

[Medicinski fakultet u Rijeci]

## Curriculum 2023/2024

[Za kolegij]

# Ethics and Artificial Intelligence

Study programme: **Medical Studies in English (R)** (elective)  
[Sveučilišni integrirani prijediplomski i diplomski studij]  
Department: **[Katedra za društvene i humanističke znanosti u medicini]**  
Course coordinator: **izv. prof. dr. sc. Horvat Saša**

Year of study: **1**  
ECTS: **1.5**  
Incentive ECTS: **0 (0.00%)**  
Foreign language: **Possibility of teaching in a foreign language**

## **Course information:**

Introduce participants with fundamental ethical issues related to the development and application of artificial intelligence.

## **List of assigned reading:**

Lecture presentations.

Christoph Bartneck , Christoph Lütge , Alan Wagner , Sean Welsh, *An Introduction to Ethics in Robotics and AI*, Springer, 2021.  
Open access: <https://link.springer.com/book/10.1007/978-3-030-51110-4>

Silja Voenekey, Philipp Kellmeyer, Oliver Mueller, Wolfram Burgard, *The Cambridge Handbook of Responsible Artificial Intelligence: Interdisciplinary Perspectives*, Cambridge, 2022. (selected parts)

High-Level Expert Group on Artificial Intelligence (AI HLEG). *Ethics Guidelines for Trustworthy AI*, Brussels, 2019, available at: <https://ec.europa.eu/futurium/en/ai-alliance-consultation.1.html> (selected parts)

Niklas Lidströmer, Hutan Ashrafian (eds.), *Artificial Intelligence in Medicine*, Springer, 2022. (selected parts)

## **List of optional reading:**

Manda Raz, Tam C. Nguyen, Erwin Loh (eds.), *Artificial Intelligence in Medicine. Applications, Limitations and Future Directions*, Springer, 2022. (selected parts)

## **Curriculum:**

### **Seminars list (with titles and explanation):**

#### **Introduction to the topic**

Students will be able to explain the fundamental concepts related to the topic of ethics of artificial intelligence.

#### **Trust and Fairness in AI Systems**

Students will be able to recognize and identify the key aspects of trust and fairness in AI Systems.

#### **Responsibility and Liability in the Case of AI Systems**

Students will be able to identify the main arguments concerning responsibility and liability in the case of AI systems.

#### **Psychological Aspects of AI**

Students will be able to recognize and identify main issues regarding psychological aspects of AI.

#### **Privacy Issues of AI**

Students will be able to describe and discuss fundamental elements of privacy issues of AI.

#### **Application Areas of AI**

Students will be able to identify the main concerns regarding application areas of AI.

#### **Artificial Intelligence**

Students will be able to recognize, describe and critically discuss the following topics related to AI: The Turing Test; Strong and Weak AI; Types of AI Systems; What Is Machine Learning?; What Is a Robot?; Sense-Plan-Act / System Integration. Necessary but Difficult; What Is Hard for AI; Science and Fiction of AI.

#### **Ethical theories related to AI**

Students will be able to describe and discuss fundamental elements of ethical theories related to AI, such as: Descriptive Ethics; Normative Ethics; Deontological Ethics; Consequentialist Ethics; Virtue Ethics; Meta-ethics; Applied Ethics; Relationship Between Ethics and Law; Machine Ethics / Machine Ethics Examples / Moral Diversity and Testing.

#### **Presentations of students' essays on selected topics**

Students critically analyze a selected topic related to ethics and artificial intelligence and showcase their depth of understanding and analytical skills.

### **Lectures list (with titles and explanation):**

#### **Artificial Intelligence**

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## **Student obligations:**

Regular attendance, written seminar paper and final examination.

**Exam (exam taking, description of the written/oral/practical part of the exam, point distribution, grading criteria):**

Assessment is carried out in accordance with the Rules of Assessment of the Faculty of Medicine, University of Rijeka: course attendance 54 (%), written seminar paper 23 (%), and final exam 23 (%).

