

CHEMISTRY

Basic data of the subject	
Academic Unit:	Faculty of Life and Environmental Sciences
Course title:	Forestry and Environmental Sciences
Study program:	Chemistry
Level:	Bachelor
Course status:	Obligatory (O)
Study year:	1 year / 1 semester
Number of hours per week:	3 + 2
Credit value – ECTS:	6 ECTS
Time / location:	To be announced
Lecturer:	Prof. Dr. Fatmir Faiku
Contact details:	fatmir.faiku@uni-pr.edu ; Tel: 044 261 366
Course description:	Chemistry helps to understand better the structure, characteristics, interactions and laws of transformation of matter and chemical substances from one type to another type. Here it will be given the concepts of atom and molecule structure, physico-chemical properties of the main elements and their most important compounds. Classification of elements (metals, non-metals and metalloid) in groups and periods of the periodic system and the differences between them. Classification of organic compounds: hydrocarbons, alcohols, carbohydrate, nitrocompounds, amino acids and proteins. The differences of these compounds based on their physico-chemical properties and their characteristic reactions.
Course objectives:	This course will focus on the chapters that are most important to the development of students' skills in chemistry and application of chemistry in life and environmental sciences. The knowledge gained in this course will be used by environmental and life sciences specialists in the field and research laboratories.

Learning outcomes:	<ul style="list-style-type: none"> ✓ To distinguish pure substances from mixtures and methods of their separation; ✓ Know subatomic parts and periodic changes of chemical properties of elements; ✓ To be able to prepare solutions with different concentrations and to distinguish electrolytes from non-electrolytes; ✓ To distinguish metals from non-metals and metals based on their physico-chemical properties; ✓ To classify organic compounds on the basis of functional groups and their physicochemical properties; ✓ Understand the way and mechanism of carbohydrate formation by plants and their importance in daily life.
---------------------------	---

Contribution on student load (must correspond with learning outcomes)

Activity	Hours	Days/week	Total
Lectures	3	15	45
Exercise theoretical/laboratory	2	15	30
Practice work	-	-	-
Contact with lecturer/consultations	1	5	5
Field exercises	-	-	
Mid-terms, seminars	2	3	6
Homework	3	4	12
Individual time spent studying (at the library or home)	2	10	20
Final preparation for the exam	2	10	20
Time spent in evaluation (tests, quiz, final exam)	2	4	8
Projects, presentations, etc.	1	4	4

Total		150 orë (6 ECTS)
Teaching methods:	Lectures, discussions, practical exercises in the lab, consultations, independent projects, homework assignments, colloquia, exams.	
Evaluation methods:	The first evaluation: 20%, The second evaluation: 20%, Seminars or other engagements: 10%, Final exam: 50%, Total: 100%	
Literature		
Basic Literature:	<ol style="list-style-type: none"> 1. John W. Hill, Ralph H. Petrucci, Terry W. McCreary, Scott S. Perry, General Chemistry, 2014 2. A. Lajqi dhe V. Kalaj, KIMIA për studentët e mjekësisë, stomatologjisë dhe të biologjisë, Prishtinë, 1998. 3. Bettelheim, F.A; Brown,W.H; Campbell, M.K; Torres,M.J; Introduction to General, Organic, and Biochemistry, Tenth edition, 2013, Brooks/Cole , Cengage Learning. 4. I.Hashani & T.Gjeçbitriqi: KIMIA, praktikum për studentët e biologjisë dhe mjekësisë: Prishtinë, 1997. 	
Additional Literature:	<ol style="list-style-type: none"> 1. McMurry and R. Fay, Chemistry, 4th edition, New Jersey, USA, 2004. 2. R.Chang: General Chemistry; 4th edition, New York, USA, 2006. 3. Lectures prepared for students. 4. Materials from the Internet. 	

Designed study plan:		
Week	Lectures	Exercises
<i>First week:</i>	Introduction to Chemistry, Matter and Classification (pure substances and mixtures).	Laboratory of Chemistry, knowledge and use of laboratory vessels and equipment.

<i>Second week:</i>	The Structure of atom and Periodic table of elements.	Relative atomic and molecular masses, amount of substance.
<i>Third week:</i>	The molecules structures and chemical bonds (ionic, covalent and hydrogen bonds).	The chemical symbols and formulas, chemical equations.
<i>Fourth week:</i>	Thermodynamics and chemical kinetics.	Solubility of chemical substances. Preparation of solution with specific concentrations.
<i>Fifth week:</i>	Solution. Concentration of solutions. Coligative properties of solutions.	The heat and speed of chemical reactions.
<i>Sixth week:</i>	Electrolytes and their classification; Acids, Bases; pH values, and buffer solution.	Colligative properties of solution. (diffusion dhe osmosis).
<i>Seventh week:</i>	Chemical elements and their classification in groups and periods. Hydrogen and Oxygen. First evaluation	Electrolytes and their classification. Acids, bases and pH values.
<i>Eighth week:</i>	The s block of elements-Alkaline and alkaline-earth metals.	Hydrogen and Oxygen.
<i>Ninth week:</i>	The p block of elements. Carbon, nitrogen and phosphorus.	Alkaline and alkaline-earth metals.
<i>Tenth week:</i>	Organic compound of carbon, their classification based on functional groups.	Carbon, nitrogen and phosphorus.
<i>Eleventh week:</i>	Saturated, unsaturated and cyclic hydrocarbons.	Methods for purification of organic substances: filtration, distillation and crystallization.
<i>Twelfth week:</i>	Organic compound with oxygen; alcohol, aldehydes-ketones and carboxylic acids.	Qualitative analysis of organic compounds (Identification of C, H, N, S, etc.).
<i>Thirteenth week:</i>	Carbohydrates, properties and their classification.	Saturated, unsaturated and cyclic hydrocarbons.
<i>Fourteenth week:</i>	Organic compounds with nitrogen, heterocyclic compounds.	Organic compound with oxygen; alcohol, aldehydes and ketones.

<i>Fifteenth week:</i>	Amino acids and proteins. <i>Second evaluation</i>	Organic compounds with nitrogen (amino acids and proteins).
Academic policies and rules of conduct:		
Each student should comply with the policies outlined in the Statute of Uuniversity of Prizren. The student is required to attend regular lectures, exercises and seminars. To behave in conformity with the code of conduct and to comply with the rules of work in research laboratories.		