

# Knowledge Representation and Ontologies

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# Overview of the Course

- ① Modeling information through ontologies
  - ① Introduction to ontologies
  - ② Ontology languages
  - ③ UML class diagrams as FOL ontologies
- ② Using logic for knowledge representation
  - ① Main components of a logic
  - ② Reasoning methods in logics
  - ③ Exercises on analyzing logics
- ③ Description Logics
  - ① Introduction to DLs
  - ② Reasoning in simple DLs
  - ③ More expressive DLs
  - ④ Fuzzy DLs
  - ⑤ Ontology modularization, integration, and contextualization
- ④ Ontology based data access
  - ① Description Logics for data access
  - ② Query answering over databases and ontologies
  - ③ Linking ontologies to relational data
  - ④ Reasoning in the *DL-Lite* family
- ⑤ Conclusions and references

