

# Course description

<b>Course abbreviation:</b>	KCH/SZOAC	<b>Page:</b>	1 / 2
<b>Course name:</b>	General and inorganic chemistry		
<b>Academic Year:</b>	2016/2017	<b>Printed:</b>	22.05.2018 10:18

<b>Department/Unit /</b>	KCH / SZOAC	<b>Academic Year</b>	2016/2017
<b>Title</b>	General and inorganic chemistry	<b>Type of completion</b>	State Final Exam
<b>Accredited/Credits</b>	Yes, 0 Cred.	<b>Type of completion</b>	
<b>Number of hours</b>			
<b>Occ/max</b>	Status A      Status B      Status C	<b>Course credit prior to</b>	NO
<b>Summer semester</b>	7 / -      0 / 0      0 / 0	<b>Counted into average</b>	YES
<b>Winter semester</b>	0 / -      0 / 0      0 / 0	<b>Min. (B+C) students</b>	not determined
<b>Timetable</b>	Yes	<b>Repeated registration</b>	NO
<b>Language of instruction</b>	Czech	<b>Semester taught</b>	Winter, Summer
<b>Substituted course</b>	None	<b>Internship duration</b>	0
<b>Preclusive courses</b>	N/A		
<b>Prerequisite</b>	N/A		
<b>Informally recommended courses</b>	N/A		
<b>Courses depending on this Course</b>	N/A		

## Course objectives:

### Aims

Fields: General and inorganic chemistry.

1. Atomic nucleus - composition, stability. Natural and artificial radioactivity. Nuclear reactions.
2. The electron shell constitution. Atomic orbital. Electron configuration of atoms and ions.
3. Covalent bond - formation, polarity, directional properties. Theory of covalent bonds and molecular orbitals.
4. Coordinate-covalence (dative) bond - basic concepts, elucidation from the point of view of the covalent bonds theory and the ligand field.
5. Ionic bonds. The ionic compounds properties. Metallic bond. Weak bond interactions.
6. Mixtures. Solutions - formation, properties. Formulation of the solutions concentrations. Solubility.
7. Redox processes. Electrochemical potential, electrochemical series.
8. Electrolytes, electrolytic dissociation. Electrolysis. Galvanic cells. 9. Theory of acids and bases. Acidobasic equilibria. Hydrolysis.
10. The chemical kinetics bases. Factors influencing the reaction rate.
11. Periodic law and periodic elements system. Periodicity of the elements and compounds properties.
12. Hydrogen, oxygen, inert gases.
13. Alkali metals - properties, the most important compounds.
14. Alkali earth metals - properties, the most important compounds.
15. Halogens - properties, the most important compounds.
16. The III. main subgroup elements - properties, the most important compounds.
17. The IV. main subgroup elements - properties, the most important compounds.
18. The V. main subgroup elements - properties, the most important compounds.
19. The VI. main subgroup elements - properties, the most important compounds of sulphur.
20. d-elements, their characteristic properties, the most important compounds. Complexes.

## Requirements on student

Evaluation of the subject as well as the exam grading is made according to the articles No 31 - 33 in the Regulations on Study and Examinations University of Ostrava

## Content

General and inorganic chemistry

**Prerequisites - other information about course preconditions**

The student must gain at least 180 credits during the study in the subjects stipulated by the curriculum of the degree specialization.

**Competences acquired****Competences**

The students orientate in the general and inorganic chemistry problems. They can use and integrate acquired knowledge in the chemical practice.

**Fields of study****Guarantors and lecturers**

- **Guarantors:** doc. RNDr. Václav Slovák, Ph.D.

**Literature****Time requirements**

Activities	Time requirements for activity [h]
Self-tutoring	15
Preparation for an exam	95
Consultation of work with the teacher/tutor (incl. electronic)	10
<b>Total:</b>	<b>120</b>

**assessment methods****professional knowledge**

Oral examination

**learning outcomes****professional knowledge - knowledge resulting from the course:****Competences**

The students orientate in the general and inorganic chemistry problems. They can use and integrate acquired knowledge in the chemical practice.

**Course is included in study programmes:**

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
Chemistry	Bachelor	Full-time	Chemistry	1	2012	2016	Povinné předměty	A	3	LS