



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

### UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Predmet:</b>	<b>Didaktika biologije</b>
<b>Course title:</b>	<b>Didactics of Biology</b>

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Enovit magistrski študijski program druge stopnje Predmetni učitelj	/	3	5
Five-year master's degree program Subject Teacher	/		

**Vrsta predmeta / Course type**

**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
30	15		45		90	6

**Nosilec predmeta / Lecturer:**

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

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

**Prerequisites:**

**Vsebina:**

**Predavanja:**

- predmet didaktike biologije;
- razmerje med splošno in specialnimi didaktikami;
- značilnosti didaktike in metodike poučevanja biologije;
- modeli poučevanja biologije v Sloveniji in v svetu;
- kurikulum in učni načrti biološke vertikale v osnovni in srednjih šolah;
- model pedagoško vsebinskega in tehničnega znanja;
- kompetence v izobraževanju;
- načrtovanje pouka; zastavljanje ciljev; strategije poučevanja in učenja;
- didaktična načela;

**Content (Syllabus outline):**

**Lectures:**

- Subject of Didactics of Biology
- Relationship among general and special didactics
- Specificity of didactics of biology and methods used in biology teaching
- Models of biology teaching in Slovenia and world
- Curricula and syllabuses of biological line in primary and secondary schools
- Pedagogical technological knowledge model
- Competences in education
- Design in education: goals and objective setting, strategies of teaching and learning
- Didactical guidelines
- Methods of classroom work

- metode dela v razredu;
- oblike dela;
- preverjanje in ocenjevanje šolskega dela;
- proučevalno in problemsko zasnovan pouk;
- učila in učni pripomočki;
- IKT v izobraževanju;
- poučevanje evolucije;
- družbeno naravoslovne teme;
- akcijsko raziskovanje;
- delo razrednika.

#### **Seminarji**

- Podajanje znanja: izbrane sodobne teme.

#### **Laboratorijske vaje**

- Praktično delo: pisanje priprav, izdelava didaktičnih gradiv, izdelava pripomočkov, multimedija v izobraževanju, mikropouk,

- Forms of classroom work
- Evaluation and assessment of school work
- Inquiry and problem based teaching
- Equipment and inventory
- ICT in education
- Teaching of evolution
- Socioscientific issues
- Action research
- Work of tutor - teacher

#### **Seminars**

- Presentations: selected contemporary themes

#### **Laboratory exercises**

- Practical work: preparation of lesson plans; preparation of manuals, teaching materials, multimedia presentations; microteaching

### **Temeljni literatura in viri / Readings:**

- Blažič in sod. 2003. *Didaktika*. Visokošolski učbenik. Novo mesto
- Tomić A. 1999. *Izbrana poglavja iz didaktike. Študijsko gradivo za pedagoško andragoško izobraževanje 1*. Ljubljana.
- Eschenhagen D., Katmann U., Rodi D. 1998. *Fachdidaktik Biologie*. 4. izdaja, ur. Ulrich Kattman. Aulis Verlag Deubner. Koeln
- Marzano et al.(2000). *Classroom instruction that works*. McREL: <http://www.mcrel.org/topics/products/110/>
- Izbrana poglavja iz: Handbook of Research on Science Education. Ed.Sandra K Abell, Norman G Lederman. 2007. Routledge.
- Revija Journal of Biological Education
- Revija American Biology Teacher
- Revija Didactica Slovenica - Pedagoška obzorja
- Revija Acta Biologica Slovenica
- Učni načrti in učbeniki ter delovni zvezki biološke vertikale

### **Cilji in kompetence:**

Po izvedenem kursu naj bi študent-ka posedoval-a:

- teoretična in praktična znanja s področja didaktike in metodike biološkega izobraževanja;
- spretnosti za pripravo, izvedbo in ovrednotenje dela učencev ter lastnega dela pri pouku biologije;
- znanja potrebna za vodenje razreda in šolske dokumentacije.
- razumevanje pomena stalnega strokovnega izpopolnjevanja in samoevalvacije s stališča kritičnega praktika.

### **Objectives and competences:**

- After completing the course a prospective teacher should possess:
- Theoretical and practical knowledge on the field of didactic and methodics on biology education;
- Skills needed for preparation, performance and assessment of student's and his/her own work in biology teaching.
- Knowledge needed for leadership of the classroom and school administration;
- Understanding of the meaning of lifelong learning and self-evaluation from the viewpoint of critical practitioner.

### **Predvideni študijski rezultati:**

### **Intended learning outcomes:**

**Znanje in razumevanje:**

poznavanje in razumevanje pedagoško didaktičnovsebinsko- tehnoloških znanj potrebnih za učinkovito izvajanje in vodenje pedagoškega procesa;

- uporaba biološkega znanja v različnih kontekstih izobraževanja;
- sposobnost opisati dano situacijo z uporabo ustrezne biološke terminologije;
- načrtovanja, izvedbe in ovrednotenja pouka biologije, biologiji sorodnih predmetov (npr. mikrobiologija, anatomija, ipd.) ter okoljskih predmetov;
- bioloških konceptov in postopkov v učnem okolju;
- sposobnost reševanje bioloških in drugih problemov povezanih s poučevanjem biologije z uporabo informacijsko-komunikacijske tehnologije;
- obvladovanje tehnologij potrebnih za poučevanje biologije;
- sposobnost ovrednotenje rezultatov lastnega dela po načelih akcijskega raziskovanja;
- poznavanju svojega poklica in predpisov, ki urejajo delovanje šole.

