

Course title:	Data analysis supported by AI
Course title in Polish:	Analiza danych wspomagana sztuczną inteligencją
Course for discipline:	agriculture and horticulture

Semester:	3	Status of course:	faculty	Language:	english
Academic year:	2026/2027	Catalog number:	35/2025/26		

Coordinator of course:	Dariusz Gozdowski
Lecturer od course:	Dariusz Gozdowski
Executing unit:	Department of Biometry
Ordering unit:	Doctoral School SGGW
Assumptions, goals and description of the course:	The course aims to utilize artificial intelligence tools, particularly models such as ChatGPT and other LLMs, to analyze various types of data, including agricultural and environmental data. The course will demonstrate the ability to generate scripts in Python and R for those with no prior programming experience, as well as the practical application of these scripts in the Google Colab environment. Methods for analyzing data from various datasets (e.g., field and laboratory data, geographic data from Google Earth Engine, etc.) will be presented, as well as methods for graphically presenting results, including the preparation of thematic maps, diagrams, and other forms of result presentation. The course develops skills in working with AI tools to conduct analyses without the need for advanced programming knowledge.
Didactic form, number of hours:	15 hours
Teaching methods:	Exercises, case studies, team and individual work
Limit of people in the group:	15

#### Learning outcomes

KNOWLEDGE - the graduate knows and understands:	SKILLS - the graduate is able to:	COMPETENCES - the graduate is ready to:
To the extent enabling to revise the existing pradisms in the field/discipline - the world achievements, gathering theoretical background as well as general and selected detailed issues	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	Critically evaluate the achievements in the field/discipline represented
Major general development trends in the field/discipline	<del>Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline</del>	Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect
<del>To the extent enabling to revise the existing pradisms in the field/discipline - the world achievements, gathering theoretical background as well as general and selected detailed issues</del>	<del>Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline</del>	Support the ethos of scientific circles and conduct independent research
The method of verification of learning outcomes:	Project - 85%, activity during the classes - 15%	
Form of documentation of achieved learning outcomes:	Preparation of a project on data analysis in electronic format	
Elements and weights of the final grade:	Project - 85%, activity during the classes - 15%	
Place of the course:	Computer lab or remote classes (Teams)	

#### Basic and supplementary literature

- Hernández, J. A., Conde, J., Querol, B., Martínez, G., & Reviriego, P. (2024). ChatGPT: Learning prompt engineering with 100+ examples
- Gopalakrishnan, S. (2024). Modern Python Programming using ChatGPT: 10x your software development skills with Python.
- VanderPlas, J. (2022). Python Data Science Handbook. O'Reilly Media. <https://jakevdp.github.io/PythonDataScienceHandbook/>
- <https://www.kaggle.com/learn>
- <https://chatgpt.com>
- <https://colab.research.google.com/>
- <https://code.earthengine.google.com/>

Comments:	
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Estimated number of hours of work of the doctoral student necessary to achieve the assumed learning outcomes:	20
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#### Learning outcomes reference to the second degree characteristics of the National Qualification Framework (level 8) covering doctoral competences:

Symbol:	Learning outcomes:	8 level NQF
SD1_KW01	To the extent enabling to revise the existing pradisms in the field/discipline - the world achievements, gathering theoretical background as well as general and selected detailed issues	P8S_WG
SD1_KW02	Major general development trends in the field/discipline	P8S_WG
SD1_KU05	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	P8S_UW
SD1_KK01	Critically evaluate the achievements in the field/discipline represented	P8S_KK
SD1_KK03	Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect	P8S_KK
SD1_KK08	Support the ethos of scientific circles and conduct independent research	P8S_KR