



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Anorganska kemija
Course title:	Inorganic chemistry

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Enovit magistrski študijski program druge stopnje Predmetni učitelj	/	1.	Poletni Spring
Five-year master's degree program Subject Teacher	/		

Vrsta predmeta / Course type:

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Lab. vaje Laboratory work	Terenske vaje Field work	Samost. delo Individ. work	ECTS
45	15				60	4

Nosilec predmeta / Lecturer:

Jeziki / Predavanja / Lectures:
Languages: Vaje / Tutorial:

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Prerequisites:

Vsebina:

Predmet zajema osnove anorganske kemije s pregledom periodnega sistema po vertikali:

- VII. skupina periodnega sistema - halogeni elementi (F, Cl, Br, I)
- VI. skupina periodnega sistema - halkogeni elementi (S, Se, Te)
- V. skupina periodnega sistema (N, P, As, Sb, Bi)
- IV. skupina periodnega sistema (C, Si, Ge, Pb)
- III. skupina periodnega sistema (B, Al, Ga, In, Tl)
- II. skupina periodnega sistema (Be, Mg, Ca, Sr, Ba)
- I. skupina periodnega sistema (Li, Na, K, Rb, Cs)
- Žlahtni plini (Ne, Ar, Kr, Xe)
- Kemija najpomembnejših prehodnih elementov:

Content (Syllabus outline):

The subject contains basic facts and principles of inorganic chemistry by studying the periodic table by groups:

- The Group VII elements: F, Cl, Br, I
- The Group VI elements: S, Se, Te
- The Group V elements: N, P, As, Sb, Bi
- The Group IV elements: C, Si, Ge, Pb
- The Group III elements: B, Al, Ga, In, Tl
- The Group II elements: Be, Mg, Ca, Sr, Ba
- The Group I elements: Li, Na, K, Rb, Cs
- The Group VIII (The noble gases): He, Ne, Ar, Kr, Xe, Ra

Ti, V, Cr, W, Mn, Fe, Co, Ni, Pt, Cu, Ag, Au, Zn, Hg

- Lantanoidi in aktinoidi

- The chemistry of representative transition elements: Ti, V, Cr, W, Mn, Fe, Co, Ni, Pt, Cu, Ag, Au, Zn, Hg
- Lanthanides and Actinides

Temeljna literatura in viri / Readings:

- M. Drofenik, Splošna in anorganska kemija, Fakulteta za kemijo in kemijsko tehnologijo – Univerza v Mariboru (2003).
- F. Lazarini, J. Brenčič, Splošna in anorganska kemija, DZS Ljubljana (1992).
- D. F. Shriver, P.W. Atkins, Inorganic Chemistry, Oxford-University Press (2006).

Cilji in kompetence:

Kandidat bo seznanjen z osnovnimi lastnostmi kemije reprezentativnih elementov periodnega sistema. Znanje mu bo omogočalo aktivno sodelovanje pri ostalih kemiskih predmetih in delo v kemijskem laboratoriju.

Objectives and competences:

The candidate will be acquainted with the basic chemical properties of representative elements what will enable him/her to follow other chemistry courses and will qualify them to work in a chemical Lab.

Predvideni študijski rezultati:

Znanje in razumevanje:
Poznavanje osnovnih dejstev anorganske kemije, reprezentativnih elementov in nekaterih elementov prehoda: pridobivanje, lastnosti, glavne spojine s poudarkom na spojinah z vodikom in kisikom. Razumevanje periodičnosti lastnosti elementov po periodnem sistemu.

Prenesljive/ključne spretnosti in drugi atributi:
Pridobitev kemijskih znanj potrebnih za razumevanje ostalih kemijskih predmetov (organska, analizna in fizikalna kemija)
Pridobitev splošnega kemijskega znanja za sodelovanje pri specialno didaktičnih predmetih.

Intended learning outcomes:

Knowledge and understanding
Knowledge about basic principles of inorganic chemistry, main group elements and representative transition elements: production, properties, main compounds with the focus on hydrogen and oxygen compounds. Understanding the periodicity of element properties throughout the periodic table.

Transferable/Key Skills and other attributes:
Acquirement of elementary chemical knowledge needed for attending other chemical courses (analytical, physical and organic chemistry) and chemical education courses.

Metode poučevanja in učenja:

- Predavanja z demonstracijo najpomembnejših kemijskih eksperimentov
- Avditorne vaje
- Individualno delo

Learning and teaching methods:

- Lectures including demonstration of most important chemical experiments
- Desk exercises
- Individual work

Delež (v %) /

Načini ocenjevanja:**Weight (in %)****Assessment:**

• Seminarska naloga	10	• Coursework
• Pisni izpit	50	• Written exam
• Ustni izpit	40	• Oral exam

Reference nosilca / Lecturer's references:

1. BAN, Irena, KRISTL, Matjaž, DANČ, Valerija, DANČ, Anita, DROFENIK, Mihael. Preparation of cadmium telluride nanoparticles from aqueous solutions by sonochemical method. *Mater. lett.* [Print ed.], 15. Jan. 2012, vol. 67, iss. 1, str. 56-59, doi: [10.1016/j.matlet.2011.09.001](https://doi.org/10.1016/j.matlet.2011.09.001). [COBISS.SI-ID [15371798](#)]
2. KRISTL, Matjaž, GOLOBIČ, Amalija, DOJER, Brina, DROFENIK, Mihael. Synthesis and structure of hydroxylammonium fluoroaluminate. *Monatsh. Chem.*, 2011, vol. 142, no. 8, str. 755-762, doi: [10.1007/s00706-011-0508-4](https://doi.org/10.1007/s00706-011-0508-4). [COBISS.SI-ID [15004182](#)]
3. KRISTL, Matjaž, DOJER, Brina, KASUNIČ, Marta, GOLOBIČ, Amalija, JAGLIČIĆ, Zvonko, DROFENIK, Mihael. Hydroxylammonium fluorometalates : synthesis and characterisation of a new fluorocuprate and fluorocobaltate. *J. fluorine chem.* [Print ed.], Sep. 2010, vol. 131, iss. 9, str. 907-914, doi: [10.1016/j.jfluchem.2010.06.004](https://doi.org/10.1016/j.jfluchem.2010.06.004). [COBISS.SI-ID [14192662](#)]
4. KRISTL, Matjaž, BAN, Irena, DANČ, Anita, DANČ, Valerija, DROFENIK, Mihael. A sonochemical method for the preparation of cadmium sulfide and cadmium selenide nanoparticles in aqueous solutions. *Ultrason. sonochem.* [Print ed.], June 2010, vol. 17, iss. 5, str. 916-922, doi: [10.1016/j.ultsonch.2009.12.013](https://doi.org/10.1016/j.ultsonch.2009.12.013). [COBISS.SI-ID [13766422](#)]
5. KRISTL, Matjaž, DROFENIK, Mihael. Sonochemical synthesis of nanocrystalline mercury sulfide, selenide and telluride in aqueous solution. *Ultrason. sonochem.* [Print ed.], 2008, vol. 15, no. 5, str. 695-699. [COBISS.SI-ID [21605159](#)]