

<b>Study Programme: PhD in Biology</b>			
<b>Degree level:</b> Doctoral degree			
<b>Course Title:</b> Evolution and Angiosperm Phylogeny			
<b>Professor:</b> Pal Boza, Anackov Goran			
<b>Required/Elective Course:</b> Elective Course			
<b>Number of ECTS:</b> 15			
<b>Prerequisites:</b> Passed exam "Special Systematic of Vascular Plants"			
<b>Course Objective:</b> The highest level in the taxonomy of plants. Training students to recognize phylogenetic connections and relationships within Angiosperms.			
<b>Course Outcome:</b> Formation of researchers in the field of plants taxonomy, with a developed philosophical thinking. Developing of thinking: analysis and synthesis. Versatility in plant taxonomy.			
<b>Course Content:</b>			
<i>Theoretical part</i>			
The first land plants, the ancestors of higher plants, based on common characters of extinct ancestors and present-day higher plants. Monophyletic origin of higher plants. It will be discussed those histological tissues and organs which were necessary for survival on land, such as: epiderm, cuticle, stomatal system, conductive system, roots, gametangium, sporangium, etc. The alternation of the generations by divisions, gametophyte, sporophyte, androgynous and monogynous prothallium, and developed end-stage of prothallium. Fundamentals of Telome theory, on the example from the family Ranunculaceae. The importance of reduction of the gametophyte. Phylogenetic connect of the sporophyte forms, their origins and degrees of reduction. The origin of flowers and the origin of certain regions in flower.			
<i>Practical part</i>			
On the exercise will be analyzed phylogenetic tree of some plant divisions. Based on the characters of fossil ancestors and now-days representatives, will be determined the common and differential features, and will be point out the importance of atavistic phenomena in the plant world. Will be given access to the basic principles of the Telome theory as a basis of the phylogeny of vascular plants. It will be also emphasize the importance of ancestral plant groups for the origin of some progressive features.			
<b>Reading List:</b>			
1. Delevoryas, Th. (1966): Plant Diversification. Rinehart and Winston Inc., New York.			
2. Delevoryas, Th. (1967): Prinzipien der Pflanzenphylogenie. BLV, München, Basel, Wien.			
3. Ingrouille, M. (1995): Diversity and Evolution of Land Plants. Chapman & Hall, London-Glasgow-New York-Tokyo-Melbourne-Madras.			
4. Judd, W.S., Campbell, C.S., Kellogg, E.A., Stevens, P.F., Donoghue, M.J. (2002): Plant Systematics: A Phylogenetic Approach. Sinauer Associates, USA.			
5. Soltis, D.E., Soltis, P.S., Endress, P.K., Chase, M.W. (2005): Phylogeny and evolution of angiosperms. Sinauer Associates, inc. Publishers, Sunderland, Massachusetts.			
6. Takhtajan, A. (1991): Evolutionary Trends in Flowering Plants. Columbia University Press, New York.			
7. Thompson, J.D. (2005): Plant Evolution in the Mediterranean. Oxford University Press, Oxford.			
8. Recommended doctoral dissertations and master's theses by mentors.			
9. Scientific papers and web pages with current problems in taxonomy of plants.			
<b>Total hours:</b>			10
Lectures: 5	Practicals:	Other:	Student research work: 5
<b>Methods of instruction:</b>			
Lectures, individual consultations, laboratory work, seminar papers.			
<b>Assessment (maximum number of points 100)</b>			
<b>Requirements</b>			
The oral exam, defended seminar paper, written exam.			
<b>Remark:</b> Required development of the seminar paper.			