Course title:	Spatial statistics
Course title in Polish:	Statystyka przestrzenna
Course for discipline:	agriculture and horticulture

Semester:	5	**Status of course:**	faculty	**Language:**	english
Academic year:	2027/2028	**Catalog number:**	44/2025/26		

Coordinator of course:	dr hab. Marcin Studnicki, prof. SGGW		
Lecturer od course:	dr hab. Dariusz Gozodwski, prof. SGGW; dr hab. Marcin Studnicki, prof. SGGW		
Executing unit:	Department of Biometry, Institue of Agriculture		
Ordering unit:	Doctoral School SGGW		
Assumptions, goals and description of the course:	This course is designed to provide an introduction to fundamental conceptual, computational, and practical methods of spatial data analysis. Topics include: defining geostatistical, areal and point processes, visualizing spatial data, variogram, interpolation, kriging, spatial autoregressive models. During the classes, topics will be discussed using R and QGIS software.		
Didactic form, number of hours:	15 hours		
Teaching methods:	Case study		
Limit of people in the group:	30		
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 pradigms in the field/discipline - the world achievments, 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 achievments in the field/discipline represented	
Major general development trends in the field/discipline		Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect	
		Support the ethos of scientific circles and conduct independent research	
The method of verification of learning outcomes:	Project		
Form of documentation of achieved learning outcomes:	Word and Excel file with results of project		
Elements and weights of the final grade:	100% project		
Place of the course:	Lecture hall of Department of Biometry		
Basic and supplementary literature			
Banerjee, S., Carlin, B.P. and Gelfand. A.E (2014) Hierarchical Modeling and Analysis for Spatial Data, CRC Press, New York Gaetan, C. and Guyon, X. (2010) Spatial Statistics and Modeling, Springer, New York. Gelfand, A.E., Diggle, P., Guttorp, P. and Fuentes, M. (2010) Handbook of Spatial Statistics, CRC Press, New York			
Comments:			

Estimated number of hours of work of the doctoral student necessary to achieve the assumed learning outcomes:	20

Leraning 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 pradigms in the field/discipline - the world achievments, 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 achievments 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