UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	ČEBELARSTVO
Course title:	APICULTURE

Študijski program in stopnja **Study programme and level**	**Študijska smer** **Study field**	**Letnik** **Academic year**	**Semester** **Semester**
Upravljanje podeželja, 1. stopnja	-	3.	5./6.
Landscape management, 1st level	-	3.	5./6.

Vrsta predmeta / Course type izbirni / elective

Univerzitetna koda predmeta / University course code:

Predavanja **Lectures**	**Seminar** **Seminar**	**Vaje** **Tutorial**	**Klinične vaje** **work**	**Druge oblike študija**	**Samost. delo** **Individ. work**	**ECTS**
30	-	30	-	-	90	5

Nosilec predmeta / Lecturer: Aleš Gregorc

Jeziki / Languages: **Predavanja / Lectures:** slovenski / Slovenian
Vaje / Tutorial: slovenski / slovenian

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

Ni pogojev.

Prerequisits:

None.

Vsebina:

Obravnavana bo uvrstitev medonosne čebele v biološkem sistemu, predstavitev čebeljih ras, zgradba in delovanje telesa čebele, razmnoževanje, razvoj čebele, življenje posamezne čebele in socialno življenje čebel. Čebelarska opravila, prehrana čebel.

Slušatelji se bodo seznanili z nepravilnostmi v razvoju družine, ter infektivni in neinfektivni dejavniki. Higiena v čebelarstvu. Razvoj čebelarjenja, razvoj panja, sodobne tehnologije, prevozni čebelnjaki, pribor in oprema. Vzreja matic in selekcija v čebelarstvu.

Pridobivanje čebeljih pridelkov (med, cvetni prah, matični mleček, propolis, vosek), zagotavljanje kvalitete na nivoju pridelave, predelave, shranjevanja, embaliranje. Dobra čebelarska praksa. Razmere na trgu (ponudba, povpraševanje). Trženje v čebelarstvu: čebelji pridelki, plemenski material.

Content (Syllabus outline):

Honey bee in biological system, introduction into bee strains, anatomy and function of the honey bee body will be studied. Development, reproduction, of individual bee and a colony as a social organization will be presented. Management in apicultural and honey bee nutrition. Abnormalities in colony development, infective and ineffective influences; preventive measures and hygiene in beekeeping.

Review of beekeeping, hive development, contemporary beekeeping, transhumance of bees, beekeeping equipment. Queen rearing and selection. Production of honey bee colony products (honey, pollen, royal jelly, propolis, wax), to ensure the quality of production, remodeling, storing, marketing; conditions of quality. Good beekeeping practice, marketing of bee products and breeding material.

Temeljni literatura in viri / Readings:

- ZDEŠAR, Pavel, GREGORI, Janez, GRAD, Janez, GREGORC, Aleš, KRALJ, Jasna, BOŽIČ, Janko, AUGUŠTIN, Vladimir, ŠIVIC, Franc, MIHELIČ, Janez., 2008. *Slovensko čebelarstvo v tretje tisočletje 1*. Lukovica: Čebelarska zveza Slovenije.
- SAMMATARO, Diana (ur.), YODER, Jay (ur.). *Honey bee colony health: challenges and sustainable solutions*, (Contemporary topics in entomology series). Boca Raton, FL: CRC Press, 2012.
- Gregorc A. Medonosna čebela in osnove čebelarjenja, Univerza v Ljubljani 2002.
- ZDEŠAR, Pavel. 2011. Slovensko čebelarstvo v tretje tisočletje 2.

- Lukovica: Čebelarska zveza Slovenije, 2011. 512 str.
- Gregorc A. Medonosna čebela in osnove čebelarjenja, Univerza v Ljubljani 2002.
- Krell R. Value-added products from beekeeping. FAO Agricultural services bulletin No. 124; Rome, 1996.

Tekoča periodika:
Slovenski čebelar
American Bee Journal

Cilji in kompetence:

Slušatelji pridobijo znanja s področja osnov sistematike in biologije medonosne čebele in organizacije in delovanje čebelje družine. Cilj programa je slušateljem predstaviti čebelarjenje kot kmetijsko dejavnost in jim prikazati tehnološke probleme, ter vzpodbujati možnosti razvoja novih pristopov na področju tehnologije čebelarjenja v povezavi s kmetijstvom.

