

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Arheobotanika
Course title:	Archaeobotany

Študijski program in stopnja Study programme and level	Študijska smer oz. modul Study field or module	Letnik Academic year	Semester Semester
Primerjalni študij idej in kultur, doktorski študij 3. stopnje	Tisočletja med Jadranom in Podonavjem		
Comparative study of ideas and cultures, doctoral study 3 rd cycle	Millenia between the Adriatic and the Danube		

Vrsta predmeta / Course type Izbirni/Elective

Univerzitetna koda predmeta / University course code: 99

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
30	30	30			90	6

Nosilec predmeta / Lecturer: doc. dr. Tjaša Tolar

Jeziki / Languages:	Predavanja / Lectures:	Slovenščina/Slovenian Angleščina/English
	Vaje / Tutorial:	Slovenščina/Slovenian Angleščina/English

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

Vpis v 1. letnik

Prerequisites:

Matriculation to the 1st academic year

Vsebina:

Naravoslovne raziskave v arheologiji pomembno prispevajo k raziskavam preteklosti, tako antropogene, kot tudi naravne. Arheobotanika se ukvarja z makroostanki rastlin iz arheoloških najdišč, to so semena, plodovi, les in oglje. Redkeje so ohranjena tudi rastlinska vlakna, stkana in/ali spletena v tekstil, vrvi idr. uporabne izdelke. Študenti in študentke se bodo seznanili z:

Content (Syllabus outline):

Natural science research in archaeology contributes significantly to the research of the past, both anthropogenic and natural. Archaeobotany deals with the macroremains of plants from archaeological sites, i.e. seeds, fruits, wood and charcoal. Plant fibers, woven and/or braided into textiles, ropes, etc., are also preserved, but rarely. Students will learn about:

1. osnovami arheobotaničnih metod dela:

- ohranjenost rastlinskih ostankov in tafonomija
- vzorčenje na terenu
- shranjevanje in priprava vzorcev v laboratoriju in/ali mokro sejanje
- kvantificiranje in podvzorčenje vzorcev
- sortiranje in pregledovanje
- identifikacija rastlinskih makroostankov
- statistična obdelava rezultatov
- interpretacija z arheološkimi konteksti
- posebne metode dela v arheobotaniki: morfometrične analize, dendrokronologija, genetika, idr.

2. osnovami sistematske botanike in morfologije rastlin (cvet, pelod, plod, seme, klas, lesna anatomija, rastlinska vlakna itd.);

3. uporabo rastlinskega materiala skozi čas (od najzgodnejših do mlajših arheoloških najdišč);

4. osnovami etnobotanike in uporabnih vrednosti rastlinskega materiala;

5. razvojem in širitvijo kulturnih rastlin in nekaterih drevesnih vrst, s poudarkom na ozemlju današnje Slovenije;

6. vplivom človeka na vegetacijo skozi čas;

7. najpomembnejšimi arheobotaničnimi znanstvenimi deli in referencami, predvsem z območja Slovenije.

Specifične teme bodo izbrane za vsakega študenta oz. študentko posebej, po potrebi v sodelovanju z ostalimi predavatelji in predavateljicami ali mentorji oz. mentoricami tako, da bodo prilagojene njegovim oz. njenim raziskovalnim željam in temi doktorske naloge.

1. The basics of archaeobotanical work methods:

- preservation of plant remains and taphonomy
- field sampling
- storage and preparation of samples in the laboratory and/or wet sieving
- quantification and subsampling of samples
- sorting and checking
- identification of plant macroremains
- statistical processing of the results
- interpretation with archaeological contexts
- special methods of work in archaeobotany: morphometric analysis, dendrochronology, genetics, etc.

2. The basics of systematic botany and plant morphology (flower, pollen, fruit, seed, ear, wood anatomy, plant fibers, etc.);

3. The use of plant material over time (from the earliest to younger archaeological sites);

4. Basics of ethnobotany and useful values of plant material;

5. The development and expansion of cultivated plants and some tree species, with an emphasis on the territory of today's Slovenia;

6. Human influence on vegetation over time;

7. The most important archaeobotanical scientific works and references, mainly from the area of Slovenia.

Specific topics will be selected for each student individually, if necessary in cooperation with other lecturers or mentors, so that they will be adapted to his or her needs and the topic of his/her doctoral thesis.

