OBSAH

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD109B/22	**Course title:** Alpine ecology
Type and range of planned learning activities and teaching methods: **Form of instruction:** Seminar **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 3.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Verification of the degree of acquisition of the relevant knowledge, skills and competences of the student is carried out on the basis of theoretical and practical examinations during the semester teaching of the subject. During the semester, the student demonstrates his theoretical knowledge and practical skills in the form of a semester project from various areas of high mountain ecology. For the independent preparation, submission and defense of the project with subsequent self-reflection, the student can receive max. 100 points. The final evaluation will be based on the total number of points obtained from the semester project. A – 100%-93%, B – 92%-85%, C – 84%-77%, D – 76%-69%, E – 68%-60%, Fx – 59%- 0%	
Learning outcomes of the course: Objective of the subject: The aim of the subject is to provide basic theoretical knowledge and practical skills for the provision of teaching within the biology subject in the field of mountain ecology and vertical vegetational differentiation of flora in primary and secondary schools. Learning outcomes: - The student will gain knowledge about general principles conditioning the variability of ecosystems within vertical distribution. - The student masters the basic terminology of the ecology of high mountains, the life strategies of organisms at high altitudes. - The student has the skills to use methods and procedures used in ecological research.	
Course contents: 1. Ecology and its place in the system of scientific disciplines. 2. Ecological factors of high mountains. 3. Adaptations of plants to the conditions of high mountains. 4. Adaptations of animals to the conditions of high mountains 5. Strategies of organisms. 6-8. The upper limit of the forest. 9-10. Subalpine zone. 11-12. A belt of alpine meadows.	

13. Sensitivity and threat of mountain ecosystems

Recommended or required literature:

BARNA, M., BUBLINEC E. Základy všeobecnej ekológie. Verbum: Katolícka univerzita Ružomberok, 2016. 129 s. ISBN 978-80-561-0351-7
BEGON, H., HARPER, J. J., TOWNSEND, C. R. 1999. Ekologie: jedinci, populace a společenstva. Vyd. Univerzity Paláckeho, Olomouc. 949 p. ISBN 80-7067-695-7
BUBLINEC, E., MACHAVA, J., DEMKO, J., MACKO, J. Základy prírodného prostredia. Verbum. Ružomberok, 2018. 191 strán ISBN 978-80-561-0530-6
COLIN R. TOWNSEND, C.R., BEGON, M., HARPER, J.L. Základy ekologie. Univerzita Palackého, Olomouc, 2010, 505 s. ISBN 978-80-244-2478-1
BUBLINEC, E., MACHAVA, J., JANČEKOVÁ, M., DEMKO, J., MACKO, J., BLAHÚTOVÁ, D. Chemizmus zrážok a jeho dynamika v Liptovskej kotline. Ružomberok, Verbum - vydavateľstvo KU, 2014, 156 s. ISBN 978-80-561-0192-6.
MACKO J., :Pôdna fauna 8 LVS Západných tatier. Phytopedon (Bratislava) Journal of Soil Science. Vol 7 Geminy, Bratislava., 2008/ 1-2, s. 149 – 154, ISSN 1336 – 1120
MACKO J.: Vybrané druhy pôdneho edafónu slovenských pohorí a ich význam. Studia Scientifica Facultatis Paedagogicae, Katolícka univerzita v Ružomberku, 2005. ISBN 80-8084-12-1.

Language of instruction:

Notes:

Course evaluation:

Assessed students in total: 7

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): Ing. Jozef Macko, PhD.

Last modification: 23.08.2022

Supervisor(s):

Person responsible for the delivery, development and quality of the study programme:

doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD101A/22	**Course title:** Animal Physiology
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture / Seminar **Recommended study range:** **hours weekly:** 2 / 1 **hours per semester:** 26 / 13 **Teaching method:** on-site	
Credits: 2	**Working load:** 50 hours
Recommended semester/trimester: 1.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Verification of the relevant knowledge, skills and competencies of the student is carried out based on theoretical and practical examinations during the semester teaching. During the semester, the student demonstrates his skills by working independently on practical exercises and autonomously solving assigned tasks. After completing practical exercises, he is also tested on theoretical knowledge. Final assessment: total percentage gain from practical driving tests 50% and from theoretical knowledge 50%. Subject evaluation: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: The student knows the practical and theoretical connections about the physiological manifestations of individual systems of the animal organism, Student is able to apply the acquired laboratory methods in the field of physiology. And the student is able to understand the principles the functioning of organism	
Course contents: 1. Blood physiology. 2. Haemostasis. 3. Physiology of breathing. 4. Thermoregulation and the influence of heat and cold. Fever. 5. Physiology of digestion and absorption. 6. Transformation of substances. 7. Physiology of blood and lymph circulation. 8. Physiology of endocrine glands I. 9. Physiology of endocrine glands II.	

