

1. Logic and Logic Programming

- **P**ropositional Logic

- Syntax
- Semantics
- Inference

- **P**redicate Logic

- Syntax
- Semantics
- Inference

2. Probability and Statistics

- **P**robability
 - Basic probability theory
 - Random variables
 - Discrete distributions
 - Continuous distributions
 - Graphical models
- **S**tatistics
 - Sampling theory
 - Estimation theory
 - Tests of hypotheses
 - Analysis of variance

3. Lattices and Generality

- Lattice theory
 - Relations
 - Partial orders
 - Quasi orders
 - Lattices
- Generality orderings
 - Subsumption
 - Implication
 - Subsumption theorem

4. Abduction and Justification

- **Abduction**
 - Philosophy
 - Computational approach to abduction
 - Logical constraints on hypotheses
 - Hypothesis space
 - Refinement operators
- **Justification**
 - Noise
 - (Bayes) Optimal hypothesis selection

5. Redundancy and Search

- **Redundancy**
 - Literal redundancy
 - Clause redundancy

- **Search**
 - Complete search techniques
 - Greedy search techniques
 - Randomised search techniques