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

Uporaba pedagoško' didaktično- vsebinskotehnoloških znanj potrebnih za učinkovito izvajanje in vodenje pedagoškega procesa;

- Sposobnost povezovanja bioloških znanj z znanji drugih strok in ved.
- Posredovanje znanj, spretnosti in stališč v kontekstu primerni obliki;
- Sposobnost voditi in usmerjati razpravo v razredu o sodobnih družbeno-naravoslovnih temah.
- znanja potrebna za vodenje razreda in šolske dokumentacije.
- Upravljanje z IKT.

**Metode poučevanja in učenja:**

Predavanja

- Seminar
- Laboratorijske vaje
- Individualno delo

**Knowledge and understanding:**

• Knowledge about and understanding of technological pedagogical content knowledge needed for successful implementation of pedagogical process;

- Use of biological knowledge in different contexts;
- Ability to describe given situation with the usage of appropriate biological terminology;
- Planning, performance and assessment of biology, biological sciences as Microbiology or Anatomy and environmental subjects;
- Biological concepts and principles in learning environment;

Competence in solving biological and other problems connected with biology education with the use of ICT.

- Skills in manipulation with the technology used in biology teaching;
- Know-how in assessment of own work as action research;

• Knowledge about profession of biology teacher and regulations about school work

**Transferable/Key Skills and other attributes:**

Usage of pedagogical content technological knowledge needed for successful performance and leading of pedagogical processes;

- Competence in connecting biological knowledge with knowledge from other disciplines;
- Transfer of knowledge, skills and attitudes in appropriate context;
- Ability to lead a classroom discussion about contemporary socioscientific issues;
- Ability to lead and manage classroom;
- Work with ICT.

**Learning and teaching methods:**

Lectures

- Seminar
- Laboratory excersises
- Individual work

Delež (v %) /  
Weight (in %)

**Načini ocenjevanja:**

Ocena kolokvija iz vaj  
Pisni izpit  
Seminar

25  
75  
Opravil/ni opravi

**Assessment:**

Grade from laboratory work  
Written exam  
Seminaire

**Reference nosilca / Lecturer's references:**

- ŠORGO, Andrej, LAMANAUSKAS, Vincentas, ŠIMIĆ ŠAŠIĆ, Slavica, KUBIATKO, Milan, PROKOP, Pavol, FRANČOVIČOVA, Jana, BILÉK, Martin, TOMAŽIČ, Iztok, ERDOGAN, Mehmet. A cross-national study of prospective elementary and science teachers' creativity styles. *J. Balt. sci. educ.*, 2012, vol. 11, no. 3, str. 285-292. [COBISS.SI-ID [19354120](#)]
- ŠORGO, Andrej, AMBROŽIČ-DOLINŠEK, Jana, USAK, Muhammet, ÖZEL, Murat. Knowledge about and acceptance of genetically modified organisms among pre-service teachers: a comparative study of Turkey and Slovenia. *Electron. J. Biotechnol.*, Jul. 2011, vol. 14, no. 4, str. 1-12. <http://dx.doi.org/10.2225/vol14-issue4-fulltext-5>, doi: [10.2225/vol14-issue4-fulltext-5](http://dx.doi.org/10.2225/vol14-issue4-fulltext-5). [COBISS.SI-ID [18530312](#)]
- ŠORGO, Andrej, USAK, Muhammet, AYDOGDU, M., KELES, Ozgul, AMBROŽIČ-DOLINŠEK, Jana. Biology teaching in upper secondary schools: comparative study between Slovenia and Turkey. *Energy education science and technology. Part B, Social and educational studies*, 2011, vol. 3, iss. 3, str. 305-314. [COBISS.SI-ID [17941000](#)]
- ŠORGO, Andrej, ŠPERNJAK, Andreja. Practical work in biology, chemistry and physics at lower secondary and general upper secondary schools in Slovenia. *Eurasia*, 2012, vol. 8, no. 1, str. 11-19. [http://www.ejmste.com/v8n1/EURASIA\\_v8n1\\_Sorgo.pdf](http://www.ejmste.com/v8n1/EURASIA_v8n1_Sorgo.pdf). [COBISS.SI-ID [18982408](#)]
- ŠORGO, Andrej, VERČKOVNIK, Tatjana, KOCIJANČIČ, Slavko. Information and communication technologies (ICT) in biology teaching in Slovenian secondary schools. *Eurasia*, 2010, vol. 6, no. 1, str. 37-46. [http://www.ejmste.com/v6n1/EURASIA\\_v6n1\\_Sorgo.pdf](http://www.ejmste.com/v6n1/EURASIA_v6n1_Sorgo.pdf). [COBISS.SI-ID [17471752](#)]