Boston University Metropolitan College

Artificial Intelligence

MET CS 664 A1
Course Format - On Campus
Fall 2018

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Office hours: by appointment or after class

Class Time: Wednesday - 6:00 p.m. – 8:45 p.m.
Class Location: CGS 515

Course Description

This course is an intensive look at Artificial Intelligence and its applications. The course will cover many facets of AI including (but not limited to) Search, constraint propagations, and reasoning, Knowledge representation, natural language, learning, question answering, inference, visual perception, and/or problem solving. An emphasis is placed on the implementation of the techniques covered.

Lisp & Prolog are the languages of AI, we will cover them briefly, the programming assignments can be done in any modern programming language.

Text

- Stuart Russell, Peter Norvig, "Artificial Intelligence A modern Approach", 3rd Edition, Prentice Hall, 2010 (*Required Text Book, available at BU Bookstore*)

Courseware

http:// learn.bu.edu

Class Format and Grading Policy Policies

New material will be presented in weekly lectures. Reviews, exercises, and homework solutions will be covered during lectures. Student participation is highly recommended, although not mandatory, and it is possible for participation to lead to extra credit. Frequent in class labs will be utilized to assist students in their understanding of the material.

Students will be required to submit a semester project. This project will take approximately 8-10 weeks, and should be of sufficient magnitude to cover a specific facet of Artificial Intelligence in depth. The student will submit a proposal for the project. On acceptance of this proposal the student may begin work. A list of potential projects will be covered in class.

Periodic Homework problems will be assigned, in addition to the Semester Project. Homework will be due the week following assignment. Late homework and projects will not be accepted unless permission by the instructor was granted prior to the due date. In class team and individual projects will also be implemented. A mid-term and final exam will be completed in class, and the breakdown of grading for the course is as follows:

Homework:	10%
Semester Project:	40%
In Class Work	10%
Mid-term Exam:	15%
Final Exam:	25%

This course is an intensive analysis of "Artificial Intelligence". The student should be prepared to spend sufficient time and energy on this course to allow for successful completion of the course work.

Academic Conduct Code – Work handed in by students should be of that student's design. Discussion of approach to problems with other students is encouraged, but the actual work on a project should be of an individual nature. Cheating and plagiarism will not be tolerated in any Metropolitan College course. It will result in no credit for the assignment or examination and may lead to disciplinary actions. Please take the time to review the Student Academic Conduct Code:
http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html.

Class Meetings, Lectures & Assignments

Lectures, Readings, and Assignments subject to change, and will be announced in class as applicable within a reasonable time frame.

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Week	Date	Topic	Reference
(1)	4 Sep 19	Welcome, Administrative Issues, Introduction to Artificial Intelligence – Foundations, History, State of the Art	Chapter 1
(2)	11 Sep 19	Intelligent Agents, Solving problems by searching – Rationality, Search Agents, Heuristics	Chapters 2-3
(3)	18 Sep19	More Searching, Adversarial search, Local Search, Unknown Environments, Games, Stochastic Games	Chapters 4-5
(4)	25 Sep 19	Satisfying Constraints – Defining Constraints, Propagation, Backtracking, Local Search	Chapter 6
(5)	2 Oct 19	Logical Agents – Knowledge Based Agents, Propositional Logic	Chapter 7
(6)	9 Oct 19	First Order Logic – Representation, Syntax & Semantics, Usage	Chapter 8
(7)	16 Oct 19	Inference in First Order Logic – Propositional vs. FOL, Unification, Chaining, Resolution	Chapter 9
(8)	23 Oct 19	**Midterm Exam**	
(9)	30 Oct 19	Classical Planning – Definitions, Algorithms, Graphs, Planning Analysis	Chapter 10
(10)	6 Nov 19	Quantifying Uncertainty – Acting Under Uncertainty, Basic Probability, Inference, Bayes' Rule	Chapter 13
(11)	13 Nov 19	Learning from Example – Forms, Supervised, Decision Trees, Evaluating Hypotheses, Neural Networks	Chapter 18
(12)	20 Nov 19	Learning Probabilistic Methods – Statistical Learning, Complete Data, Hidden Variables	Chapter 20
(13)	27 Nov 19	Thanksgiving Recess	Turkey
(14)	4 Dec 19	Future of Artificial Intelligence, Project Presentations.	
(15)	11 Dec 19	Project Presentations, Battleship Tournament, Final Exam review.	
(16)	18 Dec 19	Final Exam.	