

## UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Predmet:</b>	VARSTVENA BIOLOGIJA
<b>Course title:</b>	CONSERVATION BIOLOGY

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Varstvo okolja in ekotehnologije, 2. stopnja	Modul: Varstvo narave	1. in 2.	/
Environmental Protection and Eco-technologies, 2 <sup>nd</sup> level	Module: Nature conservation	1 <sup>st</sup> and 2 <sup>nd</sup>	/

**Vrsta predmeta / Course type** Modularni predmet / Modular course

**Univerzitetna koda predmeta / University course code:** VB

Predavanja Lectures	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
20	10	/	10	80	4

**Nosilec predmeta / Lecturer:** prof. dr. Elena Bužan

<b>Jeziki /</b>	<b>Predavanja / Lectures:</b>	Slovenščina / Slovenian
<b>Languages:</b>	<b>Vaje / Tutorial:</b>	Slovenščina / Slovenian

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

Program izvedbe predmeta študentje/ke dobijo v obliki izročka (*syllabus*), ki je dosegljiv tudi v elektronski obliki na spletni strani. Literatura je dostopna v knjižnici. Na elektronski učilnici (e-učilnici) lahko študentje/ke spremljajo tudi koledar razpisanih seminarjev ter v naprej objavljenih vsebin vaj in predavanj, kar jim omogoča boljše pripravljenost na predmet in boljše razumevanje vsebin.

**Prerequisites:**

Program of the course is available in the form of a hand-out (*syllabus*) in electronic form on the website and it is also presented to students in lectures. Literature is available in the library. Electronic classroom (e-classroom) enables students to monitor the calendar alerts of the seminars. Students can preview outlines from lectured contents of both lectures and tutorials in advance on e-classroom for better preparation and understanding of topics.

**Vsebina:**

Predmet zajema osnove varstvene biologije. Program izvedbe obsega pregled zgodovine varstvenih prizadevanj, razloge za nastanek varstvene biologije, etične osnove panoge in njen krizni značaj. Želi se predstaviti pomen biodiverzitete na globalni in lokalni ravni in oblike ogrožanja le-te, pomen fragmentacije, dinamične ekologije, demografije in genetike majhnih populacij.

*Predavanje gostujočega učitelja – diskusija in sinteza na eno izmed tem.*

**Content (Syllabus outline):**

The course is dedicated to the basic of conservation biology. Syllabus of the course includes review of the history of conservation efforts, reasons for the emergence of conservation biology, ethical basis for conservation and its importance. Course also presents importance of diversity in global and local range, different threats to biodiversity and the importance of fragmentation, ecology dynamics, demography and genetics of small populations.

*Visiting teacher lecture - discussion and synthesis of one of these topics.*

**Main topics:**

**Poglavitne teme:**

- Nastanek varstvene biologije
- Načela varstvene biologije
- Vrsta v kontekstu varstvene biologije
- Genetika majhnih populacij
- Fragmentacija
- Demografija ogroženih populacij
- Dinamična ekologija
- Ukrepi za ohranjanje biodiverzitete: *in situ* in *ex situ* varstvo
- Nacionalna zakonodaja, mednarodne konvencije in varstvo
  - Družbeni vidiki v varstveni biologiji

- Emergence of conservation biology
  - Principles of conservation biology
  - Importance of species in conservation biology
  - Genetics of small populations
  - Fragmentation
  - Demography of endangered populations
  - Ecology dynamics
  - Conservation measures: *in situ* & *ex situ* conservation
  - National legislation and international conventions in nature conservation
- Human dimension of conservation

**Temeljna literatura in viri / Textbooks:****Obvezna / Required:**

Kryštufek, B. 1999. Osnove varstvene biologije. TZS, Ljubljana.

Malcolm L. Hunter, James P. Gibbs. 2007. Fundamentals of Conservation biology. Blackwell publishing.

**Priporočena / Recommended:**

Andrew S. Pullin. Conservation biology. 2002. Cambridge University press

**Cilji in kompetence:****Predmetno specifični cilji in kompetence:**

Cilj predmeta je študentom celovito predstaviti v biodiverzitetno krizo, njen obseg in vzroke ter vlogo varstvene biologije pri prepoznavanju niza dejavnikov (ekoloških, demografskih, genetskih, populacijskih itd.), ki vplivajo na viabilno velikost populacije in prožijo izumiranje.

Predmetno-specifične kompetence se nanašajo na ustrezno razumevanje in reševanje groženj biotski raznovrstnosti ter spoznavanje načinov upravljanja s populacijam prostoživečih rastlin in živali. Pridobljena znanja interdisciplinarno združujejo naravoslovne in družbene vede (biologijo, kemijo, ekotoksikologijo, sociologijo, filozofijo, politiko itd).

Z obravnavanjem bistvenih problemov v okviru predmeta se bodo študentje seznanili z različnimi metodami reševanja konfliktov med človekom in naravo in varovanja biotske raznovrstnosti.

