

Optional course for

- Master of Artificial Intelligence
- Master in de Informatica (Verdiepend pakket Artificiële Intelligentie)
- Master in de Ingenieurswetenschappen:
Computerwetenschappen (Keuzedeel Artificiële Intelligentie)
- PhD students of DTAI (Declarative Languages and Artificial Intelligence)

Logic Programming: A major programming paradigm with two faces

Programming (Prolog)

- A flexible language (Prolog) for solving complex problems at a high level of abstraction
- The prerequisites for this course

A formal language (Logic)

- A formal language based on logic
- The subject of this course

Part I: Foundations and major semantics

- From programming in a subset of first order logic to programming in a non-monotonic logic
- definite and normal programs
- well-founded semantics
- stable semantics

Part II: Program Analysis

- Termination analysis
- Abstract interpretation
- Program specialisation

The Practical Side

- Limited formality (most literature rather formal/technical)
- Lectures: $13 \times 2\text{h}$. Exercises integrated
- Course material: detailed slides, pointers to literature
- Exercises (and solutions), illustrating learned concepts
- Exam: closed book, mainly solving problems to prove that learned concepts are mastered

Intended Audience

- If you like logic programming/Prolog and want to know more about it.
- If you are interested in reasoning about programs.
- If you have ambition to do a PhD in
 - Design, Analysis and Implementation of Declarative Programming Languages
 - Knowledge Technology

subgroups of research group Declarative Languages and Artificial Intelligence