**Other notes (related to the course) important for students:**

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## COURSE HOURS 2023/2024

### Ethics and Artificial Intelligence

<b>Lectures</b> (Place and time or group)	<b>Seminars</b> (Place and time or group)
<b>11.03.2024</b>	
Artificial Intelligence: <ul style="list-style-type: none"><li>• [Z-sala] (16:00 - 17:30) <sup>[1602]</sup><ul style="list-style-type: none"><li>◦ EAAI</li></ul></li></ul>	Introduction to the topic: <ul style="list-style-type: none"><li>• [Z-sala] (17:30 - 18:15) <sup>[1602]</sup><ul style="list-style-type: none"><li>◦ EAAI</li></ul></li></ul>
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>	
<b>14.03.2024</b>	
	Ethical theories related to AI: <ul style="list-style-type: none"><li>• [Z-sala] (16:00 - 18:15) <sup>[1602]</sup><ul style="list-style-type: none"><li>◦ EAAI</li></ul></li></ul> Trust and Fairness in AI Systems: <ul style="list-style-type: none"><li>• [Z-sala] (18:15 - 19:00) <sup>[1602]</sup><ul style="list-style-type: none"><li>◦ EAAI</li></ul></li></ul>
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>	
<b>21.03.2024</b>	
Ethical theories related to AI: <ul style="list-style-type: none"><li>• [Z-sala] (16:00 - 17:30) <sup>[1602]</sup><ul style="list-style-type: none"><li>◦ EAAI</li></ul></li></ul>	Privacy Issues of AI: <ul style="list-style-type: none"><li>• [Z-sala] (17:30 - 18:15) <sup>[1602]</sup><ul style="list-style-type: none"><li>◦ EAAI</li></ul></li></ul> Application Areas of AI: <ul style="list-style-type: none"><li>• [Z-sala] (18:15 - 19:00) <sup>[1602]</sup><ul style="list-style-type: none"><li>◦ EAAI</li></ul></li></ul>
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>	
<b>28.03.2024</b>	
	Artificial Intelligence: <ul style="list-style-type: none"><li>• [ONLINE] (16:00 - 19:00) <sup>[1602]</sup><ul style="list-style-type: none"><li>◦ EAAI</li></ul></li></ul>
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>	
<b>15.04.2024</b>	
Artificial Intelligence: <ul style="list-style-type: none"><li>• [ONLINE] (17:00 - 17:45) <sup>[1602]</sup><ul style="list-style-type: none"><li>◦ EAAI</li></ul></li></ul>	Trust and Fairness in AI Systems: <ul style="list-style-type: none"><li>• [ONLINE] (17:45 - 19:15) <sup>[1602]</sup><ul style="list-style-type: none"><li>◦ EAAI</li></ul></li></ul>
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>	
<b>22.04.2024</b>	
	Responsibility and Liability in the Case of AI Systems: <ul style="list-style-type: none"><li>• [ONLINE] (17:00 - 19:15) <sup>[1602]</sup><ul style="list-style-type: none"><li>◦ EAAI</li></ul></li></ul>
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>	
<b>02.05.2024</b>	

	Psychological Aspects of AI: <ul style="list-style-type: none"> <li>• [Z-sala] (13:30 - 14:15) <sup>[1602]</sup> <ul style="list-style-type: none"> <li>◦ EAAI</li> </ul> </li> </ul> Presentations of students' essays on selected topics: <ul style="list-style-type: none"> <li>• [Z-sala] (14:15 - 16:30) <sup>[1602]</sup> <ul style="list-style-type: none"> <li>◦ EAAI</li> </ul> </li> </ul>
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>	

### List of lectures, seminars and practicals:

LECTURES (TOPIC)	Number of hours	Location
Artificial Intelligence	3	[ONLINE] [Z-sala]
Ethical theories related to AI	2	[Z-sala]

SEMINARS (TOPIC)	Number of hours	Location
Introduction to the topic	1	[Z-sala]
Trust and Fairness in AI Systems	3	[ONLINE] [Z-sala]
Responsibility and Liability in the Case of AI Systems	3	[ONLINE]
Psychological Aspects of AI	1	[Z-sala]
Privacy Issues of AI	1	[Z-sala]
Application Areas of AI	1	[Z-sala]
Artificial Intelligence	4	[ONLINE]
Ethical theories related to AI	3	[Z-sala]
Presentations of students' essays on selected topics	3	[Z-sala]

### EXAM DATES (final exam):

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