Program

MO826 / MC936 - Information System Topics
Institute of Computing
University of Campinas

1\textsuperscript{st} semester / 2015
Professor: André Santanchê

Schedule

Monday and Wednesday: 16:00 until 18:00 (classroom 351 - IC 3.5)

Summary

This discipline focuses on the subjects: Web and Semantic Web. Web subject: Web science and Web engineering; architecture, models, standards and languages; querying; social Web and social networks; crowdsourcing; content, behavioral and graph analysis; information extraction, mining, searching, matching, entity resolution and Deep Web; Web platform and applications; Web for mobiles; Web services; Web of Things. Semantic Web subject: architecture, models, standards and languages; Web of data, metadata, querying, rules and reasoning; Linked Data, data spaces and data integration; knowledge representation, formalisms and ontologies; semantic Web services.

Program

- Web Engineering
  - Architecture
  - Models, standards and languages
    - URL, URN, URI and IRI
    - HTML and XML
    - XPath and XLink
  - Database perspective
    - Querying and XQuery
  - Web platform and applications
    - Web for mobiles
    - Web services
    - Web of Things
  - Linked data
    - Data spaces and data integration
  - Semantic Web
    - Architecture
    - Models, standards and languages
      - RDF and OWL
    - Web of data and metadata
    - Querying and SPARQL
    - Rules, reasoning and SWRL
  - Ontologies
    - Knowledge representation
    - Ontology spectrum
    - Controlled vocabularies
    - Taxonomies
    - Thesaurus
  - Semantic Web Services
- Data Science
  - “Digging” the Web
    - Information extraction
• Mining
• Searching
• Matching
• Entity resolution
• Deep Web
• Fourth Paradigm
• Web Observatory

- Web Social Science
  - Folksonomies and emergent social structures
  - Crowdsourcing
  - Content, Behavioral and Graph analysis
    • Link and tag analysis
    • Link prediction
    • Sentiment analysis

- Network Science
  - Complex Networks
  • Scale-Free Property
  • Small-world Network
  • Graph topology and Metrics

**Evaluation Criteria**

The course has two main projects:
- 1st project
  - presentations starting - 11/03/2015
  - deadline article - 15/04/2015
- 2nd project
  - presentations starting - 01/06/2015
  - deadline article - 01/06/2015

The projects specification will be delivered in specific documents during the course.

Average:
\[
\text{final} = \frac{\text{project}_1 + \text{project}_2}{2}
\]

Concepts mapping:
- A → final >= 8.5
- B → 8.5 > final >= 7
- C → 7 > final >= 5
- D → final < 5

Final exam - only for undergraduate students:
- Date: 13/07/2015
- In this case the final grade will be calculated as follows:
  \[
  \text{final}_{\text{exam}} = \frac{\text{final} + \text{grade}_{\text{exam}}}{2}
  \]

**Bibliography**

**Books**


Readings