



## Subject card

|                                             |                                                                                                                                                                                                                                                                                 |                                                          |                                                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | ETHICS AND ARTIFICIAL INTELLIGENCE, PG_00071057                                                                                                                                                                                                                                 |                                                          |                                                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
| Field of study                              | Economic Analytics                                                                                                                                                                                                                                                              |                                                          |                                                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
| Date of commencement of studies             | October 2026                                                                                                                                                                                                                                                                    |                                                          | Academic year of realisation of subject                                                                                                                                                                                                                                        |                                     | 2027/2028                                                                         |            |     |
| Education level                             | second-cycle studies                                                                                                                                                                                                                                                            |                                                          | Subject group                                                                                                                                                                                                                                                                  |                                     | Obligatory subject group in the field of study<br>Humanistic-social subject group |            |     |
| Mode of study                               | Full-time studies                                                                                                                                                                                                                                                               |                                                          | Mode of delivery                                                                                                                                                                                                                                                               |                                     | at the university                                                                 |            |     |
| Year of study                               | 2                                                                                                                                                                                                                                                                               |                                                          | Language of instruction                                                                                                                                                                                                                                                        |                                     | English                                                                           |            |     |
| Semester of study                           | 4                                                                                                                                                                                                                                                                               |                                                          | ECTS credits                                                                                                                                                                                                                                                                   |                                     | 3.0                                                                               |            |     |
| Learning profile                            | general academic profile                                                                                                                                                                                                                                                        |                                                          | Assessment form                                                                                                                                                                                                                                                                |                                     | assessment                                                                        |            |     |
| Conducting unit                             | Department of Philosophy and Science Methodology -> Faculty of Management and Economics -> Faculties of Gdańsk University of Technology                                                                                                                                         |                                                          |                                                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                                              |                                                          | dr Andrzej Karalus                                                                                                                                                                                                                                                             |                                     |                                                                                   |            |     |
|                                             | Teachers                                                                                                                                                                                                                                                                        |                                                          |                                                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
| Lesson types                                | Lesson type                                                                                                                                                                                                                                                                     | Lecture                                                  | Tutorial                                                                                                                                                                                                                                                                       | Laboratory                          | Project                                                                           | Seminar    | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                           | 30.0                                                     | 15.0                                                                                                                                                                                                                                                                           | 0.0                                 | 0.0                                                                               | 0.0        | 45  |
|                                             | E-learning hours included: 0.0                                                                                                                                                                                                                                                  |                                                          |                                                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
| Learning activity and number of study hours | Learning activity                                                                                                                                                                                                                                                               | Participation in didactic classes included in study plan |                                                                                                                                                                                                                                                                                | Participation in consultation hours |                                                                                   | Self-study | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                           | 45                                                       |                                                                                                                                                                                                                                                                                | 3.0                                 |                                                                                   | 27.0       | 75  |
| Subject objectives                          | The aim of the course is to develop the ability to analyze artificial intelligence as a socio-technical phenomenon by examining the relationships between humans, technologies, institutions, and values, using various methodologies and theoretical approaches (ANT and STS). |                                                          |                                                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
| Learning outcomes                           | Course outcome                                                                                                                                                                                                                                                                  |                                                          | Subject outcome                                                                                                                                                                                                                                                                |                                     | Method of verification                                                            |            |     |
|                                             | [K7_W01] "demonstrates in-depth knowledge and understanding of economic problems, and selects methods for resolving them while taking into account the complex interrelationships among the phenomena being analyzed.                                                           |                                                          | Inows and understands in depth the ethical challenges related to the development and application of artificial intelligence and analyses them in a socio-economic context, taking into account complex relationships between technology, organisations, and their environment. |                                     | [SW1] Assessment of factual knowledge                                             |            |     |
|                                             | "                                                                                                                                                                                                                                                                               |                                                          |                                                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
|                                             | [K7_U06] develops his/her potential by planning and implementing the process of lifelong learning and supporting others in this area.                                                                                                                                           |                                                          | is able to plan and pursue continuous learning in the field of artificial intelligence and support others in developing digital and ethical competences related to AI applications.                                                                                            |                                     | [SU3] Assessment of ability to use knowledge gained from the subject              |            |     |
|                                             | [K7_K03] responsibly fulfills professional roles, demonstrating the ability to identify ethical dilemmas and recognize and evaluate alternative courses of action.                                                                                                              |                                                          | is ready to make responsible decisions in the area of artificial intelligence applications, in particular by identifying ethical dilemmas, evaluating alternative courses of action, and proposing solutions that take into account social and organisational consequences.    |                                     | [SK5] Assessment of ability to solve problems that arise in practice              |            |     |