Temeljni literatura in viri / Readings:

- Andrič M., Tolar T., Toškan B. 2016. Okoljska arheologija in paleoekologija: palinologija, arheobotanika in arheozoologija. Založba ZRC in Inštitut za arheologijo ZRC SAZU, Ljubljana.
- Dincauze D.F. 2000. Environmental Archaeology: Principles and practice. Cambridge University Press, UK.
- Wilkinson K., Stevens C. 2003. Environmental Archaeology: Approaches, Techniques & Applications. The History Press, UK.
- Zohary D., Hopf M. 2004. Domestication of Plants in the Old World. Oxford University Press, UK.

- Cappers R.T.J., Neef R. 2012. Handbook of Plant Palaeoecology. Barkhuis, Groningen University Library, Netherlands.
 - Cappers R.T.J., Bekker R.M. 2013. A Manual for the Identification of Plant seeds and fruits. Barkhuis, Groningen University Library, Netherlands.
 - Jacomet S. 2006. Identification of cereal remains from archaeological sites. IPAS, Basel University, Switzerland
 - Cappers R.T.J., Bakker R.M., Jans J.E.A. 2006. Digital Seed Atlas of the Netherlands. Groningen University Library.
 - Martinčič s sod. 1999. Mala Flora Slovenije. Tehniška založba Slovenije, Ljubljana.
- Znanstvene revije: Vegetation History and Archaeobotany, Journal of Archaeological Science, Environmental Archaeology

Cilji in kompetence:

Študenti in študentke se bodo seznanili z osnovami arheobotanike, metodami dela in bistvenimi možnostmi raziskav na suhih in mokrih arheoloških najdiščih. Seznanili se bodo z osnovami botanike, etnobotanike, ekologije in dendrologije. Dobili bodo pregled o pojavu kulturnih rastlin od neolitika do srednjega veka, s poudarkom na območju Slovenije. Usposobili se bodo za sodelovanje z arheobotaniki in spoznali različne možnosti raziskav rastlinskega arheo-materiala. Možno je individualno raziskovalno delo v okviru njihove doktorske naloge.

Objectives and competences:

Students will become familiar with the basics of archaeobotany, working methods and the essential possibilities of research on dry and wet archaeological sites. They will learn the basics of botany, ethnobotany, ecology and dendrology. They will get an overview of the appearance of cultivated plants from the Neolithic to the Middle Ages, with an emphasis on the area of Slovenia. They will be trained to cooperate with archaeobotanists and get to know the various research possibilities of plant archaeo-material. Individual research work is possible as part of their doctoral thesis.

Predvideni študijski rezultati:

Glavni cilj predmeta je znanje in razumevanje arheobotanike. Poznavanje možnosti raziskav v arheobotaniki in njihovo vključevanje v arheološke in okoljske raziskave. Usposobiti študente in študentke za razumevanje arheobotaničnih vsebin, kar jim bo omogočilo kritično branje, analizo in interpretacijo znanstvene literature in hkrati smotrno postavljanje raziskovalnih vprašanj z zavedanjem o omejitvah le-teh, v odvisnosti od najdišča in tam ohranjenih ostankov. Od njih pričakujemo sposobnost sodelovanja s strokovnjaki iz različnih ved v okviru interdisciplinarnih raziskovalnih projektov. V odvisnosti od zanimanja, bo možno izvesti samostojno raziskovalno nalogo, ki bo lahko

Intended learning outcomes:

The main goal of the course is to get knowledge and understanding of archaeobotany. Knowledge of the possibilities of research in archaeobotany and their integration into archaeological and environmental research. To train students to understand archaeobotanical content, which will enable them to critically read, analyze and interpret scientific literature and at the same time expediently set the research questions with awareness of their limitations, depending on the site and the remains preserved there. We expect from them to get the ability to cooperate with experts from various sciences within the framework of interdisciplinary research projects. Depending on the interest, it will be possible to carry out an independent research work, which

vkjučevala vse zgoraj opisane stopnje metod dela v arheobotaniki.

may include all the above-described levels of working methods in archaeobotany.

