# Course Presentation

## Planning and Scheduling

### Computer Sciences Degree

Computer Engineering Department

Dra. Mª Dolores Rodríguez Moreno

# Teachers and Tutoring hours

| Dra. María Dolores R-Moreno | Dr. Pablo Parra Espada |
| --- | --- |
| Course leader<br>Email: malola.rmoreno@uah.es<br>Office: E-313<br>Phone: 91-885-66-07<br>Tutoring hours: Tu: 11-14<br>W: 17-18<br>Research: AI & ML and robotics | Email: pablo.parra@uah.es<br>Office: E-235<br>Phone: 91-885-69-52<br>Tutoring hours: Tu: 10-12<br>Th: 15:00 a 17:00.<br>Research: Embedded systems |

# CV

- European PhD in Computer Sciences
- Research interest
  - AI & ML
  - Robotics
- Research Visits
  - BT, UK
  - CNR, Italy
  - NASA Ames, USA
  - JPL-NASA, USA
- Full Professor (2018)
- https://atc1.aut.uah.es/~mdolores/

# General features

| | |
|---|---|
| Course | 3rd Year |
| Semester | Second |
| Credits | 6 ECTS |
| Web | Aula Virtual |
| Course Schedule | Wed: 10-12 (on-line) |
| Labs Schedules | Wed: 8-10(SA1), 12-14 (SA1), 15-17 (SA1), 17-19 (SA1) |

# Objectives

## General Objective

Know AI Planning: concept & techniques

## Specific Objectives

- Explain how classic search techniques differ in planning systems
- Explain the differences between planning as search, operator-based planning and propositional planning
- Compare and contrast static planning with those that need dynamic execution
- Know the impact of AI planning in Robotics

# Contents

| Part | Topics |
| --- | --- |
| 1. Introduction | • Scientific Programming<br>• Planning |
| 2. AI Planning | • Languages & Techniques |
| 3. AI Scheduling | • Techniques |
| 4. Application Domains | • Robotic |

# Course Scheduling

- Time distribution of the course (on-line or labs SAI)

# Methodology

- Theory classes
- Problems solved
- Flipped Learning
  - Please, install SOCRATIVE

# Continuous Assessment

| Instruments Rating | % Mark |
|---|---|
| 1. Final Exam | 40% |
| 2. Testing Lab | 30% |
| 3. Partial Exam/Assignments | 30% |

# Testing Lab (30%)

- Each lab assignment has a deadline, upload in a .zip the exercises before that date
- The assignment is compulsory
- The **lab exam** defines the lab mark
- Missing a lab assignment means 1/3 (10%) less of the total lab mark (30%)

# Partial Exam/Homework (30%)

- Visualizing ALL videos → 0,25points
- 0,75 points → The rest, by quizzes in the class
- Patrial exam (20points)

# Single Assessment

| Instruments Rating | % Mark |
| --- | --- |
| 1. Final Exam | 100% |

# Regulation

- Notifications by the e-learning platform
- Contact by e-mail
- Respect and courtesy
- Plagiarism will not be tolerated

# Bibliography


- Malik Ghallab, Dana Nau and Paolo Traverso (2016). Automated Planning and Acting. Cambridge University Press, online ISBN: 9781139583923.
- Stuart Russell y Peter Norvig (2009). Artificial Intelligence: A Modern Approach. (3rd Edition). Ed. Pearsons.
- McDermott, Drew; Ghallab, Malik; Howe, Adele; Knoblock, Craig; Ram, Ashwin; Veloso, Manuela; Weld, Daniel; Wilkins, David (1998). PDDL-The Planning Domain Definition Language. Technical Report CVC TR98003/DCS TR1165. New Haven, CT: Yale Center for Computational Vision and Control.
- Fikes and Nilsson (1971). STRIPS: A New Approach to the Application of Theorem Proving to Problem Solving, Artificial intelligence, 2 (3-4): 189-208.
- A. Blum and M. Furst (1997). Fast Planning Through Planning Graph Analysis. Artificial Intelligence, 90:281-300
- Jörg Hoffmann (2001). FF: The Fast-Forward Planning System. AI Magazine, 22 (3):57-62.

# Questions???

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# Socrative Quiz: GIIPLANNING (Room)

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ISG