



Form: Course Syllabus	Form Number	
	Issue Number and Date	<u>2/3/24/2022/2963</u> <u>5/12/2022</u>
	Number and Date of Revision or Modification	
	Deans Council Approval Decision Number	
	The Date of the Deans Council Approval Decision	
	Number of Pages	08

1.	Course title	Introduction to Artificial Intelligence	
2.	Course number	1912240	
3.	Credit hours	3 Credit Hours	
	Contact hours (theory, practical)	3 theory	
4.	Prerequisites/co-requisites	Introduction to Artificial Intelligence	
5.	Program title	Artificial Intelligence	
6.	Program code	5	
7.	Awarding institution	The university of Jordan	
8.	School	King Abdullah II School for Information Technology	
9.	Department	Artificial Intelligence Department	
10.	Course level	Undergraduate	
11.	Year of study and semester (s)	Fall 2023/2024	
12.	Other department (s) involved in teaching the course	None	
13.	Main teaching language	English	
14.	Delivery method	☒ Face to face learning ☐ Blended ☐ Fully online	
15.	Online platforms(s)	☒ Moodle ☒ Microsoft Teams ☐ Skype ☐ Zoom ☐ Others	
16.	Issuing/Revision Date	October, 2023	

**17. Course Coordinator:**

Name: Nadim Obeid

Contact hours:

Sundays, Tuesdays, Thursdays; 8:30-9:30

Office number: 207

Phone number:22617

Email: obein@ju.edu.jo

18. Other instructors:

Name:

Office number:

Phone number:

Email:

Contact hours:

**19. Course Description:**

Introduction to many primary concepts in artificial intelligence such as reasoning, learning, planning, perception and uncertainty management. Subjects covered in the this course include: Knowledge Representation (simple logic), Planning and Reasoning (Logical agents), Expert Systems (production systems), Machine Learning and Data Mining (K-means clustering, nearest neighbor classification, Decision trees, Naive Bayesian).

20. Course aims and outcomes:**A- Aims:**

The aim of the course is to bring to the awareness of students the different research areas and aspects of artificial intelligence. students will be shown (1) how to express knowledge of a simple domain in first order predicate calculus and to solve problems using explicit knowledge and reasoning, and how to develop an expert system. Students will be familiarized with the notions of search and planning and reasoning (Logical agents). The students will also be given some grounding in the principal techniques of data mining and be introduced to some applications of data mining. Students will be introduced to some data mining and machine learning techniques (K-means clustering, nearest neighbor classification, Decision trees, Naive Bayesian) to help obtain a clear picture of the concepts of machine learning.

**B- Students Learning Outcomes (SOs):**

Upon successful completion of this course students will be able to

SO(1). Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

SO(2). Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

On successfully completing the module, the students are expected to have gained good knowledge of:

Descriptors	ILO/ID	Program SOs	SO (1)	SO (2)
		ILOs of the course		
Knowledge	A1	Understand simple logic, planning and principles of reasoning,		
	A2	Understand production systems, rule-based systems and the basic architecture of expert systems.		
	A3	Understand the principal techniques of data mining and Machine learning .		
Skills	B1	Demonstrate the ability to recognize the subtleties related to different AI techniques		
	B2	Demonstrate the ability to recognize the subtleties related to different approaches to AI		
	B3	Design and implement a solution to a problem using AI techniques.		
Competence	C1	Demonstrate competency in applying appropriate AI Techniques to solve a simple problem		
	C2	Demonstrate competency in applying appropriate data mining and machine learning techniques		
	C3			

21. Topic Outline and Schedule:



Week	Lecture	Topic	ILO	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1	1.1	Introduction to artificial intelligence (Contributing Disciplines, concepts, research areas and applications)	A1	Face to Face	Moodle Teams	Synchronous	Exams	E-learning portal + Book
	1.2	Introduction to artificial intelligence (Contributing Disciplines, concepts, research areas and applications)	A1	Face to Face	Moodle Teams	Synchronous	Exams	E-learning portal +
	1.3	Introduction to artificial intelligence (Contributing Disciplines, concepts, research areas and applications)	A1	Online	Moodle Teams	Synchronous	Exams	Book
2	2.1	Introduction to artificial intelligence (Contributing Disciplines, concepts, research areas and applications)	A1	Face to Face	Moodle Teams	Synchronous	Exams	E-learning portal +
	2.2	Introduction to artificial intelligence (Contributing Disciplines, concepts, research areas and applications)	A1	Face to Face	Moodle Teams	Synchronous	Exams	Book
	2.3	Introduction to artificial intelligence (Contributing Disciplines, concepts, research areas and applications)	A1	Online	Moodle Teams	Synchronous	Exams	E-learning portal +
3	3.1	Knowledge representation, first order predicate logic, Logical agents and Planning)	A1	Face to Face	Moodle Teams	Synchronous	Exams	Book