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| Subject contents                | Course content – lecture                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                   |                               |
|                                 | <ul style="list-style-type: none"> <li>• Introduction to Science and Technology Studies (STS) and socio-technical systems</li> <li>• Foundations of Actor-Network Theory (ANT)</li> <li>• Artificial Intelligence as a socio-technical assemblage</li> <li>• Human and non-human actors in AI systems</li> <li>• Data as a social construct and infrastructure</li> <li>• Algorithms as socio-technical practices</li> <li>• Classification, categorization, and bias in AI</li> <li>• Power, governance, and control in AI systems</li> <li>• Distributed agency and responsibility in technological networks</li> <li>• Digital infrastructures and invisible labor</li> <li>• Standards, regulation, and institutional frameworks of AI</li> <li>• AI in organizations: socio-technical transformations</li> <li>• Methods in STS and ANT research</li> <li>• Case study frameworks for analyzing AI systems</li> <li>• Synthesis: AI as a network of relations</li> </ul>                                                                                                                        |                   |                               |
|                                 | Course content – exercises                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                               |
|                                 | <ul style="list-style-type: none"> <li>• Mapping socio-technical systems (introductory exercise)</li> <li>• Actor-network mapping of a selected AI system</li> <li>• Identifying human and non-human actors in case studies</li> <li>• Data analysis: tracing data sources and transformations</li> <li>• Algorithm audit exercise (basic level)</li> <li>• Identifying bias in real AI applications</li> <li>• Classification systems analysis (hands-on)</li> <li>• Responsibility mapping in complex systems</li> <li>• Analysis of AI governance cases</li> <li>• Infrastructure mapping and hidden labor identification</li> <li>• Regulatory case study workshop</li> <li>• Organizational implementation analysis (group work)</li> <li>• Designing a case study (methods workshop)</li> <li>• Group project development (consultation)</li> <li>• Presentation and discussion of final projects</li> </ul>                                                                                                                                                                                   |                   |                               |
| Prerequisites and co-requisites | Fundamentals of macroeconomics, sociology, and at least basic knowledge of generative artificial intelligence, algorithms, and neural networks.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |                               |
| Assessment methods and criteria | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Passing threshold | Percentage of the final grade |
|                                 | Presentation, project, discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 60.0%             | 40.0%                         |
|                                 | Final exam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 60.0%             | 60.0%                         |
| Recommended reading             | Basic literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |                               |
|                                 | <ul style="list-style-type: none"> <li>• Callon, M. (1986). Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Brieuc Bay. In J. Law (Ed.), <i>Power, Action and Belief: A New Sociology of Knowledge?</i> London: Routledge, pp. 196223.</li> <li>• Law, J. (2004). <i>After Method: Mess in Social Science Research</i>. London: Routledge.</li> <li>• Winner, L. (1980). Do artifacts have politics? <i>Daedalus</i>, 109(1), 121136.</li> <li>• Bowker, G. C., &amp; Star, S. L. (1999). <i>Sorting Things Out: Classification and Its Consequences</i>. Cambridge, MA: MIT Press.</li> <li>• Zuboff, S. (2019). <i>The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power</i>. New York: PublicAffairs.</li> <li>• Noble, S. U. (2018). <i>Algorithms of Oppression: How Search Engines Reinforce Racism</i>. New York: NYU Press.</li> <li>• Crawford, K. (2021). <i>Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence</i>. New Haven: Yale University Press.</li> </ul> |                   |                               |

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|                                                                | Supplementary literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>Eubanks, V. (2018). <i>Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor</i>. New York: St. Martins Press.</li> <li>Seaver, N. (2017). Algorithms as culture: Some tactics for the ethnography of algorithmic systems. <i>Big Data &amp; Society</i>, 4(2).</li> <li>Gillespie, T. (2014). The relevance of algorithms. In T. Gillespie, P. Boczkowski, &amp; K. Foot (Eds.), <i>Media Technologies</i>. Cambridge, MA: MIT Press.</li> <li>Floridi, L., Cowls, J., Beltrametti, M., et al. (2018). AI4PeopleAn ethical framework for a good AI society. <i>Minds and Machines</i>, 28(4), 689707.</li> <li>Pasquale, F. (2015). <i>The Black Box Society: The Secret Algorithms That Control Money and Information</i>. Cambridge, MA: Harvard University Press.</li> <li>Chun, W. H. K. (2021). <i>Discriminating Data: Correlation, Neighborhoods, and the New Politics of Recognition</i>. Cambridge, MA: MIT Press.</li> <li>boyd, d., &amp; Crawford, K. (2012). Critical questions for big data. <i>Information, Communication &amp; Society</i>, 15(5), 662679.</li> <li>Latour, B. (2005). <i>Reassembling the Social: An Introduction to Actor-Network-Theory</i>. Oxford University Press.</li> </ul> |
|                                                                | eResources addresses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Supplementary<br><a href="http://aiethicsguidelineglobalinventory">http://aiethicsguidelineglobalinventory</a> - Articles on Ethics of AI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Example issues/<br>example questions/<br>tasks being completed | <ul style="list-style-type: none"> <li>How can artificial intelligence be understood as a socio-technical system?</li> <li>What roles do human and non-human actors play in AI networks?</li> <li>In what ways are data socially constructed and politically embedded?</li> <li>How do algorithms function as social practices rather than purely technical tools?</li> <li>What mechanisms lead to bias and discrimination in AI systems?</li> <li>How can responsibility be distributed across complex technological systems?</li> <li>What is the role of classification systems in shaping social reality?</li> <li>How do power and governance operate through AI technologies?</li> <li>How can a selected AI system be analyzed using STS or ANT approaches?</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Practical activities within<br>the subject                     | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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