

CSE 428. Semantic Web Topics

Spring 2020

Professor Jeff Heflin

Course Description:

In this course you will learn about the Semantic Web, Linked Data, and Knowledge Graphs, both in terms of the theory and practical applications. You will be introduced to many useful Semantic Web languages and tools. Finally, you will gain a broad understanding of the most challenging problems and what progress has been made towards solving these problems.

Course Web Page: <http://www.cse.lehigh.edu/~heflin/courses/semweb/>

Prerequisites:

- Java programming skills, especially the ability to reuse open source packages
- firm grasp of discrete math, such as mathematical functions, set theory, graphs, and logic
- familiarity with the World Wide Web
- although not required, some familiarity with artificial intelligence and databases may be useful

Time and Location: MW 9:50-11:05am, Building C, Room 115

Textbook:

Antoniou, Grigoris, Paul Groth, Frank van Harmelen, and Rinke Hoekstra. A Semantic Web Primer, Third Edition. MIT Press, Cambridge, MA, 2012. ISBN 978-0-262-01828-9.

Contact Information:

Instructor: Jeff Heflin
E-mail: heflin@cse.lehigh.edu
Office: Building C, Room 232
Office Hours: Tue. 2:30-4pm, Thr. 10-11:30am, and by appointment
Phone: 610-758-6533

Grading:

Homeworks (3)	30%
Team Projects (2)	50%
Paper critique	10%
Class participation	10%

Homework will consist of written assignments with multiple questions and will often include a programming component. There will also be two team projects. The paper evaluation will be a written summary and critique of a research paper plus an oral presentation. Class participation includes class attendance, completion of pre-discussion activities for assigned papers, and active participation in the discussion of readings.

I will use the following base scale for assigning letter grades. Note, for the purposes of this scale, all fractional grades are rounded down.

92-100: A	82-87: B	72-77: C	62-67: D
90-91: A-	80-81: B-	70-71: C-	60-61: D-
88-89: B+	78-79: C+	68-69: D+	0-59: F

The scale on the other side of the page gives the minimum grade you could receive for a given score. Depending on the performance of the entire class, your professor may adjust the scale so that you will receive a higher grade.

Late Work Policy:

Late work will be docked one letter grade (10% of its total value) for each day that it is late. No work will be accepted more than five days late. Exceptions will only be granted if an extenuating circumstance can be proven to your professor’s satisfaction.

Academic Integrity:

All graded work is expected to be your own, unless previous written approval has been given for cooperative efforts (such as the team projects). In particular, you are not allowed to ask anyone but your professor for help with individual assignments. Examples of violations include, but are not limited to, solving homework problems together, giving and/or receiving program code, and debugging someone else’s program. If you are unsure if a particular form of aid is allowed, then check with your professor first. Violation of this policy could result in failure of the course.

University Policy on Disabilities:

If you have a disability for which you are or may be requesting accommodations, please contact your professor and the Office of Academic Services, University Center C212 (610-758-4152) as early as possible in the semester. You must have documentation from the Academic Support Services office before accommodations can be granted.

Schedule:

This class schedule is only a rough guideline and may change depending on the pace at which we complete the material. All reading, homework and project assignments will be announced both in class and on the course web page.

Week	Topic	Reading
1/20	Introduction	Ch. 1
1/27	RDF	Ch. 2
2/3	SPARQL	Ch. 3, <i>papers</i>
2/10	OWL	Ch. 4
2/17	Ontology Engineering	Ch. 7, <i>papers</i>
2/24	Ontology Alignment an Entity Linking	<i>papers</i>
3/2	Description Logics	<i>papers</i>
3/9	<i>Spring Break</i>	<i>n/a</i>
3/16	Reasoning	Ch. 5, <i>papers</i>
3/23	Deep Learning for the Semantic Web	<i>papers</i>
3/30	Applications	Ch. 6, <i>papers</i>
4/6	Scalable Reasoning	<i>papers</i>
4/13	Federated Qery	<i>papers</i>
4/20	User Interfaces	<i>papers</i>
4/27	Knowledge Acquisition	<i>papers</i>