4	3.2	Logic, Logical agents, reasoning and Planning	A1, B1, C1	Face to Face	Moodle Teams	Synchronous	Exams	E-learning portal +
	3.3	Logic, Logical agents, reasoning and Planning	A1, B1, C1	Online	Moodle Teams	Synchronous	Exams	Book
	4.1	Logic, Logical agents, reasoning and Planning	A1, B1, C1	Face to Face	Moodle Teams	Synchronous	Homework, Exams	E-learning portal +
5	4.2	Logic, Logical agents, reasoning and Planning	A1, B1, C1	Face to Face	Moodle Teams	Synchronous	Homework, Exams	Book
	4.3	Logic, Logical agents, reasoning and Planning	A1, B1, C1	Online	Moodle Teams	Synchronous	Homework, Exams	E-learning portal +
	5.1	Logic, Logical agents, reasoning and Planning	A1, B1, C1	Face to Face	Moodle Teams	Synchronous	Exams	Book
6	5.2	Logic, Logical agents, reasoning and Planning	A1, B1, C1	Face to Face	Moodle Teams	Synchronous	Exams	E-learning portal +
	5.3	Logic, Logical agents, reasoning and Planning	A1, B1, C1	Online	Moodle Teams	Synchronous	Exams	Book
	6.1	Logic, Logical agents, reasoning and Planning	A1, B1, C1	Face to Face	Moodle Teams	Synchronous	Exams	E-learning portal +
7	6.2	Logic, Logical agents, reasoning and Planning	A1, B1, C1	Face to Face	Moodle Teams	Synchronous	Exams	Book
	6.3	Production systems, rule based and expert systems	A2, B2, C1	Online	Moodle Teams	Synchronous	Exams	E-learning portal +
	7.1	Production systems, rule based and expert systems	A2, B2, C1	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	Book
8	7.2	Production systems, rule based and expert systems	A2, B2, C1	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +
	7.3	Production systems, rule based and expert systems	A2, B2, C1	Online	Moodle Teams	Synchronous	Assignments, Exams	Book
	8.1	Production systems, rule based and expert systems	A2, B2, C1	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +
	8.2	Production systems, rule based and expert systems	A2, B2, C1	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	Book
	8.3	Production systems, rule based and expert systems	A2, B2, C1	Online	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +



9	9.1	Production systems, rule based and expert systems	A2, B2 C1	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	Book
	9.2	Search and planning	A2, B3	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +
	9.3	Search and planning	A2, B3	Online	Moodle Teams	Synchronous	Assignments, Exams	Book
10	10.1	Search and planning	A2, B3	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +
	10.2	Search and planning	A2, B3	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	Book
	10.3	Introduction to Data Mining and Machine Learning	A3, B1 C2	Online	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +
11	11.1	Introduction to Data Mining and Machine Learning	A3, B1 C2	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	Book
	11.2	Introduction to Data Mining and Machine Learning	A3, B1 C2	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +
	11.3	Introduction to Data Mining and Machine Learning	A3, B1 C2	Online	Moodle Teams	Synchronous	Assignments, Exams	Book
12	12.1	Introduction to Data Mining and Machine Learning	A3, B1 C2	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +
	12.2	Introduction to Data Mining and Machine Learning	A3, B1 C2	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	Book
	12.3	Supervised Learning	A3, B1 C2	Online	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +
13	13.1	Supervised Learning, decision trees	A3, B1 C2	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	Book
	13.2	Supervised Learning, decision trees	A3, B1 C2	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +
	13.3	Supervised Learning, decision trees, nearest neighbor classification	A3, B1 C2	Online	Moodle Teams	Synchronous	Assignments, Exams	Book
14	14.1	Supervised Learning, decision trees, nearest neighbor classification	A3, B1 C2	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +
	14.2	Unsupervised learning, K-means clustering	A3, B1 C2	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	Book