10. Excretory system.
11. Genital system. Pregnancy.
12. Nervous system I.
13. Nervous system II. Vegetative nervous system

Recommended or required literature:

Language of instruction:

Notes:

Course evaluation:
Assessed students in total: 8

A	B	C	D	E	FX
25.0	12.5	12.5	25.0	25.0	0.0

Name of lecturer(s): Prof. RNDr. Peter Kubatka, PhD., doc. RNDr. Michal Baláž, PhD., MVDr. Gabriela Hrkľová, PhD.

Last modification: 26.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD102B/22	**Course title:** Bioclimatology
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 1.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Verification of the degree of acquisition of the relevant knowledge, skills and competences of the student is carried out on the basis of theoretical and practical examinations during the semester teaching of the subject. During the semester, there will be one written examination for which a maximum of 20 points can be obtained. To participate in the exam, it is necessary to obtain at least 10 points from the background check. At the final oral exam, the student can get max. 80 points. The final evaluation will be based on the total number of points obtained from the background checks and the oral exam. Subject evaluation A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: Objective of the subject: The aim of the subject is to provide basic theoretical knowledge and practical skills for the provision of teaching within the subject of biology in the field of bioclimatology at primary and secondary schools. Learning outcomes: - The student masters the theoretical basis of the study of bioclimatology and applies them from the point of view of the relationship: atmosphere - ecosystem. In particular, information and knowledge about meteorological elements, atmospheric circulation, synoptic meteorology and climatic conditions in the world and in Slovakia. - The student is able to explain the basic laws of meteorology and climatology. - He is able to use the acquired knowledge in pedagogical practice.	
Course contents: 1. Basic terms, chemical composition of the atmosphere. 2. Layering of the earth's atmosphere.	

3. Basic meteorological factors: radiation, heat, water vapor and its condensation.
4. Air pressure and atmospheric circulation.
5. Cloud types, vertical and horizontal precipitation.
6. Climate and its classifications.
7. Bioclimate of plant communities.
8. Climate of the country
9. Climate biomes.
10. Climatic division of the Slovak Republic.
11. Types of weather situations and their classification.
12. Climate of SR, precipitation, temperature, air flow.
13. Phenology and phenological observations, phenophases.

Recommended or required literature:

BUBLINEC, E., MACHAVA, J., DEMKO, J., MACKO, J. Základy prírodného prostredia. Verbum. Ružomberok, 2018. 191 strán ISBN 978-80-561-0530-6
BUBLINEC, E., MACHAVA, J., JANČEKOVÁ, M., DEMKO, J., MACKO, J., BLAHÚTOVÁ, D. Chemizmus zrážok a jeho dynamika v Liptovskej kotline. Ružomberok, Verbum - vydavateľstvo KU, 2014, 156 s. ISBN 978-80-561-0192-6.
ŠAMAJ, F., PROŠEK, P. Agrometeorológia a bioklimatológia. Univerzita Komenského , Bratislava. 1994. 306 s. ISBN 80-223-0703-3
TRIZNA, M. Meteorológia, klimatológia a hydrológia pre geografov. Geo-grafika , Bratislava 2007. 143 s. ISBN 978-80-89317-01-1
TRIZNA, M. Klimageografia a hydrogeografia . Geo-grafika , Bratislava. 2012. 143 s. ISBN 978-80-89317-20-2

Language of instruction:
English language.

Notes:

Course evaluation:
Assessed students in total: 5

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): doc. Ing. Jaroslav Demko, CSc.

