Computer Science and Engineering 151
Introduction to Artificial Intelligence

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   With a little help from
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Office hours: Mondays and Wednesdays 1:30-2:30 or by appointment.

TA: None. Class too small!

Course Description:
This is the second part of a two quarter sequence in Artificial Intelligence. You are
strongly encouraged to take both quarters for a complete treatment, as this quarter is
really only half the material. This quarter only, we are allowing those of you who have
not taken CSE 150 to attend. This may lead to a bit of review for those of you who have
taken 150 (hopefully not too much). This quarter we will cover techniques in symbolic
knowledge representation and inference, probabilistic inference, and machine learning.
Machine learning encompasses unsupervised, supervised and reinforcement learning. I
will lightly cover unsupervised and supervised learning in favor of concentrating on
reinforcement learning. The supervised learning portion will not cover neural networks,
as that was covered in 150. There will be occasional readings from the web page for the
course or from e-reserves.

Programming considerations
CSE 150 is a prerequisite for this course. However, since not all of you have taken it, we
will be more flexible as to which programming languages are allowed. We will do
projects in teams of two or three. We strongly recommend that for projects involving
symbolic reasoning, Lisp be used. Therefore it would behoove you to 1) start learning
lisp and 2) find a partner who took 150. There is a recommended style of programming
in Lisp that we adhere to that is given in CSE 150: functional programming. This means
we expect you to avoid the use of setq’s and global variables whenever possible, and
certainly no goto’s allowed!
To make things somewhat easier for all of us, all programming assignments (there will be
three (3) machine problems this quarter) will be done by you and a partner. Choose a
partner soon. Partners must be changed for every assignment. We are not matchmakers:
You must do this yourselves! Part of the the learning experience is learning to divide
tasks into parts and figure out the interface between the parts. Also, learning to work
with someone else. When you are out in the work world, you will be thrown together
with people you don’t know and forced to work together. Get used to it!

Texts: Artificial Intelligence, A modern approach by Russell and Norvig. This is available
used online from amazon.com, for 81 dollars.
Required work: There will be three machine problems (45%) in Lisp, Matlab or C, possibly short homework questions on the reading & lectures (15%), a midterm (15%) and a final (25%). Actual figures may vary. If I end up not giving short homeworks, I will scale the other percentages proportionally. If there are homeworks, they will be given at lecture time, and randomly collected approximately 50% of the time. Programs will be spread evenly through the term. Extra credit for class participation. The current target date for the midterm is Thursday, May 1, 2003.

Grading policy: Homeworks are due on the due date at the beginning of class. Homeworks will not be accepted late. Programming assignments are due at midnight on the date due (that is, 11:59PM). After midnight, and until the beginning of the next class, programming assignments can be turned in for half credit. The only exceptions will be if you have broken all of your arms or something equally disastrous. ("I stayed late at the Belly Up and overslept" is not acceptable).

Cheating: Don’t. Working in pairs on the machine problems is required, but working together on homeworks must follow the (spirit of the) Gilligan’s Island rule (Dymond, 1986): No notes can be made during a discussion, and you must watch one hour of Gilligan’s Island or equivalent before writing anything down. Suspected cheating will be reported to the Dean. Besides, you’d be nuts to try it in such a small class!

CSE 151 Tentative (rough) schedule for Spring, 2003:

Week 1: Knowledge representation using logic (Chapter 7 and 8)
Week 2: Machine Inference using resolution (Chapter 9)
Week 3: Uncertainty (chapter 13)
Week 4: Bayesian networks (chapter 14)
Week 5: Probabilistic reasoning over time (Chapter 15)
Week 6: Decision making under uncertainty (Chapter 16)
Week 7: Making complex decisions (Chapter 17)
Week 8: Machine learning (Chapter 18)
Week 9: Reinforcement learning (Chapter 20)
Week 10: Wrap-up loose ends/overrun buffer.

The first machine problem will be given out in week 2.