Osvojiti tehnologije pridelave čebeljih pridelkov, predstaviti karakteristike kakovosti, ter možnosti predelave in zviševanje tržne vrednosti produktov. Cilj programa je tudi spodbujati nove pobude pri trženju čebeljih pridelkov in uvajati različne oblike prodaje

Objectives and competences:

To get knowledge of the theoretical foundations of the professional fields and to demonstrate practical questions in beekeeping. Theoretical aims are: basic information of bee systematic and biology of honey bee. The aim is to show beekeeping as the part of agriculture and to demonstrate technological problems, and simulate independent practical and research problem solving in beekeeping.

To achieve knowledge about conditions and methods of production and harvest. The emphases is given to questions of the hygiene in beekeeping production, and to promote new initiatives in marketing of bee products and different approach to marketing.

Predvideni študijski rezultati:

Znanje in razumevanje:
pridobljena znanja o čebelji družin, čebelarstvu, čebeljih pridelkih, in o pomenu čebelarstva za kmetijstvo, trženje in pridobivanje dohodka iz čebelarstva.

Intended learning outcomes:

Knowledge and understanding:
gain the knowledge of the honey bee colony, apiculture, about honey bee products the importance in agriculture. Knowledge of management in beekeeping and marketing.

Metode poučevanja in učenja:

Poučevanje poteka v obliki predavanj, demonstracij, seminarjev, praktičnih vaj, terenske vaje, vključevanje v čebelarsko prakso (udeležba na posvetovanjih), mentorstvo in vključevanje v projektno delo.

- e-izobraževanje (e-predavanja in e-vaje se lahko izvajajo v virtualnem elektronskem učnem okolju ali s pomočjo posebej v ta namen didaktično pripravljenih e-gradiv v virtualnem elektronskem učnem okolju)

Learning and teaching methods:

Students are supervised and included in project work. Lectures, seminar, practical's, field work are organized. They attend to conferences and professional meetings.

- e-learning (e-lectures and e-tutorials may be held in a virtual electronic learning environment or with the help of specially designed e-material in a virtual electronic learning environment

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
- seminarska naloga /projekt - pisni ali ustni izpit Študent, ki opravi vse študijske obveznosti, predavanja, vaje, seminarsko nalogo lahko pristopi k opravljanju izpita.	40 % 60 %	- seminar and practical course - written or oral examination Students who attended lectures and practicals and finished written report or exam from practical themes.

Reference nosilca / Lecturer's references:

GREGORC, Aleš, JURIŠIĆ, Snežana, SAMPSON, Blair. Hydroxymethylfurfural affects caged honey bees (Apis mellifera carnica). V: GREGORC, Aleš (ur.). *Monitoring of honey bee colony losses*. Basel (etc.): MDPI, 2022. Str. 71-80, ilustr. ISBN 978-3-0365-3441-1, ISBN 978-3-0365-3442-8. [COBISS.SI-ID 107845123]

GREGORC, Aleš (urednik). *Monitoring of honey bee colony losses*. Basel (etc.): MDPI, 2022. IX, 178 str.,

ilustr. ISBN 978-3-0365-3441-1, ISBN 978-3-0365-3442-8. https://www.mdpi.com/books/pdfview/book/5162. [COBISS.SI-ID 103823619]

GLAZER, Karin. *Prepoznavanje in senzorično vrednotenje posameznih vrst medu : diplomsko delo*. Maribor: [K. Glazer], 2022. VIII, 30, [3] f. pril., ilustr. https://dk.um.si/IzpisGradiva.php?id=81899. [COBISS.SI-ID 112975363]

