



Form: Course Syllabus	Form Number	
	Issue Number and Date	<u>30/12/2023</u>
	Number and Date of Revision or Modification	
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	Number of Pages	15

1.	Course title	Ethics of Artificial Intelligence and Data Science	
2.	Course number	1905220	
3.	Credit hours	3	
	Contact hours (theory, practical)	3 hours theory	
4.	Prerequisites/corequisites	-	
5.	Program title	Artificial Intelligence	
6.	Program code		
7.	Awarding institution	The University of Jordan	
8.	School	King Abdullah II School for Information Technology	
9.	Department	Computer Information Systems	
10.	Course level	Undergraduate	
11.	Year of study and semester (s)	2023-2024 (Fall)	
12.	Other department (s) involved in teaching the course	None	
13.	Main teaching language	English	
14.	Delivery method	<input type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input checked="" type="checkbox"/> Fully online	
15.	Online platforms(s)	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input checked="" type="checkbox"/> JUexams.com	
16.	Issuing/Revision Date	3 rd April 2023 / revision 30 th December 2023	

17. Course Coordinator:



Name: Dr. Tahani Al-Khatib Contact hours: Sun, Tue: 11:30 -12:30

Office number: KASIT Second Floor, 2019 Phone number: 5355000/ext.: 22608

Email: tahani.khatib@ju.edu.jo

18. Other instructors:

Name	Office number	Phone number	Email	Contact hours

19. Course Description:

This course delves into the challenges posed by Artificial Intelligence (AI), providing students with the tools to critically analyze its ethical, social, and cultural impacts. Exploring real-world issues faced by AI professionals and societies, the course imparts a foundational understanding of AI's theoretical underpinnings, current state, and potential future developments. Additionally, this journey includes engaging philosophical and ethical discussions, enriching students' analytical skills. Through this exploration, students are equipped to contribute thoughtfully to the ongoing ethical discourse surrounding AI, preparing them to navigate complexities and address challenges in professional and societal contexts.

20. Course aims and outcomes:

A- Aims:

The aim of the course is to enable students to describe the reasons for an ethical analysis applied to AI and to use critical abilities in ethically analyzing AI in different domains of life and with different ethical theories and frameworks. The students should also be able to compare ethically and philosophically between AI and humans, and should be able to identify the theoretical foundations, the current state, and the potential and the future of AI. Moreover, Students should understand the ethical and social impacts and implications of AI, and to critically analyze the current policies for AI, and to use ethical and socially responsible principles in their professional life.

B- Students Learning Outcomes (ABET SOs):

Upon successful completion of this course, students will be able to:



1. Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

Descriptors	ILOS No.	Program SOs ILOs of the course	ABET-SO (1)	ABET-SO (3)	ABET-SO (4)	ABET-SO (5)
Knowledge	A1	Recognize the theoretical foundations of Artificial Intelligence, and state and identify the hypothesis of Artificial Intelligence and the promises and risks of the present and future AI and Data Science	X			
	A2	Explain the difference and importance of ethics, morality, values and norms.			X	
	A3	Understand the ethical issues related to AI including bias, fairness, accountability and transparency, and identify the importance of some human right concepts such as privacy, security, and inclusion.			X	
Skills	B1	Examine the ethical, social, and cultural impact of AI in different contexts like health care and education.		X		
	B2	Compare between types of AI and question the theoretical and ethical limitations for each of them	X			
	B3	Compare between the main ethical theories and examine them on some case studies in the light of these ethical frameworks			X	
Competencies	C1	Deploy communication skills through presentations and projects related to Responsible AI and how to approach AI ethically, and work effectively within a group to analyze, and understand an AI system				X
	C2	Design, Develop and Present the final work demo (through two Projects: visual and written)				X
	C3	Investigate, question and debate the philosophical concepts of human consciousness and free will, and the potential of conscious and/or autonomous AI in different context(including autonomous weapons and vehicles and some thought experiments about consciousness and free will in AI)			X	