Last modification: 30.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD100S/22	**Course title:** Biology with Didactics
Type and range of planned learning activities and teaching methods: **Form of instruction:** **Recommended study range:** **hours weekly:** **hours per semester:** **Teaching method:** on-site	
Credits: 8	**Working load:** 200 hours
Recommended semester/trimester: 3., 4..	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: The state exam can be taken by a student who has fulfilled the obligations set by the accredited study program and the Study Regulations of the University of Ružomberok during the examination of the studies completed in the last year of study. The state exam has the character of a colloquium. The grade will be included in the overall evaluation of the state exam. A – 100%-93%, B – 92%-85%, C – 84%-77%, D – 76%-69%, E – 68%-60%, Fx – 59%- 0%	
Learning outcomes of the course: Objective of the course: To check the student in a colloquial way that he is capable and able to manage the educational process in biology and perform other functions in accordance with the profile of the graduate Teaching biology in combination with Mgr. Learning outcomes: After completing the subject, the student will acquire the following knowledge, skills and competences: - Controls various processes taking place in the bodies of animals, which ensure all the vital functions of individual species, and can apply the knowledge to the physiology of one's own body. - He has relevant knowledge about the regularities of human interactions with his environment from the period before the creation of the species to the present. - Understands the processes taking place in plant organisms, especially in the context of their importance for life on Earth - Can integrate knowledge from various biological disciplines and present them in terms of the functioning of ecosystems and life as a whole. - He masters the methodology, gnoseology and principles of pedagogical diagnosis of the educational process in biology, with respect for the individual characteristics of pupils and students. - Is able to independently plan, organize, lead and analyze the educational process at ISCED 2 and 3 levels in profile educational areas and specializations. - Possesses professional competences for effective work in the social-scientific, professional-subject, information-communication technology, academic and managerial context of teaching.	
Course contents: Updated theses for the colloquial exam are published on the faculty's website no later than the beginning of the summer semester in the given academic year.	

Recommended or required literature:
According to the literature of the compulsory subjects of the given study program

Language of instruction:

Notes:

Course evaluation:
Assessed students in total: 61

A	B	C	D	E	FX
40.98	26.23	24.59	4.92	3.28	0.0

Name of lecturer(s):

Last modification: 23.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD105B/22	**Course title:** Civilisation Diseases Prevention
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 2.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course:	
Learning outcomes of the course:	
Course contents:	
Recommended or required literature:	
Language of instruction:	
Notes:	

Course evaluation:
Assessed students in total: 7

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): Prof. RNDr. Peter Kubatka, PhD.	
Last modification: 06.05.2022	
Supervisor(s): **Person responsible for the delivery, development and quality of the study programme:** doc. Ing. Miroslav Saniga, CSc.	

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD103A/22	**Course title:** Concurrent Teaching Practice I.
Type and range of planned learning activities and teaching methods: **Form of instruction:** Seminar **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 2	**Working load:** 50 hours
Recommended semester/trimester: 1.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Assessment of acquired knowledge, skills and competences is carried out by the practice methodology based on the assessment of the student by the trainee teacher and the evaluation of the submitted pedagogic diary. Over the duration of this course, the student participates in 1 teacher audition, 6 student auditions and completes 3 direct performances at the selected primary or secondary school. During this, student keeps a pedagogic diary, in which he records the transferred theoretical knowledge from the field of biology and the didactic-pedagogical procedures of the trainee teacher and classmates, as well as his own preparations for the lesson. Together with the trainee teacher, student analyzes the lessons he/she participated in (implementation takes place in groups). The practice teacher gives the student an assessment that represents 60% of the assessment. The work discipline and behavior of the student, cooperation with the trainee teacher, educational activity, language expression of the student, interest in learning about the school environment and relationship to the teaching profession are evaluated. The student prepares a protocol from each listening lesson, where he evaluates the activity of the teacher and classmates. He will prepare a self-reflection protocol for the lessons of his own output. These materials, as well as the preparation of pedagogic diaries and the analysis of lessons with a trainee teacher, serve the practice methodology for the final assessment of the student in the amount of 40%. Course assessment: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: The main aim of the course is to teach students to observe, analyze and records in pedagogical diaries the pedagogical and psychological aspects of the educational process, and then to use the acquired skills practically during independent outputs in real conditions at primary or secondary school.	

After completing the course Continuous pedagogical praxis 1, the student will acquire the following knowledge, skills and competencies:
The student can observe, analyze and record the pedagogical and psychological aspects of the educational process in pedagogical diaries.
The student can analyze the form and appropriateness of different methods of evaluating student performance.
The student is able to navigate the generally binding legal, ethical, economic regulations related to the work of the teacher, in the pedagogical documentation and in other conceptual and strategic documents of the school.
The student is able to implement practical outputs from biology in the real conditions of the school environment in accordance with the principles of the educational process.

