Course title:	Climate change and hydrological conditions
Course title in Polish:	Warunki hydrologiczne wobec zmian klimatu
Course for discipline:	

Semester:	8	**Status of course:**	faculty	**Language:**	english
Academic year:		**Catalog number:**			

Coordinator of course:	Dr hab. inż. Leszek Hejduk
Lecturer od course:	Dr hab. inż. Leszek Hejduk, dr inż. Ewa Kaznowska
Executing unit:	Department of Water Engineering and Applied Geology
Ordering unit:	Doctoral School SGGW
Assumptions, goals and description of the course:	The aim of the exercises is to familiarize doctoral students with computational methods, with particular emphasis on statistical methods for assessing the variability of hydrological conditions over time in the face of advancing climate change. Students will conduct analyses of existing long-term hydrological datasets, including: determining the average hydrograph of mean and extreme flows, calculating measures of variability, determining frequency histograms and flow frequency curves, identifying seasonality of extreme events, providing a quantitative description of the character and level of flow seasonality, long-term changes, and flow fluctuations.
Didactic form, number of hours:	excersise, 10h
Teaching methods:	Computational tutorial exercises, individual student projects, consultations
Limit of people in the group:	

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:	Evaluation of the report from the completed exercise
Form of documentation of achieved learning outcomes:	Exercise report in electronic form, e.g., in .pdf format or paper-based
Elements and weights of the final grade:	Final grade: grade from the report - 100% of the grade
Place of the course:	Classroom, computer laboratory

Basic and supplementary literature

Guide to Hydrological Practice, WMO No-168. https://library.wmo.int/idurl/4/35804

Comments:	

Estimated number of hours of work of the doctoral student necessary to achieve the assumed learning outcomes:	25h

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