

# CSC 2502/486: Knowledge Representation and Reasoning

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**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) ⇐ **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/2502F07/>  
Check regularly for announcements, assignments, and other handouts.

# CSC 2502/486: Outline (approximate)

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## Topics: (and chapters of the book)

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

<b>Tests:</b>	1. Friday, Oct. 26	20%
	2. Friday, Dec. 7	20%

<b>Assignments:</b>	1. out Sept. 21, due Oct. 12	15%
	2. out Oct. 12, due Nov. 9	20%
	3. out Nov. 9, due Nov. 30	15%
	4. out Nov 30, due Dec. 7 <sup>+</sup>	10%

**Lateness policy:** on time or nothing!

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