Course contents:
Syllabus/Indicative Content:
-
- The student will introduce with the necessary documentation required for entering the training school and the conditions for completing the internship
- The student gets to know the environment of the training school and the training teacher, sets the practice schedule.
- The student will take part in 1 lesson in biology led by a practicing teacher at the selected primary or secondary school.
- The student will participate in 6 biology lessons taught by his classmates.
- The student himself prepares and leads 3 biology lessons.
- The student prepares self-reflection protocols after each lesson demonstration
- The student together with the trainee teacher will analyze all lessons.
- The student submits a pedagogical diary processed according to the requirements of the trainee teacher and the practice methodology

Recommended or required literature:
Kramáreková, H. a kol. 2012. Pedagogická prax v príprave učiteľov, 1. vyd. Nitra: Univerzita Konštantína Filozofa, Pedagogická fakulta, ISBN: 978-80-558-0160-5
Gnoth, M. a kol. 2003. Pedagogická prax pre študentov učiteľských kombinácií, PriF UK Bratislava, 140 s.
Čapek, R., 2015. Moderní didaktika : lexikon výukových a hodnoticích metod. Praha : Grada , 2015, 604 s., ISBN 978-80-247-3450-7.
Petlák, E., 2016. Všeobecná didaktika. Bratislava : Iris 3. vyd., 2016, 322 s., ISBN 978-80-8153-064-7.
Učebnice biológie pre základné a stredné školy.

Language of instruction:

Notes:

Course evaluation:
Assessed students in total: 8

A	B	C	D	E	FX
87.5	0.0	12.5	0.0	0.0	0.0

Name of lecturer(s): RNDr. Mária Balážová, PhD.

Last modification: 30.08.2022

Supervisor(s):

Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD107A/22	**Course title:** Concurrent Teaching Practice II.
Type and range of planned learning activities and teaching methods: **Form of instruction:** Seminar **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 2	**Working load:** 50 hours
Recommended semester/trimester: 2.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Assessment of acquired knowledge, skills and competences is carried out by the practice methodology based on the assessment of the student by the trainee teacher and the evaluation of the submitted pedagogic diary. Over the duration of this course, the student participates in 1 teacher audition, 6 student auditions and completes 3 direct performances at the selected primary or secondary school. During this, student keeps a pedagogic diary, in which he records the transferred theoretical knowledge from the field of biology and the didactic-pedagogical procedures of the trainee teacher and classmates, as well as his own preparations for the lesson. Together with the trainee teacher, student analyzes the lessons he/she participated in (implementation takes place in groups). The practice teacher gives the student an assessment that represents 60% of the assessment. The work discipline and behavior of the student, cooperation with the trainee teacher, educational activity, language expression of the student, interest in learning about the school environment and relationship to the teaching profession are evaluated. The student prepares a protocol from each listening lesson, where he evaluates the activity of the teacher and classmates. He will prepare a self-reflection protocol for the lessons of his own output. These materials, as well as the preparation of pedagogic diaries and the analysis of lessons with a trainee teacher, serve the practice methodology for the final assessment of the student in the amount of 40%. Course assessment: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: The main aim of the course is to teach students to observe, analyze and records in pedagogical diaries the pedagogical and psychological aspects of the educational process, and then to use the acquired skills practically during independent outputs in real conditions at primary or secondary school.	

After completing the Continuous pedagogical praxis 2, the student will acquire the following knowledge, skills and competencies:
The student can observe, analyze and record the pedagogical and psychological aspects of the educational process in pedagogical diaries,
The student masters the creation of methodological materials with wider applicability in connection with practice through e-learning or multimedia aspects,
The student is able to cooperate in solving professional projects in the field of biology and didactics,
The student is capable of carrying out research into pedagogical phenomena, formulating the conclusions of the research and presenting his results externally.
The student is able to implement practical outputs from biology in the real conditions of the school environment in accordance with the principles of the educational process

Course contents:
Syllabus/Indicative Content:
- The student will introduce with the necessary documentation required for entering the training school and the conditions for completing the internship
- The student gets to know the environment of the training school and the training teacher, sets the practice schedule.
- The student will take part in 1 lesson in biology led by a practicing teacher at the selected primary or secondary school.
- The student will participate in 6 biology lessons taught by his classmates.
- The student himself prepares and leads 3 biology lessons.
- The student prepares self-reflection protocols after each lesson demonstration
- The student together with the trainee teacher will analyze all lessons.
- The student submits a pedagogical diary processed according to the requirements of the trainee teacher and the practice methodology

Recommended or required literature:
Kramáreková, H. a kol. 2012. Pedagogická prax v príprave učiteľov, 1. vyd. Nitra: Univerzita Konštantína Filozofa, Pedagogická fakulta, ISBN: 978-80-558-0160-5
Gnoth, M. a kol. 2003. Pedagogická prax pre študentov učiteľských kombinácií, PriF UK Bratislava, 140 s.
Čapek, R., 2015. Moderní didaktika : lexikon výukových a hodnoticích metod. Praha : Grada , 2015, 604 s., ISBN 978-80-247-3450-7.
Petlák, E., 2016. Všeobecná didaktika. Bratislava : Iris 3. vyd., 2016, 322 s., ISBN 978-80-8153-064-7.
Učebnice biológie pre základné a stredné školy.

