

# CSE 505: Computing with Logic

<http://www.cs.sunysb.edu/~cse505/>

**Tue. Thu., 3:50pm – 5:10am**

**Old Chemistry 138**

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## Course Objectives

- Develop a fundamental understanding of logic as a programming language.
- Explore the computable 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
  - Relational Programming
  - Backtracking Search
- Computational Basis
  - Unification
  - Resolution
  - Memoization
- Extensions and Applications
  - Non-monotonic reasoning
  - Logic-based AI

## Course Organization

Concepts, examples, program fragments discussed in class.

- **Exams:** One mid-term (35%) and a comprehensive final (45%)  
Will cover reading, lectures and homeworks.
- **Homeworks:** (20% of grade)
  - Non-programming homeworks
  - Short programming assignments

## Textbooks

Ivan Bratko, *PROLOG Programming for Artificial Intelligence*, 3rd edition, Addison-Wesley; ISBN: 0201403757.

Additional References:

- Ulf Nilsson, Jan Maluszynski, *Logic, Programming and Prolog*, Wiley.
- Michael Spivey, *An introduction to logic programming through Prolog*, Prentice Hall, ISBN: 0135360471.
- Edmund Burke, Eric Foxley, *Logic and its Applications*, Prentice Hall, ISBN: 0130302635.

All above books are available on 2-hour loan from the library.

## Course Software and Facilities

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

# Course Support

Course web pages are partly hosted by the Blackboard system.

- **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:** *Bulletin board available on the blackboard system*. Use this to discuss any course-related material: lectures, homework problems, exams, etc.

All homework assignments will be submitted via the Blackboard system.

## Questions

How to contact course staff:

- Course staff is 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).