UNIVERSITY OF NEW BRUNSWICK
Faculty of Computer Science

CS4725: Introduction to Artificial Intelligence/
CS6705: Foundations of Artificial Intelligence

Course Outline
Fall 2017

Lecture Times:	MWF 1:30-2:20 pm (Gillin Hall, D124)
Labs:	Fri 2:30-4:20 pm (ITD-415) [not every week - see schedule on next page]
Professor:	Dr. Michael Fleming
Office:	ITD-420
Office Hours:	MWF 9:00am - 10:00am, or by appointment, or drop in whenever my door is open
Phone:	451-6969
Email:	mwf@unb.ca

Objectives: The purpose of this course is to provide students with a general introduction to the field of artificial intelligence. Topics will include an introduction to intelligent agent design, problem solving using search techniques, the use of mathematical logic for knowledge representation and reasoning, decision making under uncertainty, and machine learning.

Textbook: Stuart Russell and Peter Norvig, *Artificial Intelligence: A Modern Approach*, 3rd edition (Prentice Hall, 2010).

Prerequisites:

CS4725 - A minimum grade of "C" in both CS2333 and CS2383

CS6705 - Sufficient background in data structures and algorithms, computability and formal languages, and computer programming (Java preferred). Please speak to the instructor if you have questions.

Evaluation:

	CS4725	**CS6705**
Assignments:	25%	23%
Lab exercises:	8%	7%
Midterm:	12%	10%
Final Exam:	40%	35%
Programming Project:	15%	15%
Research Report:	----	10%

Note that you **must** pass the final exam (50% or higher) in order to earn a C or higher in the course. The midterm and exam will be closed-book, and no calculators or other aids will be permitted. The midterm will be held in class on Wednesday, October 25. Material presented in class will not necessarily be in the textbook. All presented or assigned material is testable.

CS6705 students must submit a research report. A document describing the expectations for the report will be provided in class.

Assignments:

Assignment questions will be posted on the Desire2Learn system. Hand in all assignments in the CS4725/CS6705 bin on the E level of Gillin Hall or bring them to class on the due date. Extensions will be given only for medical reasons or in other exceptional circumstances, and normally only if the instructor is contacted before the assignment deadline.

All assignments should include a header or title page with the following information:

Name, Student Number, Course Number, Assignment Number

Some assignments may include problems to be completed only by **CS6705** students.

Labs:
Four lab sessions will be held on the dates shown on the schedule below. During each lab, you will be provided with one or more tasks to perform. Each session will be different, but the labs will typically involve completing a modest programming task or experimenting with an existing piece of software and reporting on your results. For each lab activity, there will be one or more related questions, to be handed in on the dates shown on the schedule below. Extensions will be given only for medical reasons or in other exceptional circumstances, and normally only if the instructor is contacted before the deadline.

Most lab sessions will start with a brief "lecture" from the professor (to provide you with some required background information), and he will also be there to answer questions as you work. It is expected that most students will require some additional time outside of the lab session to complete the tasks and to answer the relevant questions. However, these are not intended to be very time-consuming.

Plagiarism:
All students are expected to be familiar with the regulations on plagiarism and other academic offences given in the UNB Undergraduate Calendar . A definition of plagiarism is attached to this course outline.

You may discuss **general approaches** to assignment problems with classmates. However, these must be general and cannot include things such as detailed steps to follow in a calculation or proof. The written answers you submit **must** be your own work.

Tips for avoiding plagiarism:

- Do not copy solutions from other students or allow them to copy yours.
- Do not write anything down while discussing problems with others. Focus on understanding the material and then write your solution on your own at a later time.
- Acknowledge any help you receive from classmates or from any sources other than the textbook or class notes. For example, you might write on the front of your assignment: "I discussed problems 2 and 3 with classmates J. Doe and J. Smith. For help with problem 4, I consulted Section 6.3 of the book *Artificial Intelligence* by M. Negnevitsky."

Student use of technology in class: Students may use laptops and other devices in class only for purposes related to the course. Students using devices for other purposes will be asked to stop and, if they do not comply, may be asked to leave the class.

Approximate Schedule:

Week		Topics	Lab Sessions	Due dates/ Midterms
1	Sept. 8	Introduction to AI / intelligent agents (Chapters 1,2) Problem solving using search (Chapters 3-4) Game playing (Chapter 5) Constraint satisfaction problems (Chapter 6)		
2	Sept. 11-15			
3	Sept. 18-22		Lab 1: Fri. Sept. 22	
4	Sept. 25-29			Lab 1 due: Wed. Sept. 27 Report topics (CS6705) due: Fri. Sept. 29
5	Oct. 2-6	Knowledge representation and reasoning (Chapters 7-9)	Lab 2: Fri. Oct. 6	Asst. 1 due: Wed. Oct. 4
6	Oct. 9-13 **(No class Oct. 9)**			Lab 2 due: Wed. Oct. 11
7	Oct. 16-20	Reasoning under Uncertainty (Chapters 13-17)		Asst. 2 due: Wed. Oct. 18
8	Oct. 23-27			**Midterm:** Wed. Oct. 25
9	Oct. 30 - Nov. 3		Lab 3: Fri. Nov. 3	Research reports (CS6705) due: Wed. Nov. 1
10	Nov. 6-10 **(No class Nov. 10)**			Lab 3 due: Wed. Nov. 8
11	Nov. 13-17	Machine Learning (Chapters 18-21) Course review		Asst. 3 due: Wed. Nov. 15
12	Nov. 20-24		Lab 4: Fri. Nov. 24	Programming projects due: Wed. Nov. 22
13	Nov. 27 - Dec. 1			Lab 4 due: Wed. Nov. 29
14	Dec. 4			Asst. 4 due: Mon. Dec. 4

A. PLAGIARISM AND OTHER ACADEMIC OFFENCES

(From the 2017-2018 UNB Undergraduate Calendar)
Plagiarism includes:

1. quoting verbatim or almost verbatim from any source, regardless of format, without acknowledgment;
2. adopting someone else's line of thought, argument, arrangement, or supporting evidence (such as statistics, bibliographies, etc.) without indicating such dependence;
3. submitting someone else's work, in whatever form (essay, film, workbook, artwork, computer materials, etc.) without acknowledgment;
4. knowingly representing as one's own work any idea of another.

NOTE: In courses which include group work, a penalty may be imposed on all members of the group unless an act of plagiarism is identified clearly with an individual student or students.

Examples of other academic offences include: cheating on exams, tests, assignments or reports; impersonating somebody at a test or exam; obtaining an exam, test or other course materials through theft, collusion, purchase or other improper manner, submitting course work that is identical or substantially similar to work that has been submitted for another course; and more as set out in the academic regulations found in the Undergraduate Calendar.

Penalties for plagiarism and other academic offences are specified in the Undergraduate Calendar. For more information, please see http://www.unb.ca/nocheating