Language of instruction:

Notes:

Course evaluation:
Assessed students in total: 8

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): RNDr. Mária Balážová, PhD.

Last modification: 30.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:

doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD111A/22	**Course title:** Continuous Practice
Type and range of planned learning activities and teaching methods: **Form of instruction:** Seminar **Recommended study range:** **hours weekly:** 2 **hours per semester:** 26 **Teaching method:** on-site	
Credits: 2	**Working load:** 50 hours
Recommended semester/trimester: 3.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Verification of the level of acquired knowledge, skills and competences is carried out by the practice methodology based on the assessment of the student by the trainee teacher and the evaluation of the submitted pedagogic diary. During the semester, the student participates in 1 teacher audition and completes 19 direct exits at the selected primary or secondary school. During this, he keeps a pedagogic diary, in which he records the transferred theoretical knowledge from the field of biology and the didactic-pedagogical procedures of the trainee teacher, as well as his own preparations for the lesson. He carries out lesson analyzes with a trainee teacher. The practice teacher gives the student an assessment that represents 60% of the assessment. The work discipline and behavior of the student, cooperation with the trainee teacher, educational activity, language expression of the student, interest in learning about the school environment and relationship to the teaching profession are evaluated. The student also prepares a self-reflection protocol from each hour of his own output. These materials, as well as the preparation of pedagogic diaries and the analysis of lessons with a trainee teacher, serve the practice methodology for the final assessment of the student in the amount of 40%. Subject evaluation: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: After completing the subject, the student will acquire the following knowledge, skills and competences: The student is able to independently make written preparation for the lesson. The student is able to implement practical outputs from biology in the real conditions of the school environment in accordance with the principles of the educational process. The student is able to cooperate in solving professional projects in the field of biology and didactics.	

The student is capable of carrying out research into pedagogical phenomena, formulating the conclusions of the research and presenting his results externally.

Course contents:
- The student will familiarize himself with the necessary documentation required for entering the training school and the conditions for completing the internship.
- The student will familiarize himself with the environment of the training school and the training teacher, determine the plan and schedule of practice.
- The student will take part in 1 lesson in biology led by a practicing teacher at the selected primary or secondary school.
- The student himself prepares and conducts 19 lessons in biology.
- The student prepares self-reflection protocols after each output.
- The student together with the trainee teacher will analyze the lessons.
- The student submits a pedagogical diary processed according to the requirements of the trainee teacher and the practice methodology.

Recommended or required literature:
Kramáreková, H. a kol. 2012. Pedagogická prax v príprave učiteľov, 1. vyd. Nitra: Univerzita Konštantína Filozofa, Pedagogická fakulta, ISBN: 978-80-558-0160-5.
Gnoth, M. a kol. 2003. Pedagogická prax pre študentov učiteľských kombinácií, PriF UK Bratislava, 140 s.
Čapek, R., 2015. Moderní didaktika : lexikon výukových a hodnoticích metod. Praha : Grada , 2015, 604 s., ISBN 978-80-247-3450-7.
Petlák, E., 2016. Všeobecná didaktika. Bratislava : Iris 3. vyd., 2016, 322 s., ISBN 978-80-8153-064-7.
Učebnice biológie pre základné a stredné školy.

Language of instruction:
English language.

Notes:

Course evaluation:
Assessed students in total: 11

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): Ing. Dana Blahútová, PhD.

Last modification: 22.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD111B/22	**Course title:** Didactic skills and school experiments
Type and range of planned learning activities and teaching methods: **Form of instruction:** Seminar **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 4.	
Level of study: II.	
Prerequisities:	

Requirements for passing the course:

Verification of the degree of acquisition of the relevant knowledge, skills and competencies of the student is carried out on the basis of theoretical and practical examinations during the semester teaching of the subject.

In the course of the semester, the student demonstrates his theoretical knowledge and practical skills in didactics and biology in the preparation and implementation of school experiments in biology for elementary school and gymnasium classes.

Continuous assessment during the semester:

- The student demonstrates practical skills in the biological-chemical laboratory in the correct handling of laboratory equipment, he can get max. 10 points.
- The student develops a portfolio of designed and implemented 10 school experiments in accordance with the content outline of the subject (maximum 40 points).

