

# Logic and Constraint Programming

## General Info & Introduction

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## Who I am



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# Schedule

<b>Mon</b>	<b>Tue</b>	<b>Wed</b>	<b>Thu</b>	<b>Fri</b>
	9-11	14-16		

# Contents

- Logic programming: basic concepts and Prolog language
- Introduction to Constraint Satisfaction Problems
- Rule-based programming: Drools
- Constraint programming: Minizinc
- Resolution of Constraint Satisfaction Problems: Z3

## Teaching material

- Stuart J. Russell and Peter Norvig. Artificial Intelligence A Modern Approach. Third Edition. Pearson, 2016.
- Patrick Blackburn, Johan Bos, Kristina Striegnitz. Learn Prolog Now! 2001
- Tutorial of Drools, Minizinc, Z3.
- Course's slides
- Lecture notes, papers and slides may be given by the teacher for studying and for exercises

# Final exam

- **Programming test:**
  - on the exam date a programming test takes place, using the languages and tools introduced in the course
  - during the course **in itinere tests** take place; in case they are evaluated positively, they replace the programming test of the exam date
- Realisation of a **project** using one or more languages and software tools with a **presentation**

# The Hard Life of Programmers (and Students)



Questions?

## Why LCP in IAS?

*Intelligent and Adaptive Systems* (IAS) needs to:

- take **decisions** according to their **knowledge**

So, to program IAS, we need to:

- represent system's **knowledge**
  - facts and their relationships (i.e., rules, constraints)
- query the knowledge base to support autonomic **decisions**
  - inference of an answer to a query, or solution of a CSP

Nowadays, other AI supports are available, e.g. Machine Learning

- LCP is programmable and verifiable



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