Title:
 Semantic heterogeneity and ontology matching

 Date: April 15, 16, 17th, 2008 (Aula 6302)

 Abstract:

 In the context of autonomous knowledge sources, like in the semantic
web, ontology diversity leads to semantic heterogeneity. This
heterogeneity is a regular feature of any vivid knowledge system which
can be overcome by finding correspondences between ontology entities,
i.e., ontology matching, and using these correspondences for restoring
interoperability, i.e., through translating data, merging ontologies
or mediating queries.

 Many different matching solutions have been proposed so far from
various viewpoints, e.g., databases, information systems, artificial
intelligence. They take advantage of various properties of ontologies,
e.g., structures, data instances, semantics, or labels, and use
techniques from different fields, e.g., statistics and data analysis,
machine learning, automated reasoning, and linguistics. As a
consequence, they are quite difficult to compare and describe, lacking
a uniform framework.

 This series of lectures introduces the goal of ontology matching,
presents the state of the art and points out open research questions.
It relies on a systematic uniform framework for presenting the state
of the art in matching systems and the relations between components.
It will mainly investigate the methodological and technical aspects of
matching and will present some existing systems.

 Content:

 1) Introduction
 - Motivations
 - Applications
 - Relations with the semantic web
 - A quick tour of the Alignment API and server

 2) Anatomy of a matching system
 - Basic matchers
 - Strategies

 3) Advanced topics
 - Semantics of alignments
 - Negotiating correspondences
 - Processing alignments

 Biographical sketch:

 Jérôme Euzenat is senior research scientist at INRIA (Montbonnot,
France). He has set up and leads the INRIA Exmo team dedicated to
"Computer-mediated communication of structured knowledge" which is
also part of the Laboratoire d'Informatique de Grenoble (Grenoble
computer science lab). Dr Euzenat has contributed to reasoning
maintenance systems, object-based knowledge representation, symbolic
temporal granularity, collaborative knowledge base construction,
multimedia document adaptation and semantic web technologies. His all
time interests are tied to the relationships holding between various
representations of the same situation. Hence, his research in

connecting heterogeneous ontologies. His work on heterogeneity, partially carried out in Knowledge web, has been recently published as a book, Ontology matching, written in collaboration with Pavel Shvaiko.

 References:
 Most of the courses will be based on our book:
 Jérôme Euzenat, Pavel Shvaiko, Ontology matching, Springer Verlag, Heidelberg (DE), 2007
 http://book.ontologymatching.org/ (other references from the book are available on this site).

 The Alignment API and server can be found from http://alignapi.gforge.inria.fr. There is a tutorial that will be quickly presented and that student can try to follow so that they can raise questions during the lectures.