

<b>Course title</b> Meteorologia i klimatologia/Meteorology and climatology		<b>ECTS code</b> 7.2.0570	
<b>Name of unit administrating study</b>			
<b>Faculty of Chemistry</b>			
<b>Studies</b>			
<b>Field of study</b>	<b>Type</b>	<b>Form</b>	
Environmental Protection	Bachelor	Full-time studies	
<b>Teaching staff</b> Prof. dr hab. Mirosław Miętus			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b>	
<b>A. Forms of classes, in accordance with the UG Rector's regulations</b> 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>B. The realization of activities</b> In-class learning, outdoor activities			
<b>C. Number of hours</b> lecture 15 h, audytorium classes 30 h			
<b>The academic cycle</b> First year, summer semester			
<b>Type of course</b> obligatory		<b>Language of instruction</b> Polish	
<b>Teaching methods</b>  Lectures with multimedial presentations Work in groups Projects Solving problems		<b>Form and method of assessment and basic criteria for evaluation or examination requirements</b>	
		<b>A. Final evaluation, in accordance with the UG study regulations</b> Course completion (with a grade), exam	
		<b>B. Assessment methods</b> Written examination with open questions (tasks) Positive assessments of the colloquia	
		<b>D. The basic criteria for evaluation</b> 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.	
<b>Required courses and introductory requirements</b> Basic knowledge in mathematics and statistic Basic knowledge about atmosphere from geography, about ideal gases physics on the level of secondary school			
<b>Aims of education</b>			

**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., Czekierda 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.