21. Topic Outline and Schedule:

Week	Lecture	Topic	ILOs	Learning Methods	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
Week 1	1.1	Welcoming session	-	Online session	MS Teams	Synchronous	-	Course syllabus, project specifications, announcements (MOODLE)
	1.2	Course orientation (review syllabus, objectives, textbook, project and assignments, online material and teaching methods) + Introduction to the course	-	Online session	MS Teams	Synchronous	-	Course syllabus, project specifications, announcements (MOODLE)
	1.3	Chapter 1: Introduction to Ethics and AI	A1, A2, A3, B2	Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch1 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
Week 2	2.1	Chapter 1: Introduction to Ethics and AI		Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch1 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	2.2	Chapter 1: Introduction to Ethics and AI		Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch1 slides + Available Notes HomeWorks, Students presentation, online



Week	Lecture	Topic	ILOs	Learning Methods	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
								tasks, Discussion, Exams
	2.3	Ethical concerns of AI	A2	Online session	E-learning	Asynchronous	H5P Interactive questions + Midterm Exam	Recorded video
Week 3	3.1	Chapter 2: Perceiving and Applying Ethical theories to AI	A2, B3,	Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch2 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	3.2	Chapter 2: Perceiving and Applying Ethical theories to AI		Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch2 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	3.3	Chapter 2: Perceiving and Applying Ethical theories to AI		Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch2 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
Week 4	4.1	Chapter 2: Perceiving and Applying Ethical theories to AI		Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch2 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams



Week	Lecture	Topic	ILOs	Learning Methods	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
	4.2	Chapter 2: Perceiving and Applying Ethical theories to AI		Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch2 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	4.3	Chapter 2: Perceiving and Applying Ethical theories to AI		Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch2 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
Week 5	5.1	Chapter 3: Accountability, Responsibility and Ethical Challenges of Irresponsible AI	A2, A3, B3, C1	Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch3 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	5.2	Chapter 3: Accountability, Responsibility and Ethical Challenges of Irresponsible AI		Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	
	5.3	Chapter 3: Accountability, Responsibility and Ethical Challenges of Irresponsible AI		Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch3 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams



Week	Lecture	Topic	ILOs	Learning Methods	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
Week 6	6.1	Chapter 3: Accountability, Responsibility and Ethical Challenges of Irresponsible AI	A2, A3	Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch3 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	6.2	Chapter 3: Accountability, Responsibility and Ethical Challenges of Irresponsible AI		Online session	MS Teams	Synchronous	In-lecture questions + Quiz1 + Midterm Exam	Synchronous lecture (MS-Teams) Ch3 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	6.3	Moral agent, Ethical decisions: human VS humans		Online session	E-learning	Asynchronous	H5P Interactive questions + Midterm Exam	Recorded video
Week 7	7.1	Chapter 4: Transparency, Privacy, Fairness and Data Ethics in AI	A2, A3	Online session	MS Teams	Synchronous	questions + Quiz2 + Final Exam	Synchronous lecture (MS-Teams) Ch4 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	7.2	Chapter 4: Transparency, Privacy, Fairness and Data Ethics in AI		Online session	MS Teams	Synchronous		
	7.3	Chapter 4: Transparency, Privacy, Fairness and Data Ethics in AI		Online session	MS Teams	Synchronous	questions + Quiz2 + Final Exam	Synchronous lecture (MS-Teams) Ch4 slides + Available Notes HomeWorks, Students



Week	Lecture	Topic	ILOs	Learning Methods	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
Week 8	8.1	Chapter 4: Transparency, Privacy, Fairness and Data Ethics in AI		Online session	MS Teams	Synchronous	questions + Quiz2 + Final Exam	presentation, online tasks, Discussion, Exams
	8.2	Chapter 4: Transparency, Privacy, Fairness and Data Ethics in AI		Online session	MS Teams	Synchronous	In-lecture questions + Quiz2 + Final Exam	
	8.3	Practical skills of writing a technical report	B3, C1, C2, C3	Online session	MS Teams	Synchronous	In-lecture questions + Project	Synchronous lecture (MS-Teams)
Week 9	9.1	Practical skills of writing a technical report		Online session	MS Teams	Synchronous	In-lecture questions + Project	Synchronous lecture (MS-Teams)
	9.2	Revision		Online session	MS Teams	Synchronous		
	9.3	Midterm			JUEXA MS Platform			JUEXAMS
Week 10	10.1	Chapter 5: Autonomous Systems and Application of AI ethics in other fields	A2, B1, B3, C1	Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch5 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	10.2	Chapter 5: Autonomous Systems and Application of AI ethics in other fields		Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch5 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams



