorded lecture.

	Topic	Section	Exercise class
1	Lines and their slopes	1	19th April
2	Sets and logic		26th April
3	Functions and their graphs	2, 3	10th May
4	Combinations of functions	4	17th May
5	Transformations of functions	5	24th May
6	Quadratic functions	6	31st May
7	Polynomial functions	7	7th June
8	Exponentials	9	14th June
9	Logarithms	9	21st June
10	Systems of equations and inequalities	10	28th June
11	Linear systems, vectors and matrices	11	5th June
12	Derivatives, *I*		12th July
13	Derivatives, *II*		19st July
	Final exam		26th July

The *section* numbers in the table indicate sections in the main course book (see below).

1. Times and venues

The exercise classes take place on Mondays, 13:00–14:30, in room C43 in the Liberal Arts and Sciences Main Building.

An introductory meeting will be held on *Monday the 12th April at 13:00*, using Zoom.

Examination

The examination consists of *homework* and a *final exam*.

- *Homework:* A number of written homework assignment will be given during the course. Discussion and collaboration amongst students is encouraged; however, the participants are required to hand in individually written solutions to the problems, and may be asked to explain their solutions to the instructor.
- The *final exam* will take place on campus, if the university regulations at the time allow it (else, it may be held online in some form).
- Preliminary date for the final exam is Monday the 26th July.

Grading

A total score (0–100 %) is calculated as the weighted average of the scores obtained on the homework (20 %) and the final examination (80 %).

The final grade is determined by the total score, as follows:[1]

F: 0–59 %, C-: 60–64 %, C: 65–69 %, B: 70–79 %, A: 80–94 %, $A+$: 95–100 %.

Course withdrawal: Students who do not participate in the final exam will receive the grade *W*. It is not necessary to submit a course withdrawal form.

Textbooks

The main textbook of this course is:

- Rhonda, Huettenmueller: *Precalculus demystified*, 2nd edition, McGraw-Hill (2012).

Those who want additional reading for the content of the lectures 2 and 11–13 may consult (for example) the following books:

- Seymour Lipschutz: *Schaum's outline of set theory and related topics*, 2nd edition, McGraw-Hill, 1998 *(lecture 2)*;
- Otto Bretscher: *Linear Algebra with Applications*, 4th edition, Pearson 2009 *(lecture 11)*;
- Serge Lang: *Short calculus*, Springer-Verlag, New York, 2002 *(lectures 12, 13)*.

Instructors

Main instructor: Erik Darpö (contact via email, NUCT or by appointment)

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Teaching assistant: Mr. GONG Ankai (contact via NUCT)

[1] Students who enrolled before April 2020 will receive a grade on the five level scale *S-A-B-C-F* or, in the case of course withdrawal, *Absent*.