BASIC MATHEMATICS – SPRING TERM 2020
COURSE INFORMATION

Note: The information about examination given in this document replaces that given in the official syllabus.

Forms of instruction

The course is given primarily through a series of video-recorded lectures, posted online. Lecture notes will also be provided.

Additionally, there will be opportunities for questions and discussion with the instructors via video link, individually or in group (using either Skype or Zoom).

All course material will be published through the course home page on NUCT:
https://ct.nagoya-u.ac.jp/portal/site/2020_1_0051321

Course content

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

	Topic	Section	Homework
1	Lines and their slopes	1	29th April
2	Sets and logic		6th May
3	Functions and their graphs	2, 3	13th May
4	Combinations of functions	4	20th May
5	Transformations of functions	5	27th May
6	Quadratic functions	6	3rd June
7	Polynomial functions	7	10th June
8	Exponentials	9	17th June
9	Logarithms	9	24th June
10	Systems of equations and inequalities	10	1st July
11	Linear systems, vectors and matrices	11	8th June
12	Derivatives, *I*		15th July
13	Derivatives, *II*		22nd July

The *section* numbers in the table indicate sections in the main course book, the date under *homework* shows when the corresponding homework assignment is due.

Examination

The examination consists of *homework* and a *final exam*. (There will be no midterm exam.)

- *Homework:* Written homework assignment will be given weekly during the course. The assignments are due *on Wednesdays, by 8 am* (Japanese standard time). The due dates for the individual homework assignments are written in the table of course content. Solutions to the homework should be submitted via NUCT.
- Discussion and collaboration amongst students is encouraged; however, the participants are required to hand in indvidually written solutions to the problems, and may be asked to explain their solutions to the instructor.
- The *final exam* takes place on Monday the 27th July.

- The final exam will take place on campus; it is not possible to do the exam online. If someone, due to travel restrictions, cannot be present on the 27th July, he/she may instead take the exam later, upon returning to Nagoya.
- *Fourth year students* who wish to take the course but who are presently not in Nagoya must contact the instructor in advance, before enrolling.

Grading

A total score (0–100 %) is calculated as the weighted average of the scores obtained on the homework (30 %) and the final examination (70 %).

The final grade is determined by the total score, as follows:
F: 0–59 %, C: 60–69 %, B: 70–79 %, A: 80–89 %, S: 90–100 %.

Course withdrawal: Students who do not participate in the final exam will receive the grade *Absent*. It is not necessary to submit a course withdrawal form. Students who are unable to return to Nagoya in time for the final exam should inform the instructor of his/her situation in *in advance of* the exam.

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 or NUCT)

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Teaching assistant: Kenta Ōishi (contact via NUCT).