**Splošne kompetence:**

Splošne kompetence, ki jih bodo pridobili študentje so razumevanje omejitev klasičnega varstva narave na eni strani, ter vpogled v ohranitveni značaj majhnih populacij in dinamične ekologije na drugi. Študentje bodo osvojili osnovne principe varstvene biologije, kot krizne discipline

**Objectives and competences:****Specific competences:**

The objective of the course is to present the students comprehensive manner of biodiversity crisis its scope and causes and role of conservation biology in identification of a set of factors (ecological, demographical, genetic, population, etc.) which affect the viable population size and rises risk of species extinction

Specific competences are related to an adequate understanding and solving of threats to biodiversity, as well as an understanding of ways of managing wildlife populations. The acquired knowledge interdisciplinarity integrates natural and social sciences (biology, chemistry, ecotoxicology, sociology, philosophy, politics, etc.).

By addressing the core issues within the course, students will be introduced to the various methodologies for resolving human-nature conflicts and protecting biodiversity.

**General competences:**

General competences of students are understanding the limitations of classical nature conservation on the one hand, and gives an insight into the conservation of small populations and ecology dynamics on the other hand. Students will be capable of understanding the general principle of conservation biology as crisis discipline

**Predvideni študijski rezultati:****Znanje in razumevanje:**

Študent bo ob zaključku predmeta sposoben:  
Študentje/ke se bodo seznanili/e z osnovnimi principi varstvene biologije ter s konceptualnimi možnostmi, ki jih nudi varstvena biologija. Dobili bodo vpogled v medsebojno odvisnost niza procesov, ki delujejo na različnih nivojih, v interakciji pa zmanjšujejo biodiverzitetu. Razumevanje dogodkov in procesov v majhnih populacijah bo študentu/ki omogočalo prepoznavanje kritičnih virov ogrožanja ciljne populacije

**Prenosljive/ključne spretnosti in drugi atributi:**

- sposobni učinkovito uporabljati pridobljeno znanje pri postavljanju ukrepov varovanja
- sposobni razumeti demografske procese v populacijah
- sposobni razumeti grožnje biodiverziteti
- zmožni kritično oceniti izide različnih scenarijev upravljanja

**Intended learning outcomes:****Knowledge and understanding:**

Students will gain knowledge of basic principles of conservation biology and conceptual possibilities of conservation biology. They will access an insight into the interdependence of processes that can operate at different levels and which interactions cause reduced biodiversity. Understanding of events and processes in small populations will enable student to identify critical situations and main threats of target population.

**Transferable/key skills and other attributes:**

- acquainted with knowledge for conservation action
- able to understand demographic processes in populations
- able to understand threats to biodiversity
- able to critically evaluate possible outcomes of different management scenarios

**Metode poučevanja in učenja:****Oblike dela:**

- Predavanje nosilca predmeta
- predavanje gostujočih strokovnjakov iz tujine
- priprava seminarske naloge
- samostojno delo študentov/tk

**Metode dela:**

- razlaga
- dialog, diskusija
- proučevanje primerov
- reševanje nalog
- vključevanje strokovnjakov za konkretna področja

**Learning and teaching methods:****Forms of teaching:**

- in-class lectures
- guest lectures by foreign experts
- Preparation of seminars
- Individual work of students

**Teaching methods:**

- Explanation
- Discussion, debate
- case studies
- Problem solving
- Invited speakers for specific topics
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**Načini ocenjevanja:**

Pogoj za pristop k izpitu: opravljena seminarska naloga

Končna ocena pri predmetu je sestavljena iz:

- izdelave ter diskusijske predstavitve seminarske naloge
- zaključnega izpita iz vsebine

**Ocenjevalna lestvica:**

- zadostno 6: 60–67 %
- dobro 7: 68–75 %
- prav dobro 8: 76–83 %
- prav dobro 9: 84–90 %
- odlično 10: 91–100 %

Delež (v %) /

Weight (in %) /

**Assessment:**

A prerequisite for access to the exam: fulfil seminar work.

Final evaluation consists of components:

- construction and discussion of seminar presentations,
- the final exam from the content

**Grading scale:**

- Sufficient D (6): 60–67%
- Good C (7): 68–75%
- Very good B (8): 76–83%
- Very good B+ (9): 84–90%
- Excellent A (10): 91–100%

