Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Izbrana poglavja iz gozdne vegetacije Slovenije**
Course title:	**Selected Topics in Forest vegetation of Slovenia**

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Doktorski študij Ekološke znanosti, 3. stopnja		1. ali 2.; 1st or 2nd	1.- 4.; 1st-4th
Doctoral Study Ecological Sciences, 3rd degree			

Vrsta predmeta / Course type	Izbirni/Elective
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
5		5		20	150	6

Nosilec predmeta / Lecturer:	Andraž Čarni

Jeziki / Languages:	**Predavanja / Lectures:**	slovenski / Slovene
	Vaje / Tutorial:	slovenski / Slovene

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Poznavanje rastlin, ekologije in biodiverzitet na ravni univerzitetnega programa	Knowledge of plants, ecology and biodiversity at graduate level

Vsebina:	**Content (Syllabus outline):**
Obravnavana so izbrana poglavja iz naslednjih sklopov. Predmet se ukvarja z gozdno vegetacijo, predvsem s teorijo in metodami za njeno vzorčenje in obdelavo. Obdelovali bomo predvsem z gozdno vegetacijo Slovenije (floristično sestavo, biodiverziteto, ekološkimi razmerami itd.), vključili pa bomo tudi	Selected topics in the following chapetrs are discussed. Subject deals with forest vegetation of Slovenia, above all with theory and methods of investigation of vegetation. It considers above all forest types of Slovenia (their floristic composition, biodiversity, ecological circumstances etc.), Besides, it will be dealt

nekatere kontaktne negozdne vegetacijske tipe (npr. gozdne robove, poseke), ki se neposredno vključujejo v procese zaraščanja kulturne krajine. Poleg tega se bomo seznanili tudi z delom s velikimi podatkovnimi bazami in s sodobnimi metodami numerične obdelave podatkov ter vrednotenja rezultatov numeričnih analiz. Ukvarjali se bomo tudi s spremembami vegetacije v času in prostoru in z metodami za analizo teh sprememb.. Predmet temelji na standardni srednjeevropski (floristični) metodi za obdelavo vegetacije, vendar bomo pregledali in uporabili tudi druge metode.	with some non-forest communities (e.g. forest edges), that are directly involved in processes of reforestation of cultural landscape. We shall also get acquainted with large database, their elaboration and evaluation of results. We will deal with changes of vegetation cover in time and methods for their investigation and evaluation. The subject is based upon the standard central European (floristic) method, while other methods are applied and evaluated.

Temeljni literatura in viri / Readings:

Braun-Blanquet, J., *Pflanzensoziologie, Grundzüge der Vegetationskunde*. Springer Verlag, Wien, 1964.

Čarni, A., Košir, P., Karadžić, B., Matevski, V., Redžić, S., & Škvorc, Ž., Thermophilous deciduous forests in Southeastern Europe. *Plant Biosystems* **143** (2009), pp. 1–13.

Čarni, A., Košir, P., Marinček, L., Marinšek, A., Šilc, U., & Zelnik, I., *Komentar k vegetacijski karti gozdnih združb Slovenije v merilu 1 : 50.000*. Pomurska akademsko znanstvena unija - PAZU, Murska Sobota, 2008.

Čarni, A., Košir, P., Marinšek, A., Šilc, U., & Zelnik, I., Changes in structure, floristic composition and chemical soil properties in a succession of birch forests. *Periodicum Biologorum* **109** (2007), pp. 13–20.

Douda, J., Boublik, K., Slezák, M., Biurrun, I., Nociar, J., Havrdová, A., Doudová, J., Aćić, S., Brisse, H., Brunet, J., Chytrý, M., Claessens H., Csiky J., Didukh Y., Dimopoulos P., Dullinger S., FitzPatrick, Ú., Guisan, A., Horchler, P.J., Hrivnák, R., Jandt, U., Kącki, Z., Kevey, B., Landuci F., Lecomte, H., Lenoir J., Paal, J., Paternoster, D., Pauli H., Pielech, R., Rodwell J.S., Roelandt, B., Svenning J.-C., Šibík, J., Šilc, U., Škvorc. Ž., Tsiripidis, I., Tzonev R.T., Wohlgemuth T., & Zimmermann, N.E., Vegetation classification and biogeography of European floodplain forests and alder carrs. *Applied Vegetation Science* **19** (2016), pp. 147–163.

Ellenberg, H., *Vegetation ecology of central Europe. 4th edition*. Cambridge University Press, Cambridge, 2009.

Horvat, I., Glavač, V., & Ellenberg, H. *Vegetation Südosteuropas*. Gustav Fischer Verlag, Stuttgart, 1974.

Juvan, N., Košir, P., Marinšek, A., Paušič, A., & Čarni, A., Differentiation of the *Piceetalia* and *Athyrio-Piceetalia* forests in Slovenia. *Tuexenia* **33** (2013), pp. 25–48.

Košir, P., Casavecchia, S., Čarni, A., Škvorc, Ž., Živković, L., & Biondi, E., Ecological and

phytogeographical differentiation of oak-hornbeam forests in southeastern Europe. *Plant Biosystems* **147** (2013), pp. 84–98.

Košir, P., Čarni, A., & Di Pietro, R., Classification and phytogeographical differentiation of broad-leaved ravine forests in southeastern Europe. *Journal of Vegetation Science* **19** (2008), pp. 331–342.

Košir, P., Čarni, A., Marinšek, A., & Šilc, U., Floodplain forest communities along the Mura River (NE Slovenia). *Acta Botanica Croatica* **72** (2013), pp. 71–95.

