

<b>Course title</b> Chemia nieorganiczna / Inorganic chemistry		<b>ECTS code</b> 7.2.0597	
<b>Name of unit administrating study</b> Faculty of Chemistry			
<b>Studies</b>			
<b>Field of study</b>	<b>Type</b>	<b>Form</b>	
Environmental Protection	Bachelor	Full-time studies	
<b>Teaching Staff</b> Dr Dariusz Wyrzykowski			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b> 5	
<b>A. Forms of classes, in accordance with the UG Rector's regulations</b> lecture, auditorium classes, laboratory classes		classes - 60 h tutorial classes – 30 h student's own work – 35 h	
<b>B. The realization of activities</b> multimedia presentation, in-class learning, laboratory experiments		Total: 125 h - 5 ECTS	
<b>C. Number of hours</b> 60 h (lecture 15 h, auditorium classes 15 h, laboratories 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>  <ul style="list-style-type: none"> <li>•Lecture with multimedia presentation</li> <li>•The auditorium classes - calculations involving different aspects of inorganic chemistry</li> <li>•Practical laboratory work - chemical experiments, analysis of obtained results and discussion</li> </ul>		<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> <b>Lectures - exam,</b> lecture - exam, auditorium classes – course credit with a grade lab classes – course credit with a grade	
		<b>B. Assessment methods</b> Lectures - exam with open questions, Auditorium classes – two tests, Lab classes – completion with note	
		<b>C. The basic criteria for evaluation or exam requirements</b> <b>Lecture:</b> positive note from an exam with 15-20 open questions: 91-100%: 5.0 81-90%: 4.5 71-80%: 4.0 61-70%: 3.5 51-60%: 3.0 < 51%: 2.0 <b>Auditorium classes:</b> positive note from two tests, final note is an average from notes from both tests 91-100%: 5.0 81-90%: 4.5 71-80%: 4.0 61-70%: 3.5 51-60%: 3.0 < 51%: 2.0 <b>Lab classes:</b> positive note from each lab test, final note is an average from notes from all the tests 91-100%: 5.0 81-90%: 4.5 71-80%: 4.0 61-70%: 3.5 51-60%: 3.0 < 51%: 2.0	

## Required courses and introductory requirements

Basic chemistry

### Aims of education

- presenting basic issues in inorganic chemistry to students
- familiarize students with fundamental properties of the elements and inorganic compounds as well as their industrial role
- familiarize students with the basis of chemical calculations in the field of inorganic chemistry

### Course contents

**Topics of the lecture:** periodicity and the chemistry of the elements, physicochemical properties of inorganic and coordination compounds. The following items are included: periodicity, chemical bonding, coordination compounds, types of chemical reactions, properties of chemical elements and their compounds. The groups of elements are presented in the following order: group 1, group 2, group 13, group 14, group 15, group 16, group 17, group 18, and d-elements (groups 3-12; first transition row, second transition row, and third transition row).

**Topics of auditory classes:** basic types of inorganic compounds, balancing redox reactions, equilibria in the solutions of electrolytes.

**Topics of lab classes:** investigation of physicochemical properties of the elements, inorganic and coordination compounds based on chemical experiments.

### Bibliography of literature

#### A. Literature required to pass the course

1. *Chemistry of the Elements*, N. N. Greenwood, A. Earnshaw, Elsevier Science & Technology Books, 2005
2. *General chemistry*, Wendell H. Slabaugh, Thera D. Parsons, New York: John Wiley and Sons, 1966
3. *College chemistry : an introductory textbook of general chemistry*, Linus Pauling, Roger Hayward, San Francisco: W. H. Freeman and Company, 1950.
4. *General chemistry*, John H. Sechrist, Wendell H. Powers, Princeton, New Jersey : D. Van Nostrand Company, Inc., 1966
5. *Basic inorganic chemistry*, F. Albert Cotton, Geoffrey Wilkinson, New York: John Wiley & Sons, 1976.
6. *Inorganic chemistry*, Alan G. Sharpe, London : Longman Scientific Technical, New York : John Wiley & Sons, 1992
7. *Inorganic chemistry: an industrial and environmental perspective*, T. W. Swaddle, Thomas Wilson, San Diego: Academic Press, 1997

#### B. Extracurricular readings

1. *Problem exercises for general chemistry*, G. Gilbert Long, Forrest C. Hentz, New York: John Wiley & Sons, cop. 1978
2. *General chemistry: principles and structure*, James E. Brady, Gerard E. Humiston, SI version prepared by Henry Heikkinen, New York : John Wiley & Sons, 1982
3. *The chemistry of the rare-earth elements*, N. E. Topp, Amsterdam : Elsevier Publ. Co., 1965.