UNIWERSYTET IM. ADAMA MICKIEWICZA W POZNANIU

Basic Inorganic Chemistry 1

Educational subject description sheet

Basic information

Study programme Chemia (General Chemistry) **Speciality** - **Organizational unit** Faculty of Chemistry **Study level** First-cycle programme **Study form** Full-time **Education profile** General academic	**Didactic cycle** 2023/24 **Subject code** 02CENS.14K.01819.23 **Lecture languages** English **Course type** Obligatory **Block** Major subjects

Subject coordinator	Beata Dudziec
Lecturer	Beata Dudziec

Period	**Activities and hours**	**Number of ECTS points**
Semester 3	• Lecture: 30, Exam • Proseminar: 15, Graded credit	4

Goals

Code	Goal
C1	Provide knowledge of the electronic structure of atoms.
C2	Provide knowledge in the field of the construction of periodic table of the elements and the periodicity of their physical and chemical properties.
C3	Provide knowledge in the issue of theories concerning chemical bonds.
C4	Provide knowledge in the field of the structures of chemical elements and their compounds.
C5	Knowledge of basics in the field of coordination chemistry.
C6	Knowledge of basics in the field of organometallic chemistry.
C7	Provide knowledge in the area of thermodynamic and kinetic conditions of chemical processes.

Entry requirements

No prerequisites required.

Subject learning outcomes

Code	Outcomes in terms of	Learning outcomes	Examination methods
Knowledge – Student:			
W1	knows and understands the electronic structure of atoms and principles of shells occupation.	CEN_K1_W01, CEN_K1_W02	Written exam, Written colloquium, Test
W2	knows and understands the construction of the periodic table of the elements, the periodicity of their physical and chemical properties and their compounds.	CEN_K1_W01, CEN_K1_W02	Written exam, Written colloquium, Test
W3	knows and understands the theories concerning chemical bonds.	CEN_K1_W01, CEN_K1_W02	Written exam, Written colloquium, Test
W4	knows and understands the structures of elements and chemical compounds.	CEN_K1_W01, CEN_K1_W06	Written exam, Written colloquium, Test
W5	knows and understands the basics of coordination chemistry.	CEN_K1_W01, CEN_K1_W08	Written exam, Written colloquium, Test
W6	knows and understands the basics of organometallic chemistry.	CEN_K1_W01, CEN_K1_W08	Written exam, Written colloquium, Test
W7	knows and understands thermodynamic and kinetic conditions of chemical processes.	CEN_K1_W09	Written exam, Written colloquium, Test

Study content

No.	Course content	Subject learning outcomes	Activities
1.	Electronic structure of the elements, a principle of shell's occupation.	W1	Lecture, Proseminar

No.	Course content	Subject learning outcomes	Activities
2.	The construction of the periodic table of the elements, the periodicity of physical and chemical properties of the elements and chemical compounds.	W2	Lecture, Proseminar
3.	Theories of chemical bonds.	W3	Lecture, Proseminar
4.	The structures of the elements and chemical compounds.	W4	Lecture, Proseminar
5.	Basics of coordination chemistry.	W5	Lecture, Proseminar
6.	Basics of organometallic chemistry.	W6	Lecture, Proseminar
7.	Thermodynamic and kinetic conditions of chemical processes.	W7	Lecture, Proseminar

Additional information

Activities	Teaching and learning methods and activities
Lecture	Lecture with a multimedia presentation of selected issues
Proseminar	Lecture with a multimedia presentation of selected issues, Discussion, Problem-based learning, Work in groups

Activities	Credit conditions
Lecture	The condition for passing the lecture is obtaining at least 50% of the maximum possible amount of points during the exam and positive grade from the seminars (at least sufficient: E, 3,0). Grade conditions: • excellent (A; 5.0) – achievement by the student of the assumed learning outcomes in a range of 90.0 - 100% • very good (B; 4.5) - achievement by the student of the assumed learning outcomes in a range of 80.0 - 89.9% • good (C; 4.0) - achievement by the student of the assumed learning outcomes in a range of 70.0 - 79.9% • satisfactory (D; 3.5) - achievement by the student of the assumed learning outcomes in a range of 60.0 - 69.9% • sufficient (E, 3.0) - achievement by the student of the assumed learning outcomes in a range of 50.0- 59.9% • fail (F; 2.0): failure to achieve the assumed learning outcomes, result below <50.0%
Proseminar	The condition for passing is attendance at a minimum of 13 out of 15 classes and achieving at least 50% of the maximum possible number of points. The grading system includes results from written quizzes and participation in classes. The type and number of quizzes are determined by the instructor. If a student achieves below 49.9% of the maximum possible number of points, they have the opportunity to take a final quiz covering the entire material, allowing them to pass the course and receive a satisfactory grade (3.0). The grading scale with corresponding percentage distribution is as follows: • Grade 5.0 - Achieving 90.0 - 100% of the maximum possible number of points • Grade 4.5 - Achieving 80.0 - 89.9% of the maximum possible number of points • Grade 4.0 - Achieving 70.0 - 79.9% of the maximum possible number of points • Grade 3.5 - Achieving 60.0 - 69.9% of the maximum possible number of points • Grade 3.0 - Achieving 50.0 - 59.9% of the maximum possible number of points

Literature

Obligatory

1. J. D. Lee „Concise Inorganic Chemistry”. 5th Edition, Chapman and Hall Ltd., London, 1996
2. P. Atkins, T. Overton, J. Rourke, M. Weller, F. Armstrong, M. Hagerman „Inorganic Chemistry” 5th Ed.; Oxford University Press, 2010

Optional

1. C. E. Housecroft, A. G. Sharpe “Inorganic Chemistry”, 5th Ed.; Pearson Education Ltd., 2018

Calculation of ECTS points

Activities	**Activity hours***
Lecture	30
Proseminar	15
Preparation for classes	15
Reading the indicated literature	15
Preparation for the assessment	15
Preparation for the exam	30
Student workload	**Hours** 120
Number of ECTS points	**ECTS** 4

* academic hour = 45 minutes

Efekty uczenia się dla kierunku

Kod	Treść
CEN_K1_W01	The graduate knows and understands basic chemical laws and issues
CEN_K1_W02	The graduate knows and understands basic physics and their relationship to chemical laws
CEN_K1_W06	The graduate knows and understands structure of molecules and crystals
CEN_K1_W08	The graduate knows and understands the chemical properties of substances according to their structure/composition
CEN_K1_W09	The graduate knows and understands the basics of chemical kinetics and catalysis