Week	Lecture	Topic	ILOs	Learning Methods	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
	10.3	Chapter 5: Autonomous Systems and Application of AI ethics in other fields		Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch5 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
Week 11	11.1	Chapter 5: Autonomous Systems and Application of AI ethics in other fields		Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch5 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	11.2	Chapter 5: Autonomous Systems and Application of AI ethics in other fields		Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch5 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	11.3	Chapter 5: Autonomous Systems and Application of AI ethics in other fields		Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch5 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
Week 12	12.1	Chapter 5: Autonomous Systems and Application of AI ethics in other fields		Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch5 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams



Week	Lecture	Topic	ILOs	Learning Methods	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
	12.2	Chapter 5: Autonomous Systems and Application of AI ethics in other fields	A2, A3, B3, C3	Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch5 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	12.3	Chapter 6: AI and Human Consciousness		Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch6 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
Week 13	13.1	Chapter 6: AI and Human Consciousness		Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch6 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	13.2	Chapter 6: AI and Human Consciousness		Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch6 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	13.3	Chapter 6: AI and Human Consciousness		Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch6 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams



Week	Lecture	Topic	ILOs	Learning Methods	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
Week 14	14.1	Chapter 6: AI and Human Consciousness		Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch6 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	14.2	Draft National Code of Ethics for AI +UNESCO draft of The Recommendation on the Ethics of AI-DS	A2, B1, B2, B3	Online session	MS Teams	Synchronous	In-lecture questions + Final Exam	Synchronous lecture (MS-Teams) Ch6 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
	14.3	Draft National Code of Ethics for AI +UNESCO draft of The Recommendation on the Ethics of AI-DS		Online session	MS Teams	Synchronous	In-lecture questions + Quiz2 + Midterm Exam	Synchronous lecture (MS-Teams) Ch6 slides + Available Notes HomeWorks, Students presentation, online tasks, Discussion, Exams
Week 15		Projects Presentation and discussions	C1, C2	online	Microsoft Teams	Asynchronous	Term Project	Project Specifications and Evaluation Criteria on ELearning platform
Week 16	Final Exam JUEXAMS Platform							

22. Evaluation Methods:

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

Evaluation Activity	Mark	Topic(s)	SOs	Period (Week)	Platform
Project 1	7	Preparing a Video about an issue about AI	3, 5	14	Moodle



		technology, AI Ethical dilemma, AI potentials in the future ... etc.			
Project 2	10	Writing a technical report about the ethical and unethical sides of a selected Artificial intelligence Technology (App, Device, tool, concept ..)	1, 3, 5	14	Moodle
H5P Tasks	5	H5P interactive questions in the recorded videos	3, 4	12	Moodle
In class Presentation	3	Presenting and topic in the course in the class and communicate with other students			MS Teams
Short exams (Quizzes)	5	Quiz1: Chapter 1, 2 Quiz2: Chapter 4	1,3, 4	6 11	JUEXAMS
Mid Term	30	Chapters 1, 2, 3	1, 3, 4	9	JUEXAMS
Final Exam	40	Chapters 1~6	1, 3, 4	16	JUEXAMS

23. Course Requirements

- Mobile, Laptop or desktop computers
- Internet connection
- Account on Microsoft Teams + Moodle
- Microsoft Office App: (Word, Excel)

24. Course Policies:

A- Attendance policies

Attending online meetings is mandatory. Attendance will be taken for each meeting. Regular attendance is essential for satisfactory completion of this course and university regulations will be applied.

