

## Basic Concepts in Mathematics I (数学通論 I)

### Textbook and References

“Mathematical Proofs, A Transition to Advanced Mathematics, Third Edition” by Gary Chartrand, Albert D. Polimeni, Ping Zhang, Pearson International Edition (ISBN13: 978-0321782519)

For other references, please refer to the list in BCMI homepage at subsite.

### Schedule (*subject to change*)

DATE	TITLE	ASSIGNMENTS
April 16	1. Sets 2. Logic (2 periods) Recitation 1 (1 period), Chapter 3	Read Chapters 1, 2, 3 3.45, 46, 63, 69, 73, 2.5, 16, 31, 40, 75
April 23	3. Direct Proof and Proof by Contrapositive Recitation 2, Chapters 2 and 3	Read Chapters 4, 5 4.3, 13, 19, 32, 37, 5.3, 19, 34, 40, 67
April 30	4. Existence and Proof by Contradiction Recitation 3, Chapters 4 and 5	Read Chapters 6, 7 6.14, 20, 26, 40, 49, 7.1, 5, 11, 18, 24
May 7	5. Mathematical Induction Recitation 4, Chapters 6 and 7	Read Chapters 7, 8 7.26, 30, 41, 44, 45, 8.16, 56, 70, 76, 78
May 14	6. Equivalence Relations Recitation 5, Chapters 7 and 8	Read Chapter 9 9.1, 11, 25, 38, 45, 51, 58, 61, 65, 83
May 21*	7. Functions Recitation 6, Chapter 9	Read Chapter 10 10.5, 22, 24, 26, 32, 35, 42, 54, 56, 61
May 28	8. Cardinality of Sets (i) Recitation 7, Chapter 10	Read Chapter 11 11.3, 7, 10, 12, 14, 16, 22, 26, 27, 33
June 4	9. Cardinality of Sets (ii) Recitation 8, Chapter 11	Extra Reading Extra Problems of Cardinality
June 11	10. Proofs in Number Theory Recitation 9, Extra Problems of Cardinality	Read Chapter 12 12.1, 9, 11, 15, 21, 30, 37, 38, 40, 65

All assignments are, in principle, due next Monday at 1:00 p.m. Please submit your homework in No.11 of Report Box in front of Science Hall N201.

The BCM I final will be given during the term exam week. The schedule above is subject to change.

### Grading Policy

1. Recitation — 30%: by assignment, volunteer welcom.
2. Homework — 20%: See above. The other homework will be announced later.
3. Final Examination — 50%

### Home Page

1. <http://subsite.icu.ac.jp/people/hsuzuki/science/class/bcmm1/>  
Schedule, references, old quizzes, old finals, old midterms and their solutions, and much more.
2. Moodle (<http://olcs.icu.ac.jp/moodle/>) will be used (Enrollment Key: MTH2322014)  
Handouts, responses to comment sheet, BBS for questions and communication, and other information.