

# Uncertain Data Management Class Structure

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# Class 1 (Nov 21): Introduction and Reminder

- **Motivations** and **sources** of uncertain data
- Class **structure** (these slides!)
- **Reminder:** relational algebra and relational calculus

## Class 2 (Nov 28): Open- and Closed-World Databases

- Open-world databases: modeling incompleteness
- Missing values (NULLs)
- c-tables
- Representation size for the various models

## Class 3 (Dec 5): Relational Probabilistic Databases

- **Semantics** of probabilistic databases
- **Models:**
  - Tuple-independent databases
  - Block-independent disjoint databases
  - pc-tables
- **Extensions**

## Class 5 (Dec 12): Querying Relational Prob. Databases

- **Semantics** of queries on uncertain data
- **Extensional** approach: evaluating the query **directly**
- **Intensional** approach: computing the query **lineage**
- Tractable **rules** for query evaluation
- Tractable **lineage** classes
- Computational **hardness** results

## Class 4 (Jan 9): Non-Relational Probabilistic Databases

- Uncertain XML
  - Semantics of documents
  - Models and compactness
  - Query languages and complexity
- Uncertain graphs: queries and semantics

## Class 6 (Jan 16): Practical Applications

- Social Applications
- Crawling the Web
- Crowdsourcing
  
- Practical implementation
- The MayBMS engine

## Class 7 (Jan 23): Lab Session

- Lab session: MayBMS