# Semantic fundamentals for Natural Language Processing

## Prof. Aldo Frigerio

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

The aim of the course is to provide some basic semantic notions concerning natural languages that can be useful in the development and use of Natural Language Processing (NLP) tools and linguistic resources. At the end of the course, the student will be able to understand some of the semantic concepts that are most often used in linguistic computing and to apply them to concrete examples. Moreover, the student will be able to semantically analyze some natural language texts, recognizing the learned notions in them.

***COURSE CONTENT***

- Lexical semantics: theories of meaning, extension and intension, feature semantics and prototypical semantics, semantic relationships among words, semantic fields, semantic hierarchies, ontologies. Different kinds of semantic relations holding among words in lexical resources, like WordNets and embeddings.

- Sentence semantics: predicates and arguments, thematic roles, frames. Tagsets of thematic roles.

- Propositional logic and first order logic. Their application to sentence semantics and to complex sentences.

- Speech acts and felicity conditions of speech acts.

- Discourse semantics: anaphora, coherence, cohesion, topic-comment and the progression of discourse, explicit and implicit.

***READING LIST***

Texts and materials provided by the lecturer during the course.

***TEACHING METHOD***

Lectures. Exercises under the supervision of the lecturer.

***ASSESSMENT METHOD AND CRITERIA***

Oral exam in which the learning of the theoretical concepts introduced during the course and the ability to apply them to texts will be assessed. In particular, it will be assessed the ability of applying general notions to concrete examples and of connecting concrete examples with general notions. In mid-course, students can take a halfway exam.

***NOTES AND PREREQUISITES***

Since the course is introductory, there are no prerequisites for attending it.

*Office hours for students*

Aldo Frigerio meets the students after the lectures and on Teams upon request writing to [aldo.frigerio@unicatt.it](mailto:aldo.frigerio@unicatt.it)