BRODSCHNEIDER, Robert, SCHLAGBAUER, Johannes, ARAKELYAN, Iliyana, GREGORC, Aleš, et al. Spatial clusters of Varroa destructor control strategies in Europe. *Journal of pest science*. 2022, vol. 95, str. 1-11, ilustr. ISSN 1612-4758. https://link.springer.com/article/10.1007/s10340-022-01523-2, DOI: 10.1007/s10340-022-01523-2. [COBISS.SI-ID 116775171]

GREGORC, Aleš, PLANINC, Ivo. Sustainable varroa mite (Varroa destructor) control in field conditions. *Acta veterinaria Brno*. 2022, vol. 91, iss. 4, str. 401-407, graf. prikazi. ISSN 0001-7213. https://actavet.vfu.cz/91/4/0401/, DOI: 10.2754/avb202291040401. [COBISS.SI-ID 126955011]

ŠIMENC, Laura. *Ugotavljanje ter določanje virusov v naravno okuženih čebeljih družinah (Apis mellifera carnica) in razvoj okužbe v inokulirani čebelji zalegi : doktorska disertacija = Determination and identification of viruses in naturally infected honeybee colonies (Apis mellifera carnica) and development of the infection after honeybee brood virus inoculation : doctoral dissertation*. Ljubljana: [L. Šimenc], 2022. 158 str., ilustr. http://knjiznica.vf.uni-lj.si/PortalGenerator/Document.aspx?id=347, http://www.dlib.si/details/URN:NBN:SI:doc-YY1LIOO2. [COBISS.SI-ID 133587971]

CLAEYS BOUUAERT, David, DE SMET, Lina, BRUNAIN, Marleen, DAHLE, Bjørn, BLACQUIÈRE, Tjeerd, DALMON, Anne, DEZMIREAN, Daniel S., ELEN, Dylan, FILIPI, Janja, GIURGIU, Alexandru, GREGORC, Aleš, et al. Virus prevalence in egg samples collected from naturally selected and traditionally managed honey bee colonies across Europe. *Viruses*. 2022, vol. 14, iss. 11, [article no. 2442], str- 1-15, graf. prikazi. ISSN 1999-4915. https://www.mdpi.com/1999-4915/14/11/2442, DOI: 10.3390/v14112442. [COBISS.SI-ID 128389123]
financer: Research Foudation-Flanders (FWO) ARRS EU, research Grant G003021N), Horizont 2020, No. 8177622 (B-GOOD), N4-0192

GREGORC, Aleš, DA COSTA DOMINGUES, Caio Eduardo, TUTUN, Hidayet, SEVIN, Sedat. What has been done in the fight against Varroa destructor: from the past to the present. *Ankara Üniversitesi Veteriner Fakültesi dergisi*. 2022, vol. 69, iss. 2, str. 229-240. ISSN 1308-2817. http://vetjournal.ankara.edu.tr/en/pub/auvfd/article/1029296, DOI: 10.33988/auvfd.1029296. [COBISS.SI-ID 101979139]

GRAY, Alison, ADJLANE, Noureddine, ARAB, Alireza, BALLIS, Alexis, BRUSBARDIS, Valters, CHLEBO, Robert, CORNELISSEN, Bram, GREGORC, Aleš, UZUNOV, Aleksandar, BRODSCHNEIDER, Robert, et al. Honey bee colony loss rates in 37 countries using the COLOSS survey for winter 2019–2020: the combined effects of operation size, migration and queen replacement. *Journal of Apicultural Research*. 2023, vol. 62, no. 2, str. 204-210, ilustr. ISSN 0021-8839. https://www.tandfonline.com/doi/full/10.1080/00218839.2022.2113329, DOI: 10.1080/00218839.2022.2113329. [COBISS.SI-ID 143369987]

SAMPSON, Blair, GREGORC, Aleš, ALBURAKI, Mohamed, WERLE, Chris, KARIM, Shahid, ADAMCZYK, John, KNIGHT, Patricia R. Sensitivity to imidacloprid insecticide varies among some social and solitary bee species of agricultural value. *PloS one*. 2023, vol. 18, no. 5, [article no.] e0285167, str. 1-19, ilustr. ISSN 1932-6203. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0285167, DOI: 10.1371/journal.pone.0285167. [COBISS.SI-ID 151200515]