Final assessment: cumulative percentage gain from the interim assessment (50%) and oral exam-portfolio presentation (50%).

Subject evaluation:

A – 100%-93%
B – 92%-85%
C – 84%-77%
D – 76%-69%
E – 68%-60%
Fx – 59%- 0%

Learning outcomes of the course:

After completing the subject, the student will acquire the following knowledge, skills and competences:

- knows and controls the laboratory techniques of school experiments in biology classes in accordance with the SVP for elementary schools and gymnasiums, as well as the methods and principles of planning and management of the educational process,
- has didactic skills when conducting school experiments, while being able to independently organize and lead interest groups and clubs with a biological, ecological and environmental focus,

- Is capable of critical thinking, is creative and is characterized by flexibility in thinking when designing and implementing school experiments.

Course contents:

1. School experiments with the topic Organism and environment 1.
2. School experiments with the topic Organism and environment 2.
3. School experiments with Microworld 1.
4. School experiments with Microworld 2.
5. School experiments with the issue World of plants and fungi 1.
6. School experiments with the issue World of plants and fungi 2.
7. School experiments with the topic Animal World 1.
8. School experiments with the topic Animal World 2.
9. School experiments with the topic Human biology and healthy lifestyle 1.
10. School experiments with the topic Human biology and healthy lifestyle 2.
11. School experiments with the topic Structure and life manifestations of organisms 1.
12. School experiments with the topic Structure and life manifestations of organisms 2.
13. School experiments with the issue of Genetics.

Recommended or required literature:

HELD, Ľ., a kol., 2011. Výskumne ladená koncepcia prírodovedného vzdelávania (IBSE v slovenskom kontexte). Trnava: Pedagogická fakulta Trnavskej univerzity, 2011, 138 s., ISBN 978-80-8082-486-0.
SANDANUSOVÁ, A., 2011. Indoor experimenty – biológia. Nitra: Univerzita Konštantína Filozofa, Fakulta prírodných vied , 2011, 47 s., ISBN 978-80-8094-904-4.
ŽOLDOŠOVÁ, K., 2004. Prírodovedné vzdelávanie v teréne. Trnava: Trnavská univerzita , 2004, 102 s., ISBN 80-89074-81-2.
SLABÁ, E., MIČKOVÁ, H., HUDÁKOVÁ, T., 2019. Biológia : praktické cvičenia. Košice : Univerzita Pavla Jozefa Šafárika v Košiciach : ŠafárikPress , 2019, 163 s., ISBN 978-80-8152-759-3.
HRKĽOVÁ, G., 2005. Návody na laboratórne cvičenia zo všeobecnej cytológie. Ružomberok : Katolícka univerzita , 2005, 60 s., ISBN 80-8084-027-X.
BELLOVÁ, R., MELICHERČÍKOVÁ, D., 2011. Chemické experimenty vo vyučovaní. Ružomberok: Verbum , 2011, 117 s., ISBN 978-80-8084-699-2.
DURDIAK, J., Bellová, R., Glončák, P., 2005. Laboratórna technika : skriptá - učebné texty . (Časť 1.). Ružomberok : Katolícka univerzita , 2005, 73 s., ISBN 80-8084-023-7.
Človek a príroda. In: Inovovaný ŠVP (Štátny vzdelávací program) pre 2. stupeň ZŠ. https://www.statpedu.sk/files/articles/dokumenty/inovovany-statny-vzdelavaci-program/biologia_nsv_2014.pdf
Človek a príroda. In: Inovovaný ŠVP (Štátny vzdelávací program) pre gymnáziá s osemročným vzdelávacím programom. https://www.statpedu.sk/files/articles/dokumenty/inovovany-statny-vzdelavaci-program/biologia_g_8_r.pdf
Človek a príroda. In: Inovovaný ŠVP (Štátny vzdelávací program) pre gymnáziá so štvorročným a päťročným vzdelávacím programom. https://www.statpedu.sk/files/articles/dokumenty/inovovany-statny-vzdelavaci-program/biologia_g_4_5_r.pdf
ISCED 3A –Vyššie sekundárne vzdelávanie.. Bratislava: Štátny pedagogický ústav. 21 s. https://www.statpedu.sk/files/articles/dokumenty/statny-vzdelavaci-program/biologia_isced3.pdf
ISCED 2-Nižšie sekundárne vzdelávanie. Bratislava: Štátny pedagogický ústav. 24 s https://www.statpedu.sk/files/articles/dokumenty/statny-vzdelavaci-program/biologia_isced2.pdf
Časopis: Biológia, ekológia chémia, ISSN 1338-1024
http://bech.truni.sk/

Language of instruction:
English language.