B- Absences from exams and handing in assignments on time

- Any student who misses any exam will receive a zero grade. Permission for makeup will be granted only if the student notifies the instructor in due time and presents evidence of an officially excused absence.



- Submitting the assignments and project tasks will be through the Moodle platform, the time duration for each home assignment/ project task will be determined clearly. Late submissions are not allowed, any student exceeding this time duration without submitting his/her assignment will take the zero as mark.

C- Health and safety procedures

All students should comply with the university Health and Safety procedures.

D- Honesty policy regarding cheating, plagiarism, misbehavior

Assignments are individual or done in learning teams. While students are free to discuss their individual assignments with anybody, including fellow students, individual assignments are expected to show the expertise, creativity and critical faculty of the individual student. Virtually identical individual assignments (in the judgment of the instructor) are not acceptable. Plagiarism is unacceptable and will be punished with an F for the full course. References to all source materials are necessary. For more details on University regulations please visit

<http://www.ju.edu.jo/rules/index.htm>

E- Grading policy + Weighting (i.e., weight assigned to exams as well as other student work)

All of the following are important in the evaluation of a student's work.

- Written Reports:
 - Organization, clarity and continuity.
 - Quality, completeness and soundness of the analysis
 - Quality of presentation.
- Oral Presentation:
 - Organization and continuity.
 - Selection and support of recommendations.
 - Time, style and clarity.
 - Professionalism.
- Assessment Weights:
 - Quizzes+ Tasks+ Projects + participations: 30%
 - Mid exam: 30%
 - Final exam: 50%
- Satisfactory completion of this subject requires a 50% pass in the end-of-semester.
- Suggested Grading Scale:

0-44	F	45-49	D-	50-53	D	54-57	D+	58-61	C-	62-65	C
66-71	C+	69-72	B-	73-76	B	77-80	B+	81-84	A-	85-100	A

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

1. Elearning.ju.edu.jo
2. Juexams.com
3. <http://teams.office.com/>
4. University library.

G- Statement on Students with disabilities

Students with Disabilities: Students with disabilities who need special accommodation for this class (online meetings) are encouraged to contact the instructor and/or their academic advisor as soon as possible. In order to receive accommodations for academic work in this course, students must inform



the course instructor and/or their academic advisor, preferably in a written format, about their needs no later than the 2nd week of classes.

25. References:

1. Required book (s), assigned reading and audio-visuals:

- a. Bartneck, Christoph, et al. *An introduction to ethics in robotics and AI*. Springer Nature, 2021.

2. Recommended books, materials, and media:

- a. Crawford, Kate. *The atlas of AI: Power, politics, and the planetary costs of artificial intelligence*. Yale University Press, 2021.
- b. Stahl, Bernd Carsten. *Artificial intelligence for a better future: an ecosystem perspective on the ethics of AI and emerging digital technologies*. Springer Nature, 2021.

3. Journals:

- a. The University of Jordan Electronic library (E-Library). Available on: <http://library.ju.edu.jo/eliblink.asp>
- b. Questia magazine (<http://www.questia.com>)
- c. Journal of Communication, Wiley.
- d. Ethics and Information Technology, Springer.
- e. Journal of Information, Communication and Ethics in Society, Emerald Publishing.

4. Laws and Code of Ethics:

- a. Jordan laws for E-Crimes, E-Transactions, Intellectual Property, ...etc.
- b. Computer Ethics Institute (CEI)
- c. Association of Computing Machinery (ACM)
- d. Institute of Electrical and Electronics Engineers (IEEE)
- e. British Computer Society (BCS)

5. Educational Platforms:

- a. Elearning.ju.edu.jo
- b. Juexams.com
- c. <http://teams.office.com/>

26. Additional information:

- Course description, Teaching materials, Assignments and Announcements are available in the course page on <http://elearning.ju.edu.jo>
- 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>).

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

Office hour: check with your instructor.

Name of Course Coordinator: Dr. Tahani Al-Khatib-----Signature: *Dr. Tahani Khatib*



Date: 10/9/2023

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

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

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

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