CSI 5180 Topics in AI - Ontologies and Semantic Web

Semantic web technologies (RDF, RDFS, OWL). Ontology and knowledge base development. Data integration and normalization. Ontology matching. Semantic Web access through SPARQL queries. Semantic Web expansion from unstructured data (text), including Named Entity Recognition, Entity Linking and Relation Extraction from textual data. Question Answering over Linked Data. Data availability, redundancy, contextualization and trust.

SCHEDULE

Professor:	Caroline Barrière
Office:	STE5062
Email:	cbarrier@uottawa.ca
Course hours:	Thursday 14:30 - 17:20
Lecture room	LMX 390
Consultation hours:	Thursday 12:00 to 1:30pm

COURSE MATERIAL

Pointers to appropriate online material, such as tutorials, videos, book chapters and articles, will be provided each week.

EVALUATION

Penalty for late assignments: -10% per day.

Type	Value	Topic	Due Date
Assignments	15%	Querying the SW - SPARQL	Feb. 2, 2019
	20%	Ontology Development	Feb. 25, 2019
	15%	Ontology Matching OR Inference	March 21, 2019
	20%	SW expansion through text analysis	April 9, 2019
Presentations	15%	SW application	Choice of Application Jan. 24th Presentations Feb. 7th/14th
	15%	Current topic conference tutorial	Choice of Tutorial March 7th Presentations March 28 / April 4th

We will work with Apache Jena, http://jena.apache.org/.

***Tentative* Schedule:**

Week	Date	Topic
1	10-01-2019	Course outline Intro to Semantic Web
2	17-01-2019	Consuming Data / Exploring vocabularies SW query language - SPARQL
3	24-01-2019	Linked Open Data. Knowledge Publishing and sharing. RDFa for Search Engines.
4	31-01-2019	Ontology Design
5	07-02-2019	SW Application presentations
6	14-02-2019	SW Application presentations
7	21-02-2019	Study Break
8	28-02-2019	Ontology matching Concept similarity / Graph-based
9	07-03-2019	Reasoning / Inferencing
10	14-03-2019	Question Answering over linked data.
11	21-03-2019	SW Expansion - Entity linking Relation Extraction
12	28-03-2019	Student tutorials
13	04-04-2019	Student tutorials

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TEACHING APPROACH

For a graduate course, I wish for active student participation and knowledge sharing. I want this course to be about learning from each other, which explains the 2 presentations that each student will have to do. I also want this course to be very "hands-on" which explains the four assignments to be done.

Also, I believe class time should be to present and discuss high-level ideas, and alone time should be used to learn more specific information (such as formalisms, or query language syntax). Reading material will be provided.