



## Faculty of Medicine in Rijeka

# **Curriculum 2023/2024**

For course

## **Ethics and Artificial Intelligence**

Study program: Medical Studies in English (R) (elective)

University integrated undergraduate and graduate study

Department: Department of Humanities and Social Sciences in Medicine

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 Voeneky, 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 Al 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 Al**

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 Al

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:

## **COURSE HOURS 2023/2024**

Ethics and Artificial Intelligence

Lectures (Place and time or group)	Seminars (Place and time or group)		
11.03.2024	(riace and time of group)		
Artificial Intelligence: • Z-hall (16:00 - 17:30) [1602] • EAAI	Introduction to the topic:  • Z-hall (17:30 - 18:15) [1602]  • EAAI		
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>			
14.03.2024			
	Ethical theories related to AI:  • Z-hall (16:00 - 18:15) [1602]  • EAAI		
	Trust and Fairness in Al Systems:  • Z-hall (18:15 - 19:00) [1602]  · EAAI		
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>			
21.03.2024			
Ethical theories related to AI:  • Z-hall (16:00 - 17:30) [1602]  • EAAI	Privacy Issues of AI:  • Z-hall (17:30 - 18:15) [1602]  • EAAI  Application Areas of AI:  • Z-hall (18:15 - 19:00) [1602]  • EAAI		
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>			
28.03.2024			
	Artificial Intelligence:  • ONLINE (16:00 - 19:00) [1602]  • EAAI		
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>			
15.04.2024			
Artificial Intelligence:  • ONLINE (17:00 - 17:45) [1602]  • EAAI	Trust and Fairness in Al Systems:  • ONLINE (17:45 - 19:15) [1602]  · EAAI		
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>			
22.04.2024			
	Responsibility and Liability in the Case of Al Systems:  • ONLINE (17:00 - 19:15) [1602]  • EAAI		
izv. prof. dr. sc. Horvat Saša <sup>[1602]</sup>			
02.05.2024			

- Psychological Aspects of AI:
   Z-hall (13:30 14:15) [1602]
  - o EAAI

Presentations of students' essays on selected topics:  $\bullet$  Z-hall (14:15 - 16:30) [1602]

- - o EAAI

izv. prof. dr. sc. Horvat Saša  $^{[1602]}$ 

## List of lectures, seminars and practicals:

LECTURES (TOPIC)	Number of hours	Location
Artificial Intelligence	3	ONLINE Z-hall
Ethical theories related to Al	2	Z-hall

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

## **EXAM DATES (final exam):**