Magri, D., Vendramin, G.G., Comps, B., Dupanloup, I., Geburek, T., Gömöry, D., Latałowa, M., Litt, T., Paule, L., Roure, J.M., Tantau, I., van der Knapp, W.O., Petit, R.J., & de Beaulieu, J.L., A new scenario for the quaternary history of European beech populations: palaeobotanical evidence and genetic consequences. *New Phytologist* **171** (2006), pp. 199–221.

Marinšek, A., Šilc, U., & Čarni, A., Geographical and ecological differentiation of *Fagus* forest vegetation in SE Europe. *Applied Vegetation Science* **16** (2013), pp. 131–147.

Mucina, L., Bültmann, H., Dierßen, K., Theurillat, J-P., Raus, T., Čarni, A., Šumberová, K., Willner, W., Dengler, J., Gavilán García, R., Chytry, M., Hájek, M., Di Pietro, R., Iakushenko D., Pallas, J., Daniëls, F.J.A., Bergmeier, E., Santos Guerra, A., Ermakov, N., Valachovič, M., Schaminée, J.H.J., Lysenko, T., Didukh, Y.P., Pignatti, S., Rodwell, J.S., Capelo, J., Weber, H.E., Solomeshch, A., Dimopoulos, P., Aguiar, C., Hennekens, S.M., & Tichý, L., Vegetation of Europe: Hierarchical floristic classification system of vascular plant, bryophyte, lichen, and algal communities. *Applied Vegetation Science* **19** suppl. **1**(2016), pp. 3-264.

Stupar, V., Brujić, J., Škvorc, Ž., & Čarni, A., Vegetation types of thermophilous deciduous forests *(Quercetea pubescentis*) in the Western Balkans. *Phytocoenologia* **46** (2016), pp. 49–68.

Šilc, U., & Čarni, A., Conspectus of vegetation syntaxa in Slovenia. *Hacquetia* **11** (2012), pp. 113–164.

Vukelić, J., *Šumska vegetacija Hrvatske*. Šumarski fakultet, Sveučilište u Zagrebu, DZZP, Zagreb, 2012.

Willner, W., Jiménez-Alfaro, B., Agrillo, E., Biurrun, I., Campos, J.A., Čarni, A., Casella, L., Csiky, J., Ćušterevska, R., Didukh, Y.P., Ewald, J., Jandt, U., Jansen, F., Kącki, Z., Kavgacı, A., Lenoir, J., Marinšek, A., Onyshchenko, V., Rodwell, J., Schaminée, J., Šibík, J., Škvorc, Ž., Svenning, J.C., Tsiripidis, I., Turtureanu, P.D., Tzonev, R., Vassilev, K., Venanzoni, R., Wohlgemuth T., & Chytrý, M., Classification of European beech forests: a Gordian Knot? *Applied Vegetation Science* (in press).

Cilji in kompetence:

Podrobno spoznati teorijo in metode za obdelavo gozdne vegetacije
Podroben pregled gozdnih združb v Sloveniji
Podrobna obdelava podatkov o spremembah vegetacije v času in prostoru
Kritična predstavitev različnih metod za preučevanje vegetacije

Objectives and competences:

Detail study of theory and methods of elaboration of forest communties
Advances description of some forest and non forest types in Slovenia
Elaboration of changes in vegetation in space and time
Kritical demonstation of various methods in vegetation investigation

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Podobno spoznavanje teorije in metod za obdelavo gozdne vegetacije Podrobno proučevanje sprememb vegetacije v času in prostoru Podrobno proučevanje vegetacije kot kazalca za spremembe v okolju **Prenesljive/ključne spretnosti in drugi atributi:** Prepoznavanje združb na trenu Metologija vzorčenja in obdelave Pridobivanje podrobnega teoretičnega in praktičenga znanja o gozdnih združbah Podrobno poznavanje osnovnih tipov gozdne vegetacije Slovenije	**Knowledge and understanding:** Advances knowledge of theory and methods of elaboration of forest communities Advanced elaboration of changes of vegetation in space and time Advanced elaboration of vegetation as an indicator of changes in environment **Transferable/Key Skills and other attributes:** Detailed recognition of communities in the field Methodology of sampling and elaboration of vegetation Acquisition of detailed theoretical and practical knowledge of forest communities Detailed knowledge of basic forest communities

Metode poučevanja in učenja:	**Learning and teaching methods:**
• Predavanja • Laboratorijske vaje • Terensko delo • Pripava seminarske naloge	• Lectures • Laboratory excersises • Field work • Preparation of essay

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Seminarska naloga	30%	Seminar essay
Pisni izpit	70%	Written exam

Reference nosilca / Lecturer's references:

Juvan, N., Košir, P., Marinšek, A., Paušič, A., & Čarni, A., Differentiation of the *Piceetalia* and *Athyrio-Piceetalia* forests in Slovenia. *Tuexenia* 33 (2013), pp. 25–48.
Marinšek, A., Šilc, U. & Čarni, A., Geographical and ecological differentiation of Fagus forest vegetation in SE Europe. *Applied vegetation science* 16 (2013), pp. 131-147.
Čarni, A. & Matevski, V. Impact of climate change on mountain flora and vegetation in the Republic of Macedonia (central part of the Balkan peninsula). In: Öztürk, M.A. (ed.). *Climate change impacts on high-altitude ecosystems*. Springer (2015), pp. 189-213.
Čarni, A., Matevski, V., Juvan, N., Kostadinovski, M., Košir, P., Marinšek, A., Paušič, A., & Šilc, U.,

Transition along gradient from warm to mesic temperate forests evaluated by GAMM. *Journal of Plant Ecology* 9 (2016), pp. 410–433.
Stupar, V., Brujić, J., Škvorc, Ž., & Čarni, A., Vegetation types of thermophilous deciduous forests *(Quercetea pubescentis*) in the Western Balkans. *Phytocoenologia* 46 (2016), pp. 49–68.