CSC 2502/486: Knowledge Representation and Reasoning

Lecturer: Hector Levesque (hector@cs.toronto.edu)

Goal: Introduction to
- techniques used to represent knowledge
- associated methods of automated reasoning

Prereq: CSC 384 + CSC 363/365/373/375 (+ CSC 330) =
- a course in AI (including LISP / Prolog)
- 3rd year discrete mathematics
- first-order logic (see also CSC 2404) $\Leftarrow$ **important!**

Grades: 4 problem sets (60%) + 2 tests (40%)
Some programming required.

Text: *Knowledge Representation and Reasoning*, by Brachman and Levesque (2004)
(Recommended but not required; online lecture notes will be sufficient)

Format:
- Lectures: Friday 12–2pm
- Tutorials: Tuesday 1pm, by arrangement

Web: `http://www.cs.toronto.edu/~hector/Courses/2502F08/`
Check regularly for announcements, assignments, and other handouts.

CSC 2502/486: Outline (approximate)

Topics: (and chapters of the book)

1. introduction
2. first-order logic
3. expressing knowledge
4. resolution
5. horn clauses
6. procedural representations
7. production systems
8. frames
9. description logics
10. inheritance
11. defaults
12. probabilities
13. explanation and diagnosis
14. action
15. planning
16. expressiveness / tractability

Tests:	1. Friday, Oct. 24	20%
	2. Friday, Dec. 5	20%
Assignments:	1. out Sept. 19, due Oct. 10	15%
	2. out Oct. 10, due Nov. 7	20%
	3. out Nov. 7, due Nov. 28	15%
	4. out Nov 28, due Dec. 5^{+}	10%

Lateness policy: on time or nothing!

Exception: once per term, due subsequent tutorial, 30% penalty