


KAPITAŁ LUDZKI
 NARODOWA STRATEGIA SPÓJNOŚCI

 Projekt współfinansowany przez
 Unię Europejską w ramach
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 Społecznego

UNIA EUROPEJSKA
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Course title		ECTS code	
General chemistry		13.3.0855	
Name of unit administrating study			
Faculty of Chemistry			
Studies			
faculty	field of study	type	pierwszego stopnia
Wydział Chemii	Chemia	form	stacjonarne
		specjalty	wszystkie
		specialization	wszystkie
Teaching staff			
prof. dr hab. inż. Lech Chmurzyński; prof. dr hab. Ewa Siedlecka; prof. UG, dr hab. Henryk Myszką; dr inż. Krzysztof Żamojć; mgr Ola Grabowska; dr hab. Dariusz Wyrzykowski; dr Aleksandra Bielicka-Gieldoń; dr Aleksandra Tesmar; dr hab. Joanna Makowska, profesor uczelni			
Forms of classes, the realization and number of hours		ECTS credits	
Forms of classes		8	
Auditorium classes, Laboratory classes, Lecture		ECTS credits 8	
The realization of activities		classes - 120 h	
classroom instruction		tutorial classes – 15 h	
Number of hours		student's own work – 65 h	
Laboratory classes: 30 hours, Lecture: 45 hours, Auditorium classes: 45 hours		Total: 200 h - 8 ECTS	
The academic cycle			
2023/2024 winter semester			
Type of course		Language of instruction	
obligatory		Polish	
Teaching methods		Form and method of assessment and basic criteria for evaluation or examination requirements	
<ul style="list-style-type: none"> - conducting experiments - discussion - multimedia-based lecture - problem solving 		Final evaluation	
		<ul style="list-style-type: none"> - Graded credit - Examination 	
		Assessment methods	
		<ul style="list-style-type: none"> - (mid-term / end-term) test - written exam with open questions - Lecture – exam with open questions Auditorium classes – two tests Laboratory classes – short tests and reports 	
		The basic criteria for evaluation	

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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