

Seminar in Theoretical Computer Science (Introduction)

Marco Maratea
University of Genoa, Italy

066 011 DDP Computational Logic (Erasmus-Mundus)
066 931 Logic and Computation
066 933 Information & Knowledge Management
066 936 Medizinische Informatik
066 937 Software Engineering & Internet Computing
860 GW Gebundene Wahlfächer - Technische Mathematik
Institute of Information Systems, TU Wien

Topics covered

Solving algorithms for:

- Propositional Satisfiability (SAT)
- Answer Set Programming (ASP)
- Quantified SAT, Constraint ASP, Abstract Argumentation Frameworks

presented via the:

Abstract solvers methodology

What is?

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Goals:

- Study practicalities of some formalisms for KR&R
- Focus on SAT, ASP and dedicated AI formalisms
- Focus on Systems and Solving techniques
- Focus on a new formal methodology for their specification

Course Goals (2)

What will you bring at home with you?

- a new formal methodology for designing solving procedures for a given reasoning task;
- a detailed analysis, employing such methodology, on a particular reasoning task in SAT, ASP or a dedicated AI formalism.

Available material (e.g. from last year SSTKR course)

<http://www.star.dist.unige.it/~marco/SemTCS/material.htm>

- Datalog (Introductory)
- ASP: Syntax and Semantics for basic ASP programs
- ASP: Extensions
- Solving techniques for normal ASP programs
- Solving techniques for disjunctive ASP programs

- Exercises

- Research papers

Course organization

3 ECTS = 75 Hours

- Introduction to course and topic assignment: 5h
- Lectures: 16h (discussion + presentations)
- Additional reading and preparation for exam: 54h

Exam / Evaluation

- Oral presentation in class (with slides) on the assigned topic
- By individual (preferable) or small groups of 2

Course dates

See next slide for details

Office hour

- by email (marco@dibris.unige.it; mmaratea@dbai),
- by appointment (at HA 03 18)

Course dates and Material

- 1 Thu 6 October 2016 h: 10-12 (Introductory)
- 2 Tue 11 October 2016 h: 10-13 (Topics assignment)
- 3 Wed 12 October 2016 h: 10-12
- 4 Tue 18 October 2016 h: 14-16
- 5 Wed 19 October 2016 h: 10-13
- 6 Tue 25 October 2016 h: 14-17
- 7 Thu 27 October 2016 (Final presentations)
- 8 Fri 28 October 2016 (Final presentations)

All lectures in “Seminarraum von Neumann”, but the last one on “Meeting room Menger, Favoritenstr. 9, Stiege 3, 3rd floor”.

All material available at

<http://www.star.dist.unige.it/~marco/SemTCS/>

reachable also from TISS.