UNIVERSITY OF GUELPH
Department of Computing & Information Science
COURSE OUTLINE

Course Code: **CIS*4450**	**Title: Special Topics in Information Science** ***Automated Reasoning***	**Semester of Offering:** Fall 2012

Instructor: Dr. Yang Xiang
Office hours: Wed, 4:00-5:00 PM or by appointment

Office: Reynolds 318
Extension: 52824

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Description: The ability to reason autonomously is fundamental to intelligent agents functioning in complex application environments. This course builds upon the background on artificial intelligence from CIS 3700, and studies advanced topics on knowledge representation and automated reasoning. These include constraint reasoning, probabilistic reasoning, and reinforcement learning.

Prerequisite(s): CIS*3700

Topics:

- Constraint satisfaction problems
- Backtracking
- Iterative improvement
- Constraint propagation
- Limitation of logic
- Notation and axioms of Bayesian probability
- Inference with JPD
- Bayesian networks (BNs)
- Inference in BNs by variable elimination
- Building models as BNs
- Markov decision processes
- Value iteration
- Active adaptive dynamic programming

**Programming assignments are to be completed in Java

Schedule:
Lecture Mon, 2:30-3:50 PM, MACN 118
Wed, 2:30-3:50 PM, MACN 118
Lab Mon, 4:00-4:50 PM, MACN 118

Main Text: S. Russell and P. Norvig, Artificial Intelligence: A Modern Approach, (3rd Ed.), Prentice Hall, 2010.

Method of Evaluation:

Course Work	**Date**	**Weight**
Assignment 1:	Weeks 3 to 5	17%
Assignment 2:	Weeks 6 to 8	17%
Assignment 3:	Weeks 9 to 11	17%
Final Exam (Room TBA)	Tue., Dec 4, 7:00-9:00PM	49%

Grading Policies The student must attempt all course work, and must achieve a passing grade for each component with no more than one exception.

Website: http://www.socs.uoguelph.ca/~yxiang/4450/4450f12.html

ACADEMIC INTEGRITY

All assignments for this course are to be completed independently by each student. Work that shows significant unnatural similarity, or that appears to be copied from unacknowledged sources, will be investigated as potential academic misconduct. **"Aiding and abetting" is also a punishable offence**, and students must be careful not to help others commit offences by giving out their files or allowing others to access their computer accounts.

E-MAIL POLICY

Students should include their name and course number in every email, *e.g.* Joe Smith: CIS*4450. To comply with university privacy policy, all emails should be sent from your *uoguelph* account (not from hotmail.com, gmail.com, or any other non-UoG host). **Students are responsible for reading their *uoguelph* email concerning this course.**

ASSIGNMENT SUBMISSION

Assignments are expected to be handed in by specified due dates. Late assignments will be subject to 15% of the total mark per day up to **3 *calendar* days** (not weekdays). For instance, the latest date to hand in an assignment due on a Friday is the following Monday, with the highest possible mark of 55%. Please see details on submission procedure in the course website.

ELECTRONIC DEVICE USE POLICY

To minimize distractions during lectures, the use of electronic devices (including laptops, smart phones, tablets, etc) are **strongly discouraged**. Students who intend to use such devices for note taking only are advised to notify the instructor at the beginning of semester.

ELECTRONIC RECORDING

The electronic recording of class lectures is expressly forbidden without the prior consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.