

About 6.034 — Spring 2007

Please go to the home page, register for the on-line system and fill-in recitation preference today.

Home page: <http://courses.csail.mit.edu/6.034/Spring>

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6.034 introduces representations, techniques, and architectures used to build applied systems and to account for intelligence from a computational point of view. Applications of rule chaining, heuristic search, logic, constraint propagation, constrained search, and other problem-solving paradigms. Applications of decision trees, neural nets, SVMs and other learning paradigms.

Prerequisites

- **6.001**
We will have regular assignments that expect you to be able to read and write Scheme. This is the only formal pre-requisite.
- **18.02**
We will assume that you know what the chain rule is and partial derivatives and dot products. If you have not taken 18.02, you should really wait to take 6.034 until you have.

Topics

The course covers three major areas:

- Machine learning (5 weeks)
 - Nearest Neighbors
 - Decision Trees
 - Neural Networks
 - SVM
- Search (4 weeks)
 - Graph search
 - Constraint satisfaction
 - Games
- Knowledge representation and Inference (3 weeks)
 - Propositional and First Order Logic
 - Rule-based systems
 - Natural Language

Course Organization

- 2 x 1.5 hr classes (MW11-12:30, 32-123)
- 1 recitation with TA (on Fridays - to be scheduled)
- On-line text + exercises
 - Recommended book (available at [Quantum](#) & [Amazon](#)) is Russell & Norvig, AI: A Modern Approach (2nd ed). This book is **only** for supplementary reading; all of the course material is covered in the notes.
- On-line problem sets
- 2 Projects
- 3 in-class quizzes
- Final

Grading

- 30% Final
- 30% Quizzes
- 25% Projects
- 15% On-line assignments + Recitation Participation
- You must complete both projects to pass the course.
- The on-line assignments are an essential component of the subject and are required. A 90% score on any on-line assignment gets full credit. There is no difference between 90% and 100%. A minimum average score of 75% on the on-line assignments is required to pass the course.
- Problems submitted late will receive half credit unless you have a valid reason and make an arrangement with your TA.

Collaboration

The 6.034 collaboration policy is identical to the 6.001 policy, which is explained in more detail on the General Information page of the 6.001 site: <http://sicp.csail.mit.edu>. The highlights are listed below, but we expect you to have read the detailed policy.

- Everything you hand in for credit in this subject is supposed to be your own work; this includes on-line work.
- The on-line problems should be done individually, possibly with assistance from TAs.
- We encourage you to work with one or two people to figure out approaches to the projects and to get help in debugging, but everything you hand in, including code, must be your own work. You must identify the people you worked with on your project.