Notes:

Course evaluation:
Assessed students in total: 3

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): Ing. Dana Blahútová, PhD.

Last modification: 22.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD100A/22	**Course title:** Didactics I
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture / Seminar **Recommended study range:** **hours weekly:** 1 / 1 **hours per semester:** 13 / 13 **Teaching method:** on-site	
Credits: 2	**Working load:** 50 hours
Recommended semester/trimester: 1.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Verification of the degree of acquisition of the relevant knowledge, skills and competences of the student is carried out on the basis of theoretical and practical examinations during the semester teaching of the subject. During the semester, the student demonstrates his theoretical knowledge of biology didactics, such as content, forms, methods and procedures of educational activity. Continuous assessment during the semester: - Active participation in seminars (maximum 10 points). - The student prepares and presents seminar papers on a specific topic in accordance with the subject outline (maximum 40 points). The final assessment of the subject is in the form of a written exam with a total percentage gain of 50% and a verification of practical skills from an ongoing assessment with a gain of 50%. Subject evaluation: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: After completing the subject, the student will acquire the following knowledge, skills and competences: - knows and controls didactic principles and procedures of educational activity, as well as methods and principles of planning and management of the educational process, - is able to independently and eruditely organize, lead and analyze the educational process in the subject of biology and ecology with regard to innovative trends and to communicate with the public about current problems in the field of biology and ecology, - is capable of critical thinking, is creative and is characterized by flexibility in thinking (adaptability, flexibility, improvisational abilities) for pedagogical practice,	

- can solve problems, coordinate procedures in the educational process and responsibly implement current scientific knowledge from biology and ecology into practice.
Course contents: 1. Didactics of biology as a scientific discipline. Theoretical foundations of biology education and teaching concepts. 2. Science literacy and the possibilities of its development in biology. 3. Educational cognitivism. Constructivism. A research-oriented concept of science education. 4. Contents of biology education in basic pedagogical documents. 5. Teaching process of biology, preparation for teaching. 6. Educational goals in biology. Taxonomies of cognitive functions. 7. Didactic principles, principles in teaching biology. 8. Activating didactic methods in teaching biology. 9. Organizational forms of teaching biology. 10. Material teaching aids of biology. Analysis of available teaching materials. 11. Evaluation in contemporary education. 12. Global topics in education.

Recommended or required literature:

OBDRŽÁLEK, Z., a kol., 2003. Didaktika pre študentov učiteľstva základnej školy. Bratislava : Univerzita Komenského , 2003, 179 s., ISBN 80-223-1772-1.
TUREK, I., 2014. Didaktika. Iura Editor Bratislava 3. preprac. a dopl. vyd., 2014, 618 s. ISBN 978-80-8168-004-5.
TUREK, I., 2014.Kvalita vzdelávania. Bratislava : Wolters Kluwer 2. preprac. a dopl. vyd., 2014, 324 s., ISBN 978-80-8168-037-3.
TUREK, I., 2002. Zvyšovanie efektívnosti vyučovania. Bratislava : Metodické centrum v Bratislave , 2002, 326 s., ISBN 80-8052-136-0.
PETLÁK, E., 2016. Všeobecná didaktika. Bratislava : Iris 3. vyd., 2016, 322 s., ISBN 978-80-8153-064-7.
ZORMANOVÁ, L., 2014. Obecná didaktika : pro studium a praxi. Praha : Grada , 2014, 239 s., ISBN 978-80-247-4590-9.
DROŠČÁK, M., 2015. Úvod do všeobecnej didaktiky pre študentov učiteľstva. Trnava : Univerzita sv. Cyrila a Metoda, Filozofická fakulta, 2015, 121 s., ISBN 978-80-8105-655-0.
ČAPEK, R., 2015. Moderní didaktika : lexikon výukových a hodnoticích metod. Praha : Grada , 2015, 604 s., ISBN 978-80-247-3450-7.
ČAPEK, R., 2018. Líný učitel: cesta pedagogického hrdiny. Praha : Raabe, 2018, 175 s., ISBN 978-80-7496-387-2.
ČAPEK, R., 2020. Líný učitel : kompas moderního učitele. Praha : Raabe , 2020, 164 s., ISBN 978-80-7496-456-5.
UŠÁKOVÁ, K. 1998. Vybrané kapitoly zo špeciálnej didaktiky biológie. Bratislava : Univerzita Komenského , 1998, 158 s., ISBN 80-223-1143-X.
HELD, Ľ., a kol., 2011. Výskumne ladená koncepcia prírodovedného vzdelávania (IBSE v slovenskom kontexte). Trnava: Pedagogická fakulta Trnavskej univerzity, 2011, 138 s., ISBN 978-80-8082-486-0.
SANDANUSOVÁ, A., 2011. Indoor experimenty – biológia. Nitra: Univerzita Konštantína Filozofa, Fakulta prírodných vied , 2011, 47 s., ISBN 978-80-8094-904-4.
Človek a príroda. In: Inovovaný ŠVP (Štátny vzdelávací program) pre 2. stupeň ZŠ. https://www.statpedu.sk/files/articles/dokumenty/inovovany-statny-vzdelavaci-program/biologia_nsv_2014.pdf
Človek a príroda. In: Inovovaný ŠVP (Štátny vzdelávací program) pre gymnáziá s osemročným vzdelávacím programom. https://www.statpedu.sk/files/articles/dokumenty/inovovany-statny-vzdelavaci-program/biologia_g_8_r.pdf
Človek a príroda. In: Inovovaný ŠVP (Štátny vzdelávací program) pre gymnáziá so štvorročným a päťročným vzdelávacím programom. https://www.statpedu.sk/files/articles/dokumenty/inovovany-statny-vzdelavaci-program/biologia_g_4_5_r.pdf
ISCED 3A –Vyššie sekundárne vzdelávanie.. Bratislava: Štátny pedagogický ústav. 21 s. https://www.statpedu.sk/files/articles/dokumenty/statny-vzdelavaci-program/biologia_isced3.pdf
ISCED 2-Nižšie sekundárne vzdelávanie. Bratislava: Štátny pedagogický ústav. 24 s https://www.statpedu.sk/files/articles/dokumenty/statny-vzdelavaci-program/biologia_isced2.pdf
Časopis: Biológia, ekológia chémia, ISSN 1338-1024
http://bech.truni.sk/

