

Course title Meteorologia i klimatologia/Meteorology and climatology		ECTS code 7.2.0570	
Name of unit administrating study			
Faculty of Chemistry			
Studies			
Field of study	Type	Form	
Environmental Protection	Bachelor	Full-time studies	
Teaching staff Prof. dr hab. Mirosław Miętus			
Forms of classes, the realization and number of hours		ECTS credits	
A. Forms of classes, in accordance with the UG Rector's regulations lecture, audytorium classes, outdoor activities		15 h of lecture - 0,5 ECTS 30 h of audytorium classes - 1 ECTS 15 h of tutorial classes - 0,5 ECTS 50 h of student's own work - 2 ECTS TOTAL: 110 h - 4 ECTS	
B. The realization of activities In-class learning, outdoor activities			
C. Number of hours lecture 15 h, audytorium classes 30 h			
The academic cycle First year, summer semester			
Type of course obligatory		Language of instruction Polish	
Teaching methods Lectures with multimedial presentations Work in groups Projects Solving problems		Form and method of assessment and basic criteria for evaluation or examination requirements	
		A. Final evaluation, in accordance with the UG study regulations Course completion (with a grade), exam	
		B. Assessment methods Written examination with open questions (tasks) Positive assessments of the colloquia	
		D. The basic criteria for evaluation A lecture: Obtaining a positive mark from the examination, reflecting the achievement of the assumed educational results in the scope of knowledge, skills and competences of the student. Exercises: timeliness, completeness and correctness of the tasks performed, obtaining a positive assessment of all the tasks performed within the framework of the exercises and positive assessments of the colloquia.	
Required courses and introductory requirements Basic knowledge in mathematics and statistic Basic knowledge about atmosphere from geography, about ideal gases physics on the level of secondary school			
Aims of education			

Lecture: basic knowledge about the atmosphere and its processes. Recognition and interpretation of meteorological phenomena and processes in connection with the state of the natural environment. Determination of the effects of weather conditions on the geographical environment, economy and human health.

Exercises: getting to know basic sources of information in meteorology and climatology. Learning the main principles and objectives of meteorological observations. The ability to preliminarily process meteorological data and analyse climatological time series.

Course contents

A. Lecture's problems

- A.1. Subjects of meteorological and climatological research
- A.2. Atmosphere (its structure and characteristics, antropogenic changes of atmospheric components)
- A.3. Radiation of the Sun, the Earth and its atmosphere
- A.4. Heat balance of the Earth surface
- A.5. Water in the atmosphere
- A.6. Adiabatic processes
- A.7. Atmospheric circulation
- A.8. Selected issues of climatology (climatic processes and factors, local climate features, zonal and non-zonal climatic factors, climate of Poland, global climate change)

B. Task's problems

- B.1. Organization of meteorological observation networks in Poland
- B.2. Basic sources of data in climatology
- B.3. Meteorological elements – basic information about methods of observation and data processing
- B.4. Basic statistical and graphical methods of data processing in meteorology.

Bibliography of literature

A. Literature required to pass the course

- Kożuchowski K., 1998. Atmosfera, klimat, ekoklimat. Wydawnictwo Naukowe PWN.
Kożuchowski K. (red), 2005, Meteorologia i Klimatologia, PWN
Woś A., 2000. Meteorologia dla geografów. Wydawnictwo Naukowe PWN.

B. Extracurricular readings

- Bac S., Koźmiński C., Rojek M., 1998. Agrometeorologia. Wydawnictwo Naukowe PWN.
Kożuchowski K., 2011, Klimat Polski. Nowe spojrzenie, PWN
Lorenc H. (red), 2005, Atlas klimatu Polski, IMGW.
Martyn D., 2000, Klimaty kuli ziemskiej, PWN
Niedźwiedz T. (red.), 2003 Słownik meteorologiczny. PWN.
Schoenwiese Ch-D., 1997. Klimat i człowiek. Prószyński i S-ka.
Pruchnicki J., 1989. Metody opracowań klimatologicznych. PWN.
Ustrnul Z., Czekerda D., 2009, Atlas ekstremalnych zjawisk meteorologicznych oraz sytuacji synoptycznych w Polsce, IMGW
Woś A., 1999. Klimat Polski. Wydawnictwo Naukowe PWN.
Woś A., 2010. Klimat Polski w drugiej połowie XX wieku. Wydawnictwo Naukowe UAM.