



## COURSE PRESENTATION FORM – ACADEMIC YEAR 2010/2011

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| <b>COURSE NAME</b>                     | <b>Semantic Web Technologies</b>   |
| <b>COURSE CODE</b>                     | 70226 (BSc and MSc 509) / 72010 (MSc 270)  |
| <b>LECTURER</b>                        | <a href="#">Mariano Rodriguez-Muro</a> and <a href="#">Giuseppe Pirrò</a>  |
| <b>TEACHING ASSISTANTS</b>             | --   |
| <b>TEACHING LANGUAGE</b>               | English  |
| <b>CREDIT POINTS</b>                   | 8  |
| <b>LECTURE HOURS</b>                   | 48   |
| <b>EXERCISE HOURS</b>                  | 24   |
| <b>TIME SPAN</b>                       | 27.09.2010 - 21.01.2011  |
| <b>TIME TABLE</b>                      | See <a href="#">Timetable Page</a>   |
| <b>OFFICE HOURS LECTURER</b>           | Mariano Rodriguez-Muro: During the lecture time, by appointment via e-mail, <a href="#">Faculty of CS, POS Building, piazza Domenicani 3</a> , office 2.06<br>Giuseppe Pirrò: During the lecture time, by appointment via e-mail, <a href="#">Faculty of CS, POS Building, piazza Domenicani 3</a> , office 2.10   |
| <b>OFFICE HOURS TEACHING ASSISTANT</b> | --   |
| <b>PREREQUISITES</b>                   | Basic knowledge of Java programming.   |
| <b>OBJECTIVES</b>                      | <p>The aim of the course is to get a good understanding of the general vision of the Semantic Web (SW), the foundations and technologies of the semantic web and the tools and frameworks that can be used today to exploit Semantic Web resources.</p> <p>The course will be divided in two parts. The first part will cover the core of Semantic Web technologies, from the theory and tools behind RDF, RDFS, SPARQL, to the basic use of SW frameworks such as Jena to exploit SW resources. The second part of the course will focus on advanced usage of the SW e.g., ontology engineering, software architectures, ontology design patterns, etc.</p> |
| <b>SYLLABUS</b>                        | <ul style="list-style-type: none"><li>• The Semantic Web Vision</li><li>• XML introduction</li><li>• RDF and RDFS</li><li>• Formal semantics and RDF</li><li>• SPARQL</li><li>• The Jena framework for RDF</li></ul>   |



- OWL in the semantic web
- Modeling for the semantic web
- Semantic Web application architectures
- Linked Data and Information integration
- Ontology Mapping

### TEACHING FORMAT

The course consists of a frontal classroom plus exercises and small projects that will allow the student to get practical experience with the technologies introduced during the lectures.

### ASSESSMENT

- First half evaluation: Midterm 37.5% + Midterm exercises 12.5%
- Final Exam 37.5% + Course project 12.5%

In case of a positive mark for the midterm/project, the mark will count for all 3 regular exam sessions.

### READING LIST

Selected chapters from:

- Semantic Web Programming. Hebeler et al., Wiley 2009
- Foundations of the Semantic Web. Hitzler et al., CRC 2009
- Programming the Semantic Web. Sagarin and Taylor, O`Reilly 2009
- Semantic Web for the Working Ontologist. Allemang and Hendler, Morgan Kaufmann 2008

More information in the webpage of the course.

### SOFTWARE USED

- Java 1.6
- Maven 2.2.1 (<http://maven.apache.org/download.html>)
- Jena 2.6.3 (<http://jena.sourceforge.net/downloads.html>)
- Pellet 2.2.2 OWL reasoner (<http://clarkparsia.com/pellet/download>)
- Protégé 4.0.2
- (<http://protege.stanford.edu/download/registered.html>)
- Eclipse 3.6
- m2eclipse and m2extras plugins for Eclipse (<http://m2eclipse.sonatype.org/installing-m2eclipse.html>)

### LEARNING OUTCOME

The student will acquire understanding of the foundations and technology behind the semantic web.

The student will get experience using the SW tools and frameworks available today.

The student will acquire experience in advanced topics related to building SW applications. e.g., best practices, patterns, architectures, etc.

### COURSE PAGE

On [teaching.case.unibz.it](http://teaching.case.unibz.it).