

# ***MET CS664 AI (Spring 2026) - Artificial Intelligence (OnCampus, Mondays)***

## ***Instructor***

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## ***Course Description***

Study of the ideas and techniques that enable computers to behave intelligently. Search, constraint propagations, and reasoning. Knowledge representation, natural language, learning, question answering, inference, visual perception, and/or problem solving. Laboratory course.

## ***Course Prerequisites***

Python programming experience equivalent to MET CS 521. Or instructor's consent.

## ***Course Grading Policy***

The course grade will be based on class participation (10%), in-class assignments (30%), mid term exam (30%), and term project (30%).

## ***Course Web Site***

- <https://learn.bu.edu>

## ***References***

### ***Reference Books***

- *Artificial Intelligence: A Modern Approach, 4th ed.*, by Stuart Russell and Peter Norvig, Pearson, 2021. ISBN: 9780134610993.(Reference book)  
<https://aima.cs.berkeley.edu>
- "Artificial Intelligence, 3rd ed.", by David L. Poole and Alan K. Mackworth, Cambridge University Press, 2023. ISBN: 9781009258197.(Reference book)  
<https://artint.info/3e/html/ArtInt3e.html>

## ***Student Conduct Code***

[Please review the academic conduct code](#)

## *Tentative Course Schedule*

- **Module 1 -- Introduction**
  - Introduction to AI
  - Relevant Python Programming Review
- **Module 2 -- Search**
  - Uninformed Search: DFS, BFS, Uniform-Cost
  - Informed Search: Heuristics, Greedy techniques, A\* Search
  - Games as Search
  - Adversarial Search: Minimax rule, Alpha Beta Pruning
- **Module 3 -- Constraint Satisfaction Problems**
  - Examples (Sudoku, N-Queens, Golomb Rulers, Map Coloring, etc.)
  - Local Consistency, Arc Consistency
  - Backtracking Search, Forward Checking, Local Search
- **Module 4 -- Logical Agents, Knowledge Representation & Planning**
  - Propositional Logic, First-Order Logic
  - Inference, Forward Chaining, Backward Chaining
  - Classical Planning, Hierarchical Planning
- **Module 5 -- Uncertainty**
  - Reasoning (Belief networks, Markov models)
  - Learning (Bayesian)
  - Planning with Uncertainty
- **Module 6 -- Deep Learning & Reinforcement Learning**
  - Neural networks (Feedforward, Convolutional, Recurrent)
  - Reinforcement Learning
  - NLP Applications
- **Module 7 -- Generative AI**
  - Topics in Generative AI
  - Attention, Transformers
- **Mid Term Exam (March 16th)**
- **Project Presentation (April 27th)**