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 New International Edition (ISBN13: 978-1292040646)
   For other references, please refer to the list in BCMI homepage at subsite.

Schedule (*subject to change*)

DATE	TITLE	ASSIGNMENTS
April 15	1. Sets 2. Logic (2 periods)	Read Chapters 1, 2, 3
	Recitation 1 (1 period), Chapter 3. Sets	3.45, 46, 63, 69, 73, 2.5, 16, 31, 40, 75
April 22	3. Direct Proof and Proof by Contrapositive	Read Chapters 4, 5
	Recitation 2, Chs 2. Logic, and 3. Sets	4.3, 13, 19, 32, 37, 5.3, 19, 34, 40, 67
April 29	4. Existence and Proof by Contradiction	Read Chapters 6, 7
	Rec. 3, Ch. 4+5 Direct Proof and Proof by Contrapositive	6.14, 20, 26, 40, 49, 7.1, 5, 11, 18, 24
May 13	5. Mathematical Induction	Read Chapters 7, 8
	Rec. 4, Ch. 6+7 Existence and Math Induction	7.26, 30, 41, 44, 45, 8.16, 56, 70, 76, 78
May 20*	6. Equivalence Relations	Read Chapter 9
	Rec. 5, Ch. 7+8 Math Induction, Prove or Disprove	9.1, 11, 25, 38, 45, 51, 58, 61, 65, 83
May 27	7. Functions	Read Chapter 10
	Rec. 6, Ch. 9 Equivalence Relations	10.5, 22, 24, 26, 32, 35, 42, 54, 56, 61
June 3	8. Cardinality of Sets (i)	Read Chapter 11
	Rec. 7, Ch. 10 Functions	11.3, 7, 10, 12, 14, 16, 22, 26, 27, 33
June 10	9. Cardinality of Sets (ii)	Extra Reading
	Rec. 8, Ch. 11 Cardinalities of Sets	Extra Problems of Cardinality
June 17	10. Proofs in Number Theory	Read Chapter 12
	Rec. 9, Extra Problems of Cardinality	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 (https://moodle.icu.ac.jp/27/course/view.php?id=205) will be used (Enrollment Key: bcm1_2015)
   Handouts, responses to comment sheet, BBS for questions and communication, and other information.