Metode poučevanja in učenja:

Learning and teaching methods:

Oblike dela:

- Frontalna oblika poučevanja
- Delo v manjših skupinah oz. v dvojicah
- Samostojno delo študentov
- e-izobraževanje

Types of learning/teaching:

- Frontal teaching
- Work in smaller groups or pair work
- Independent students work
- e-learning

Metode (načini) dela:

- Razlaga
- Razgovor/ diskusija/debata
- Delo z besedilom
- Proučevanje primera
- Igra vlog
- Druge vrste nastopov študentov
- Reševanje nalog
- »Terenske vaje« (npr. obiski podjetij)
- Vključevanje gostov iz prakse

Teaching methods:

- Explanation
- Conversation/discussion/debate
- Work with texts
- Case studies
- Roleplay
- Different presentation
- Solving exercises
- Field work (e.g. company visits)
- Inviting guests from companies

Delež (v %) /

Načini ocenjevanja:

Weight (in %)

Assessment

Krajši pisni izdelki	50 %	Short written assignments
Daljši pisni izdelki		Long written assignments
Javni nastop ali predstavitev		Presentations
Končno ocenjevanje (pisni/ustni izpit)	50 %	Final examination (written/oral)
Drugo		Other

Reference nosilca / Lecturer's references:

- TOŠKAN, Borut, KOVAČ, Mateja, **TOLAR, Tjaša** (2022) Bioarheološke raziskave rimskodobnega grobišča Marof na Igu : antropologija, arheozoologija, arheobotanika. Arheološki vestnik 73: 281-312.
- **TOLAR, Tjaša**, PAVLIN, Primož (2022) The earliest finds of millet and possible associated changes in material culture in Slovenia. V: KIRLEIS, Wiebke (ur.), DAL CORSO, Marta (ur.), FILIPOVIĆ, Dragana (ur.). Millet and what else? : the wider context of the adoption of millet cultivation in Europe. Leiden: Sidestone Press, 107-126.
- **TOLAR, Tjaša**, VOVK, Irena, JUG, Urška (2021). Selective use of Cornus sanguinea L. (dogwood) fruits or fruitstones in the Late Neolithic. Vegetation History and archaeobotany 30/3, 347-361.
- **TOLAR, T.**, GALIK, A., LE BAILLY, M., DUFOUR, B., CAF, N., TOŠKAN, B., BUŽAN, E., ZVER, L., JANŽEKOVIČ, F., VELUŠČEK, A. (2021). Multi-proxy analysis of waterlogged preserved Late Neolithic canine excrements. Vegetation History and Archaeobotany 30/3: 107-118.
- FILIPOVIĆ, Dragana M., MEADOWS, John, DAL CORSO, Marta, KIRLEIS, Wiebke, ALSLEBEN, Almuth, AKERET, Örne, BITTMANN, Felix, BOSI, Giovanna, CIUTĂ, Beatrice, DRESLEROVÁ, Dagmar, EFFENBERGER, Henrike, GYULAI, Ferenc, HEISS, Andreas G., HELLMUND, Monika, JAHNS, Susanne, JAKOBITSCH, Thorsten, KAPCIA, Magda, KLOOSS, Stefanie, KOHLER-SCHNEIDER, Marianne, KROLL, Helmut, MAKAROWICZ, Przemysław, MARINOVA, Elena,

MÄRKLE, Tanja, MEDOVIĆ, Aleksandar, MERCURI, Anna Maria, MUELLER-BIENIEK, Aldona, NISBET, Renato, PASHKEVICH, Galina, PEREGO, Renata, POKORNÝ, Petr, POSPIESZNY, Łukasz, PRZYBYŁA, Marcin S., REED, Kelly, RENNWANZ, Joanna, STIKA, Hans-Peter, STOBBE, Astrid, **TOLAR, Tjaša**, WASYLIKOWA, Krystyna, WIETHOLD, Julian, ZERL, Tanja. New AMS 14C dates track the arrival and spread of broomcorn millet cultivation and agricultural change in prehistoric Europe. Scientific reports. 2020, vol. 10, art. no. 13698, str. 1-17.

- **TOLAR, Tjaša**, GALIK, Alfred (2019). A study of dog coprolite from Late Neolithic pile-dwelling site in Slovenia. Archaeological discovery 7/1: 20-29.
- ČUFAR, Katarina, HORVAT, Jana, **TOLAR, Tjaša**, BERDEN, Tina, MERELA, Maks (2019) Raziskovalni potencial lesa sodov iz rimskih vodnjakov. Les : revija za lesno gospodarstvo 68, št. 1: 47-60.