

**Brief Syllabus of COSC 5340, Spring 2003**  
**Computational Learning Theory**  
MW 2:00 ~ 3:15 PM, Maes 113

**Instructor:** Dr. Chung-Chih Li  
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**Office Hours:** MWF 9:00 ~ 10:00 AM or by appointment

**Topics:**

We start with an introduction to some important learning models, from which we will get a clearer idea about machine learning from different aspects. Then, we will shift to an important model, PAC (Probably Approximately Correct), and use it to reveal the complexity concerns in learning theory. After that, we will further shift to learnability. We will investigate a remarkable model for *adaptive learners* initiated by E. Mark Gold in late 1960s and its prodigious results accumulated in early 1990s. Some background on computability such as recursion theory and complexity theory will be introduced before we get into the details of the subject.

**Prerequisites:** MATH 2305, COSC 3302, COSC 5320, or equivalent courses.

**Textbooks:**

1. *Systems That Learn: An Introduction to Learning Theory*, by Sanjay Jain, Deniel Osherson, James S. Royer, Arun Sharma. The MIT Press, 1999
2. *Computability: An Introduction to Recursive Function Theory*, by N.J. Cutland, Cambridge University Press, 1980

**Examinations:** (400 points) One midterms (100 points for each) and one final project(150 point on presentation and 150 points on final report)

**Assignments:** (200 points) About 5 or 6 programming assignments will be given.

**Attendance and Pop quizzes:** (100 points) Some attendance and pop quizzes will be taken and given impulsively.

**Grading Policy:** You will have at least 600 points to gain. Your grade is based on the scheme shown in the following table.

Points	Grade	
540 ~ 600	A	Excellent
420 ~ 539	B	Good
300 ~ 419	C	Satisfactory
200 ~ 299	D	Passing
0 ~ 199	F	Failure