

**Scuola di Dottorato del Politecnico di Bari**

**Ph.D. School**

**How and why to build an ontology to model a scenario**

**CFU 3 (24 ore)**

**SSD: ICAR/20**

Motivations and goal. Applied ontology is an interdisciplinary area of research that draws from several disciplines: logic, philosophy, cognitive science, linguistics and computer science. The main motivation for the construction of ontologies is to provide a shared conceptualization of a domain for reliably representing and sharing knowledge with other users and stakeholders, and for using it with computational devices and services. Since ontology focuses on knowledge and its management independently from the devices one has available, it is exploited in many domains (like product and process engineering, medicine, business intelligence, artificial intelligence and law), especially where there is a need for integrating heterogeneous information.

The course has two purposes: (a) to motivate and introduce ontology and its techniques, (b) to show how to use ontology to represent knowledge in a domain considering the scenario and the goals of the modeler.

Program. The course starts with the introduction of the goals of ontology and discusses the questions to pose to construct an ontological system. The emphasis will be on modularity and design. To give the students a system to start with and to use as reference, we will present and motivate the DOLCE foundational ontology, explaining its rationale and how to use it.

In the second part, we analyze application cases. We will learn how to understand the modeler’s perspective and how to identify the relevant elements in the scenario. Then we discuss how to analyze them to integrate them into the foundational ontology. We will exemplify this by analyzing and modeling mid-level notions like artifact, agent, engineering function and risk as well as business and production processes, thus modeling notions like application, task, operation, behavior and action. We will focus the presentation on those elements and constructs that the students find more interesting.

The students can choose two ways to pass the course: modeling a scenario or reading and presenting technical papers. The scenario and the papers will be chosen in agreement with the instructor.