CS 440 (ECE 448) - Artificial Intelligence

Instructors:
A number of different professors have taught this popular course over the years. Recent professors to teach this class have been Eyal Amir, Lana Lazebnik, and Gerald DeJong.

Prerequisites:
CS 440 is cross listed as ECE 448. It lists CS 225 (Data Structures) or ECE 391 (Computer Systems Engineering) as a prerequisite. The prerequisite is to make sure students who take this class have a fundamental background in data structures and algorithms. Prior background in probability will also be helpful, but not required.

When to Take It:
In recent years, CS 440 has been offered in both the Fall and Spring. It is usually taken by Juniors and Seniors as a technical elective, but it can be taken earlier if one is so inclined. If you plan on taking follow-up courses that are based on AI, like Machine Learning and Computer Vision, you probably want to take this sooner rather than later. Just make sure you have CS 225 under your belt first - ECE 391 really doesn't prepare you for this class, as you really need to know data structures and algorithms, not operating systems. Taking a course in probability beforehand will also help your understanding of certain topics in 440.

Class Content:
This course provides an introductory survey to the techniques and applications of AI. Subjects covered include: History of AI, Models and Search Algorithms (such as BFS, DFS, and A-star), Game-Playing Systems and Game Theory, Logic and Knowledge Representation, Planning and Reinforcement Learning, Probabilistic Reasoning, and Modern Applications of Artificial Intelligence. Every professor touches on these general topics in their own way, so the flow of topics and the exact content covered will vary from semester to semester.

Work:
Workload will vary depending on which professor you have. DeJong gives biweekly written homework assignments that have the occasional programming problem. Lazebnik's class consists of 4 MPs (including a Maze Solver and a Character Recognition System), and some extra credit, a reasonable workload for a tech elective. Amir's assignments were a combination of written problems and some programming problems which were basically MPs in their own right - a rather difficult and extremely time-intensive workload. Additionally, all the professors gave 1 midterm and a final exam.

Life After:
Students wishing to continue along with AI topics may wish to take CS 446 (Machine Learning), Computer Vision (CS 543 & CS 544), Natural Language Processing (CS 498 Special Topic & CS 546).