


**KAPITAŁ LUDZKI**  
 NARODOWA STRATEGIA SPÓJNOŚCI

 Projekt współfinansowany przez  
 Unię Europejską w ramach  
 Europejskiego Funduszu  
 Społecznego

**UNIA EUROPEJSKA**  
 EUROPEJSKI  
 FUNDUSZ SPOŁECZNY


<b>Course title</b>		<b>ECTS code</b>	
General chemistry		13.3.0855	
<b>Name of unit administrating study</b>			
Faculty of Chemistry			
<b>Studies</b>			
<b>faculty</b>	<b>field of study</b>	<b>type</b>	<b>pierwszego stopnia</b>
Wydział Chemii	Chemia	<b>form</b>	stacjonarne
		<b>specjalty</b>	wszystkie
		<b>specialization</b>	wszystkie
<b>Teaching staff</b>			
prof. dr hab. inż. Lech Chmurzyński; dr hab. Dorota Rogacka; prof. dr hab. Ewa Siedlecka; dr Irena Audzeyenka; prof. UG, dr hab. Henryk Myszką; dr hab. Joanna Makowska, profesor uczelni; dr inż. Krzysztof Żamojć; dr inż. Paulina Spisz; dr Aleksandra Tesmar; mgr Ola Grabowska; dr hab. Dariusz Wyrzykowski; dr Aleksandra Bielicka-Gieldoń; dr hab. Agnieszka Piwkowska			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b>	
<b>Forms of classes</b>		8	
Auditorium classes, Laboratory classes, Lecture		ECTS credits 8	
<b>The realization of activities</b>		classes - 120 h	
classroom instruction		tutorial classes – 15 h	
<b>Number of hours</b>		student's own work – 65 h	
Lecture: 45 hours, Laboratory classes: 30 hours, Auditorium classes: 45 hours		Total: 200 h - 8 ECTS	
<b>The academic cycle</b>			
2022/2023 winter semester			
<b>Type of course</b>		<b>Language of instruction</b>	
obligatory		polish	
<b>Teaching methods</b>		<b>Form and method of assessment and basic criteria for evaluation or examination requirements</b>	
<ul style="list-style-type: none"> <li>- conducting experiments</li> <li>- discussion</li> <li>- multimedia-based lecture</li> <li>- problem solving</li> </ul>		<b>Final evaluation</b>	
		<ul style="list-style-type: none"> <li>- Graded credit</li> <li>- Examination</li> </ul>	
		<b>Assessment methods</b>	
		<ul style="list-style-type: none"> <li>- written exam with open questions</li> <li>- (mid-term / end-term) test</li> <li>- Lecture – exam with open questions</li> <li>Auditorium classes – two tests</li> <li>Laboratory classes – short tests and reports</li> </ul>	
		<b>The basic criteria for evaluation</b>	

Lecture: 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
Auditorium classes: 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
Laboratory classes: positive note from all short tests and reports, final note is an average from notes from all tests
91-100%: 5.0
81-90%: 4.5
71-80%: 4.0
61-70%: 3.5
51-60%: 3.0
< 51%: 2.0

**Method of verifying required learning outcomes**

**Required courses and introductory requirements**

**A. Formal requirements**

lack

**B. Prerequisites**

lack

**Aims of education**

familiarize students with the main aspects of general chemistry and classes of inorganic compounds

familiarize students with the balancing chemical equations

presenting the basis of chemical calculations

**Course contents**

Topics of the lecture: atomistic theory of matter (atomic nucleus, isotopes, electronic structure of atoms, quantum numbers, atomic orbitals), basic chemical terms and laws, periodic table of elements, chemical equations (including redox reactions), chemical bonds, basic types of inorganic compounds, stoichiometry, solutions and their concentrations, thermochemistry, kinetics and chemical equilibrium, theories of acids and bases, electrolytic dissociation, pH scale, pH of solutions of strong and weak acids and bases, buffer solutions, hydrolysis, elements of electrochemistry.

Topics of auditory classes: basic chemical terms and laws, basic types of inorganic compounds, balancing redox reactions, stoichiometry, the concentrations of the solutions, kinetics and chemical equilibrium, equilibria in the solutions of electrolytes.

**Bibliography of literature**

A) Literature required to pass the course

J. D. Lee – Concise inorganic chemistry

L. Jones, P. Atkins – Chemical principles

B) Extracurricular readings

L. Pauling – General chemistry

M. J. Sienko, R. A. Plane – Chemistry: Principles and properties

**The learning outcomes (for the field of study and specialization)**

**Knowledge**

Students: know main states of matter; understand structure and properties of atoms as well as other chemical particles; understand essence of main types of chemical bonds; understand main chemical terms, laws and phenomena, know basic terminology and symbolism in terms of elements, inorganic compounds, electrolytes, electrolytic dissociation as well as chemical reactions in water solutions; know physicochemical properties of chosen elements and chemical compounds (oxides and hydrides of metals and nonmetals, bases, acids and salts); know main applications of known chemical substances as well as threats connected

with their inappropriate use; know main techniques of calculations in chemistry.

#### Skills

Students: present plainly – in both speech and writing – correct chemical argumentation; present and explain chemical phenomena and processes, i.e. write molecular and ionic equations for chemical reactions, interpret qualitatively and quantitatively equations for chemical reactions; interpret and analyze information connected with chemistry presented as text, tables, plots, schemes, figures; formulate descriptions of different chemical phenomena and processes, describe them with use of own words and figures (schemes); explain similarities and differences in properties of elements, relations between structure of substances and their properties; notice causal links in chemical processes performed in different conditions, where typical chemical reactions occur; explain course of different phenomena from everyday life with the use of chemical knowledge in correlation with other sciences; interpret information, formulates conclusions and explain opinions.

#### Social competence

Students: understand need for learning, inspire other for learning; cooperate in group, taking different roles; exhibit creativity in determination of priorities necessary for realization of different tasks; understand social aspects of practical use of knowledge and abilities as well as connected with them responsibility.

#### Contact

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