15	14.3	Unsupervised learning, K-means clustering	A3, B1 C2	Online	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +
	15.1	Central Nervous system and Neural Network	A3	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	Book
	15.2	Central Nervous system and Neural Network	A3	Face to Face	Moodle Teams	Synchronous	Assignments, Exams	E-learning portal +
	15.3	Central Nervous system and Neural Network	A3	Online	Moodle Teams	Synchronous	Assignments, Exams	Book

22. Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
Project	20%	AI Application	1, 2	Week 14	Moodle
Mid	30%	All topics covered in the first 8 weeks	1,2	Week 9	Paper
Final	50%	All topics	1,2	120 Minutes	paper

23. Course Requirements

- MS Teams
- Every student should visit the following site for course material and announcements.
Site address: elearning.ju.edu.jo
- MS Office 365

24. Course Policies:

A- Attendance policies:

Maximum allowable absence 15% of number of Lectures/Semester

B- Absences from exams and handing in assignments on time:

It is the student's responsibility to ensure that he/she is aware of all assignments, announcements and contents of missed sessions

**C- Health and safety procedures:**

Practical sessions need labs which are suitable adjustable chairs, safe computers and wires should be well organized.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

It is the student's responsibility to ensure that he/she is adhere with cheating, plagiarism, misbehaviour

E- Grading policy:**Intended (Tentative) Grading Scale:**

Range	LG	الحرف	Range	LG	الحرف	Range	LG	الحرف
91 - 100	A	أ	74 - 77	B-	-ب	56 - 60	D+	+د
86 - 89	A-	-أ	70 - 73	C+	+ج	50 - 55	D	د
82 - 85	B+	+ب	66 - 69	C	ج	45 - 49	D-	-د
78 - 81	B	ب	61 - 65	C-	-ج	0 - 44	F	هـ

Grading and Evaluation Criteria: 100 points distributed as follows:

Weight	Criteria	Comments
30%	Midterm Exam (Automated)	TBA (in due course)
20%	Project	TBA (in due course)
50%	Final Exam	

F- Available university services that support achievement in the course:

Computer Labs.

25. References:

A- Russell, S. J., & Norvig, P. (2020). Artificial intelligence: a modern approach. Englewood Cliffs, N.J., Prentice Hall.

B- Recommended books, materials, and media:

•

26. Additional information:



1. Supplementary notes on each topic are made available of the e-learning (Moodle system).
2. Students are encouraged to make use of JU library, E-LIBRARY:

Some important/relevant journals include:

- (1) Artificial Intelligence
- (2) Applied Intelligence
- (3) AI Review

تحريض على هذا الامتناع سوف يؤدي الى حرمان الطالب من المادة المعنية.
في حالة التغيب عن الامتحانين الأول و الثاني لن يكون هناك امتحان تعويضي الا في حالة وجود عذر وحالة طارئة من المستشفى.
على الطالب براز العذر لمدرس المادة في فتره لا تتجاوز الثلاثة ايام من تاريخ الامتحان, وللمدرس الحق في قبول او رفض العذر ,
وحسب التعليمات.

2) Concerns or complaints should be expressed in the first instance to the module lecturer; if no resolution is forthcoming then the issue should be brought to the attention of the module coordinator (for multiple sections) who will take the concerns to the module representative meeting. Thereafter problems are dealt with by the Department Chair and if still unresolved the Dean and then ultimately the Vice President. For the final complaints, there will be a committee to review grading the final exam.

3) Students are encouraged to make heavy use of the library, E-LIBRARY

<http://ezlibrary.ju.edu.jo/login> or from within the university using (<http://e-library>)

4) Students are encouraged to search for articles related to the material contents discussed during this course, using designated sites, like <http://researchGate.com>

- The instructor can make changes to this syllabus when necessary.
- University regulations will be preserved at all times

5) For more details on University regulations please visit <http://www.ju.edu.jo/rules/index.htm>

Name of Course Coordinator: Dr. Dima Suleiman Signature: *Dima Suleiman* Date: October-2023

Head of Curriculum Committee/Department: -----Signature: -----

Head of Department: -----Signature: -----

Head of Curriculum Committee/Faculty: -----Signature: -----

Dean: -----Signature: -----