

Study program : Chemistry			
Type and level of studies: PhD studies of chemistry - BIOCHEMISTRY			
<b>Course unit: Plant Biochemistry</b>			
<b>Teacher in charge : Vladimir Mihailović, PhD, Scientific Associate</b>			
Language of instruction: English			
ECTS: 10			
Prerequisites: Entered PhD studies of chemistry - BIOCHEMISTRY			
Semester: Optional (winter or summer semester)			
<b>Course unit objective</b> The course is based on the fact that our living world is based on the existence and biochemistry of plants. In this sense, the course will provide students with knowledge of plant cell organisation, biochemical pathways and metabolism in plants.			
<b>Learning outcomes of Course unit</b> Application of plants as food resources. Plants as a source of biologically active compounds. Plants as indicator of environment. Application of plants in the revitalization of degraded ecosystems. The ability to create contents and topics and conduct independent research and professional work in the field of plant biochemistry. Application of plants in multidisciplinary research with the special emphasis on the importance of their quality and quantity in nutrition.			
<b>Course unit contents</b>  <i>Theoretical classes</i> Structure and functions of plant cell. Biochemical systematics of plants. Macromolecules in plants systematics. Secondary metabolites of plants. Fatty acids. Alkanes and polyacetylenes. Monoterpenes and sesquiterpenes. Aromatic and aliphatic volatile compounds. Sulphur compounds. Alkaloids. Cyanogenic glycosides. Non-protein amino-acids. Iridoids. Sesquiterpenes lactones. Flavonoids. Isoenzymes. Nucleic acids. Photosynthesis. Respiration. Phytohormones.  <i>Practical classes</i>			
<b>Literature</b> 1. D. Armstrong. <i>Free radical and Antioxidant Protocols</i> , Humana Press, Totowa, New Jersey, 2. K. Hensley, R.A. Floyd . <i>Methods in Biological Oxidative Stress. In Methods in molecular biology. Humana Press Inc., New Jersey, 2003.</i> 3. T. S. Tracy, R. L. Kingston, <i>Herbal product: Toxicology and clinical pharmacology, Second edition, Humana Press Inc. Tptowa, NJ, 2007.</i> 4. L. J. Cseke, A. Kirakosyan, P. B. Kaufman, S. L. Warber, J. A. Duke, H. L. Brielmann, <i>Natural Products from Plants, CRC Press Taylor &amp; Francis Group, 2006.</i> 5. W. Vermeris, R. Nicholson, <i>Phenolic compound biochemistry, Springer, Dordrecht, The Netherlands. 2006.</i> 6. <i>Introduction to plant biochemistry, T.W.Goodwin, E.I.Mercer, Pergamon press, 1983.</i>			
<b>Number of active teaching hours</b>			<b>Other classes</b>
Lectures: 5	Practice:	Other forms of classes: <i>mentoring system</i>	
			Independent work:
<b>Teaching methods</b> Lectures, seminars, practical classes			
<b>Examination methods ( maximum 100 points)</b>			
<b>Exam prerequisites</b>	<b>No. of points:</b>	<b>Final exam</b>	<b>No. of points:</b>
Student's activity during lectures	10	oral examination	
practical classes/tests	20	written examination	40

Seminars/homework	30	.....	
Project			
Other			
<b>Grading system</b>			
<b>Grade</b>	<b>No. of points</b>	<b>Description</b>	
<b>10</b>	<b>90-100</b>	Excellent	
<b>9</b>	<b>80-90</b>	Exceptionally good	
<b>8</b>	<b>70-80</b>	Very good	
<b>7</b>	<b>60-70</b>	Good	
<b>6</b>	<b>50-60</b>	Passing	
<b>5</b>	<b>&lt;50</b>	Failing	