Course Objectives

- Develop a fundamental understanding of logic as a programming language.
- Explore the computatable fragments of first-order logic.
- Study the use of logic for specifying and programming complex systems.
What will you learn in CSE 505?

Logic Programming
- Programming in Prolog
- Computational Basis
  - Resolution, Unification, Memoization
- Extensions and Applications
  - Non-monotonic reasoning
  - Knowledge Representation
  - Probabilistic Logic Programming
  - Satisfiability (SAT) and descendants
  - Constraint Programming
  - Abduction and Inductive Logic Programming

Logic Programming
A framework for unambiguously specifying knowledge and computation

http://xkcd.com/191/
Course Organization

Concepts, examples, program fragments discussed in class.

- **Exams**: One mid-term (30%) and a final (40%)
  Will cover reading, lectures and homeworks.

- **Homeworks**: (30% of grade)
  - Short-answer homeworks (incl. programming)
  - Mini projects (1 or 2)

Textbooks

No formal textbook.

  Out of print, but available from some online retailers

- **Foundations**: Ulf Nilsson, Jan Maluszynski, Logic, Programming and Prolog, Wiley.
  Online (PDF); linked from course web page

Additional References:


Course Software and Facilities

- **XSB Prolog, SWI-Prolog**: freely available for Unix (Linux, Solaris, BSD, ...) and Windows.
- Work from home or use CS Graduate Lab.

Course Support

- **Course Material**: handouts, homeworks, notes, etc will be available *directly from the course web site*.
- **Course Announcements**: *available from the blackboard system*. Check these regularly!
- **Course Discussion Board**: Piazza. Use this to discuss any course-related material: lectures, homework problems, exams, etc.

All homework assignments will be submitted via Git.

... More on this set-up later in the semester.
Questions

How to contact course staff:

- Course staff is likely to be a singleton set.
- Post your question on the discussion board.
- Come to my office during my office hours.
- Send me email. (Post on discussion board unless the question is personal).