NAZARBAYEV UNIVERSITY
SCHOOL OF SCIENCE AND TECHNOLOGY

Computer Science
Course Syllabus

CSCI 390 - Artificial Intelligence
Fall 2018

General Information

- Teacher: Martin Lukac, Mao Bui
- Office Hours: TR: 14:00-15:00
- Class Times: T 10:30-11:45
- Lab Times: T 12:00-01:15
- Lab Times: R 10:30-11:45
- Lab Times: R 12:00-01:45
- Class Location: TBD
- TA: TBA
- TA: TBA

Pre-Requisites

CSCI 150/CSCI 151

Course Overview

The focus of this class is to introduce and familiarize the student with basic concepts of Artificial Intelligence including but not limited to Problem-Solving, Knowledge Representation, Reasoning, Planning, Probabilistic Reasoning and Learning. The student will be exposed to these traditional fields in order to understand many of the commonly used algorithms in computer science, robotics or data mining. The prefered programming language is LISP but beside one or two assignments Java or C/C++ is allowed as well.

Course Objectives

1. Learn and Understand what is AI, what are intelligent agents and how are they used in problem solving
2. Learn how to solve problems by searching, exploration vs. exploitation in strategies for problem solving, CSP and so on
3. Reasoning under uncertain conditions (probabilistic reasoning)
4. Learning (from observation, probabilistic, reinforcement)

Course Materials

Artificial Intelligence A Modern Approach, 2nd/3rd edition, Stuart Russell, Peter Norvig

Class Structure

This course will be thought in a hands-on manner. The class will consist of lecture and 12 assignments will be given during the term. Additionally a short but hard quiz will be given every month without prior announcement. The Quiz will be concerning knowledge thought in the previous lessons up to one month ago. The assignments are programming or problem solving using at first LISP language later on Python. The participation grade is an average of presence at lectures and the participation in question answering

or discussion. There is no midterm examination but a Final Examination will concern the knowledge from the whole term.

Class Timeline

Week	Topic Covered	Readings	Additionals
04/09-10/09	Introduction, What is AI Turing Test, Chinese chamber test		Ch. 1
13/08-19/08	Intelligent Agents, Rational Reasoning		CH. 2
20/08-26/08	Problem Solving and Search		Ch. 3
27/08-02/09	Informed Search Algorithms		Ch. 4
03/09-09/09	Local Search Algorithms		Ch. 5
10/09-16/09	Game Playing		Ch. 6
17/09-23/09	Uncertainty		Ch. 13, 14
24/09-30/09	Bayesian Networks Inference in Bayesian Networks		Ch. 14
01/10-07/10	Temporal Probability Models		Ch. 15
15/10-21/10	Rational Decisions		Ch. 16, 17
22/10-28/10	Learning From Observations		Ch. 18
29/10-04/11	Statistical Learning		Ch. 19-21
05/11-11/11	Reinforcement Learning		Ch. 19-21
12/11-18/11	Examples, Applications		Ch. 22,23,24,25
19/11-25/11	Review		Ch. N/A

Class Assessment

The final grade is calculated as follows:

2 Quizzes	10%
12 Assignments	60%
1 Attendance	10%
1 Final Examination	20%

Final letter grades will be assigned using the following:

A	95-100	C	65-69.9999
A-	90-94.9999	C-	60-64.9999
B+	85-89.9999	D+	55-59.9999
B	80-84.9999	D	50-54.9999
B-	75-79.9999	F	0-49.9999
C+	70-74.9999		

Course Policies

Attendance

The attendance is mandatory. Attendance includes being in class during lectures, answering and asking questions, Missing classes and habitual tardiness will have a negative effect on your grade, both directly and indirectly. Attendance will be recorded on Moodle, and will count towards your Participation grade. You may check your current number of absences at any time. We will be covering a lot of material over the semester, and will be having numerous class exercises which will require your direct participation to receive credit.

Electronic Resources

You are expected to check your Nazarbayev University e-mail as well as your Moodle account on a daily basis for updates and announcements about the course. You will also be required to use Moodle to submit in-class exercises, programming assignments, some quizzes, and presentation materials as instructed by your instructor.

Late Policies

ZERO TOLERANCE LATE SUBMISSION

Asking for extending deadline without valid reason will automatically reduce your assignment grade by 10%

Any cheating is automatically reported to the Dean and results in Fail Grade in the Class

Missing any two assignments results in F in class

Programming Assignments must be submitted by the Astana time specified at the time of the assignment. The assignment must be submitted to the proper place in Moodle on the announced due date. In case Moodle does not work, assignments need to be submitted by email to your instructor AND teaching assistants by the same time and day as specified in the assignment. In general, there is no late policy; if you submit an assignment after the specified time on the day it is due, you get zero points for your assignment. In cases of illness or family emergency, you must inform your instructor immediately if you believe you will not be able to submit your assignment on time. In such cases, an exception may be made at the discretion of your instructor. In addition, live grading will be done if the instructor feels that the assignment is a result of plagiarism.

Classroom Behavior

You are expected to act respectfully towards your fellow classmates, TAs, and instructors inside and outside of the classroom. We have a limited amount of time to cover a lot of material this semester, so you need to pay attention during lectures and presentations, and do your in-class work when it is assigned. Talking on your phone, texting, chatting online, browsing Facebook or other social media sites, and talking excessively with your neighbors about non-class related stuff are just a few examples of behavior that is not acceptable, and will negatively impact your participation score. In fact the cell phones are prohibited in class. Anyone caught with a cell phone is automatically marked as not present at the lecture

Cheating Behavior

There is a double F cheating policy. This means that if you are caught cheating, your next assignment of same type is automatically an F as well. Do not cheat!!!