**Common Themes Across Papers**

1. **Best-First Search / Informed Search** (2018, 2021, 2023, 2024)
   * Appears in all papers, usually as Question 1
   * Focus on A\* algorithm, admissibility of heuristics
   * Evaluation functions and expanding nodes in search trees/graphs
   * Formulating real-world problems as search problems
2. **Logical Inference and Entailment** (2018, 2019, 2021, 2023, 2024)
   * Unification and most general unifiers
   * Resolution-based inference
   * Soundness and completeness of inference procedures
   * Converting logical rules to clausal form
3. **Knowledge Representation and Reasoning** (2018, 2021, 2023, 2024)
   * Definite clauses and logic programming
   * Forward and backward reasoning
   * Normal logic programs with negation by failure
4. **Decision Trees and Logical Learning** (2018, 2019, 2023, 2024)
   * Inductive learning schema
   * Logical formulation of decision trees
   * Knowledge-based learning and entailment constraints
5. **AI Planning** (2018, 2019, 2024)
   * Planning problem definition
   * Classical planning problem conditions
   * PDDL-like action schemas
   * Vacuum World state space formulation
6. **Additional Topics**
   * Temporal reasoning (2021)
   * Adversarial search/Game trees (2019)
   * Non-monotonic reasoning (2018)

**Similar Questions Across Years**

**Search Problems (Q1)**

* **2024**: Best-first search evaluation function, greedy vs A\* search, admissible heuristics
* **2023**: Search problem formulation for a mail delivery robot, A\* expansion, admissibility
* **2021**: Search problem formulation for a mail delivery robot, A\* expansion, admissibility
* **2018**: Search problem formulation with maps, A\* evaluation function and expansion

**Logical Inference (Q2/Q3)**

* **2024 Q3**: Unification of atomic sentences, resolution in first-order logic
* **2023 Q3**: Unification, knowledge representation, forward reasoning
* **2021 Q2**: Unification, knowledge representation, forward reasoning
* **2019 Q3**: Unification, resolution inference rule, soundness/completeness
* **2018 Q2**: Logical models, entailment, soundness/completeness

**Decision Trees & Learning (Q2/Q4)**

* **2024 Q2**: Inductive learning schema, logical definition of decision trees
* **2023 Q4**: Learning importance, logical definition of decision trees
* **2019 Q2**: Knowledge-based agents, logical schema for decision trees
* **2018 Q4**: Inductive learning schema, logical definition of decision trees

**Planning (Q4)**

* **2024 Q4**: Planning problem definition, classical planning, PDDL for Vacuum World
* **2019 Q4**: Planning problem definition, classical planning, PDDL for Vacuum World

**Question Patterns**

1. **Almost identical questions:**
   * The planning question (Q4) in 2024 and 2019 is practically identical
   * Logical formulation of decision trees appears in multiple papers
   * Unification problems and most general unifiers appear in nearly all papers
2. **Progressive complexity:**
   * Search problems have evolved from simple graph searches to more applied scenarios
   * Logical inference questions have maintained consistent difficulty
3. **Evolving terminology:**
   * Earlier papers use "Introduction to Artificial Intelligence" while later ones use "Symbolic Artificial Intelligence"
   * Question format has remained largely consistent

These patterns suggest that the course has a stable core curriculum with highly predictable exam content. Questions often repeat with minor variations, especially in areas like planning, search, logical reasoning, and decision trees.