

Research Subject	Research Content
Set Theory	Operations and properties of sets, such as union, intersection and complement.
Logic and Boolean Algebra	Logical reasoning, propositional logic, predicate logic, and principles and applications of Boolean algebra.
Graph Theory	Graphs and their properties, including paths, cycles, coloring problems, and network flows.
Combinatorial Mathematics	Counting problems such as permutations, combinations, binomial theorem, and counting principles.
Discrete Probability	Probability of events in a discrete sample space.
Number Theory	Integers and their properties, such as divisibility, greatest common divisors, and prime numbers.
Algebraic Structures	Algebraic systems such as groups, rings, and fields.
Algorithm Theory	Algorithm Theory

Knowledge Units (Chapters)	In-Class Hours
Set Theory and Proof Methods	6
Propositional Logic	6
First-Order Logic	5
Relations	6
Functions	6
Graphs	7
Trees and Their Applications	5
Elementary Number Theory	5
Algebraic Systems (Group Theory)	16
Comprehensive Review	4

- **Course Number: 01112201**
- **Term: 2025 Spring**
- **Class Times: (Tues, Thurs: 10:00 am - 11:35 am)**
- **Venue: Building An, A 110**

Grading	Percentage	Instruction
Attendance/Discussion	5%	When I took the course, I tried my best to attend every discussion and ask questions whenever I was confused!
Intermediate exams	60%	There will be 5-10 in-class exams, each with 5 problems. Electronic devices are not allowed for each exam.
Final exam	35%	Students are permitted to bring a single A4 sheet into the exam room to record essential information. Electronic devices are not allowed.

Drop lowest Intermediate exams score
Active participation in class 5% (bonus)