**Materialni pogoji za izvedbo predmeta :**

- Terenske vaje

**Material conditions for subject realization:**

- Field work

**Obveznosti študentov:**

Obvezna prisotnost na terenskih vajah  
Izdelava seminarske naloge

**Student's commitments:**

Mandatory attendance at field exercises  
Preparation of a seminar paper

**Reference nosilca predmeta:****Pedagoško delo:**

- Predavateljica pri predmetih na Univerzi na Primorskem

**Znanstveno-raziskovalno delo:**

- Vodja skupine za molekularno ekologijo
- Članica Programske skupine

**Strokovno delo in izbrane strokovne publikacije:**

- Poročila za končne naročnike MVZI, ZGS, DRI

**Priznanja in nagrade:**

- Glasnik znanosti in za znanstveno odličnost

**Lecturer's references:****Pedagogic activities:**

- Lecturer in courses at the University of Primorska

**Scientific and research work:**

- Head of the Molecular Ecology Group
- Member of the Programme Group

**Professional work and selected professional publications:**

- Reports for stakeholders : MVZI, ZGS, DRI

**Awards:**

- Glasnik znanosti (Herald of Science) and award for scientific excellence

**Izbrani znanstveni članki / Selected scientific papers:**

1. BUŽAN, Elena, POTOČNIK, Hubert, POKORNY, Boštjan, POTUŠEK, Sandra, IACOLINA, Laura, GERIČ, Urška, URZI, Felicita, KOS, Ivan. Molecular analysis of scats revealed diet and prey choice of grey wolves and Eurasian lynx in the contact zone between the Dinaric Mountains and the Alps. *Frontiers in zoology*. 2024, 21, art. 9, str. 1-15,
2. STEFANOVIĆ, Milomir, VELICKOVIC, Nevena, BONČINA, Aja, POTUŠEK, Sandra, MATIĆ, Ivana, DJAN, Mihajla, BUŽAN, Elena. Duplication, recombination and weak selection shape evolution at the MHC class II SLA-DRB1 locus in wild boars from the western Balkans. *Mammalian biology*. 2024, vol. 104, str. 539-548, ilustr. ISSN 1616-5047. <https://link.springer.com/article/10.1007/s42991-024-00433-3>, <https://doi.org/10.1007/s42991-024-00433-3>, DOI: 10.1007/s42991-024-00433-3.
3. STIPOJJEV, Sunčica, BUŽAN, Elena, IACOLINA, Laura, SAFNER, Toni, REZIĆ, Andrea, GALOV, Ana, KRIŽANOVIĆ, Krešimir, AMBARLI, H., BEGO, Ferdinand, GAČIĆ, Dragan P., LAZAR, Peter, MALETIĆ, Vladimir, MARKOV, Georgi, PAPAIOANNOU, Haritakis, SCANDURA, Massimo, ŠPREM, Nikica, et al. Diversity of MHC class II DRB alleles in the Northern chamois genus *Rupicapra*. *Journal of mammalogy*. 2024, vol. 105, iss. 2, str. 312-322, ilustr. ISSN 0022-2372. DOI: 10.1093/jmammal/gyae008.
4. HOSTE, Amélie, PERRIÈRE, Charles, CAPBLANCO, Thibaut, BUŽAN, Elena, ŠPREM, Nikica, CORLATTI, Luca, CRESTANELLO, Barbara, BROQUET, Thomas, PELLISSIER, Loïc, YANNIC, Glenn, et al. Projection of current and future distribution of adaptive genetic units in an alpine ungulate. *Heredity : International journal genetics*. 2024, vol. 132, iss. 1, str. 54-66, ilustr. ISSN 0018-067X. <https://www.mdpi.com/1660-4601/19/1/131>, DOI: 10.1038/s41437-023-00661-2
5. ŠPREM, Nikica, BUŽAN, Elena, SAFNER, Toni. How we look: European wild mouflon and feral domestic sheep hybrids. *Current Zoology*. 2023, : 10.1126/science.abo6499.
6. CERRI, Jacopo, STENDARDI, Laura, BUŽAN, Elena, POKORNY, Boštjan. Accounting for cloud cover and circannual variation puts the effect of lunar phase on deer-vehicle collisions into perspective. *Journal of applied ecology*. Online ed. 2023, <https://doi.org/10.1111/1365-2664.14432>
7. THEISSINGER, Kathrin, FERNANDES, Carlos, FORMENTI, Giulio, BISTA, Iliana, BERG, Paul R., BLEIDORN, Christoph, BOMBARELY, Aureliano, CROTTINI, Angelica, GALLO, Guido R., GODOY, José A., GREBENC, Tine, BUŽAN, Elena, et al. How genomics can help biodiversity conservation. *Trends in genetics*. 2023, vol. ISSN 1362-4555. <https://doi.org/10.1016/j.tig.2023.01.005>
8. BUŽAN, Elena, POTUŠEK, Sandra, DUNIŠ, Luka, POKORNY, Boštjan. Neutral and selective processes shape MHC diversity in roe deer in Slovenia. *Animals*. 2022, iss. 6, art. 723, str. 1-17,, DOI: 10.3390/ani12060723.6-2615/12/6/723/htm,
9. POKORNY, Boštjan, CERRI, Jacopo, BUŽAN, Elena. Wildlife roadkill and COVID-19: a biologically significant, but heterogeneous, reduction. *Journal of applied ecology*. Online ed. 2022, vol. 59, iss. 5, str. 1291-1301. ISSN 1365-2664. <https://doi.org/10.1111/1365-2664.14140>, <https://besjournals.onlinelibrary.wiley.com/doi/10.1111/1365-2664.14140>.
10. DUH, Darja, POTUŠEK, Sandra, BUŽAN, Elena. The impact of illegal waste sites on a transmission of zoonotic viruses. *Virology journal*. 2017, vol. 14, art. no. 134, str. 1-7. ISSN 1743-422X. <https://doi.org/10.1186/s12985-017-0798-1>, DOI: 10.1186/s12985-017-0798-1