Language of instruction:

English language.

Notes:

Course evaluation:
Assessed students in total: 8

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): Ing. Dana Blahútová, PhD., RNDr. Mária Balážová, PhD.

Last modification: 22.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD104A/22	**Course title:** Didactics II
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture / Seminar **Recommended study range:** **hours weekly:** 1 / 1 **hours per semester:** 13 / 13 **Teaching method:** on-site	
Credits: 2	**Working load:** 50 hours
Recommended semester/trimester: 2.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Assessment of the relevant knowledge, skills and competences of the student is carried out on the basis of theoretical and practical examinations during the course. Over the duration of this course, students will receive points for the presentation of commented and simulated lessons in exercises or the creation of applicable preparations for a lesson at primary school in the specified range (40 points), for the description and presentation of a specific teaching method and its application to the biology curriculum at primary school (20 points). , further for the creation of a didactic game from biology (20 points) and for the preparation of an interactive activity to support intersubject relationships (20 points). It is possible to gain 100 points in total. Subject assessment: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: The main aim of the subject is to provide basic terminological application and practical skills for the correct transformation of the scientific system of biology and ecology into a didactic system for mastering the pedagogical theory and practice of the future biology teacher. After completing the course Didactics II, the student will acquire the following knowledge, skills and competencies: The student can apply the acquired knowledge about the emotional and practical needs of primary and secondary school pupils in democratic conditions. The student can analyse the importance of creativity, motivation and authentic teaching in biology. With the help of model instructions (commented and simulated lessons), students will be able to competently manage the use of acquired knowledge and skills in educational activities in the subject of biology for the 5th and 6th grade of elementary school. Students will be able to prepare written lesson plans using a creative approach, they will be able to carry out a walk and excursion and make a teaching aid.	

Course contents:

Syllabus/Indicative Content:

1. Emotional and practical needs of students in biology classes.
2. The personality of a creative teacher and his competences in science education.
3. Traditional teaching in the context of current trends in education and training.
4. Concept of "Lazy teacher" in biology classes
5. Motivation and motivational techniques in biology education, application to the specific biology curriculum of the 5th and 6th grades of elementary school
6. Brainstorming methods, application to specific 5th and 6th grade biology curriculum
7. Conceptual process, Graphical tools for working with concepts.
8. Communicative teaching methods in biology, application to the specific curriculum of biology in the 5th and 6th grades of elementary school
9. Group teaching methods, application to specific 5th and 6th grade biology curriculum
10. Practical exercises in biology classes, application to the specific biology curriculum of the 5th and 6th grade of elementary school
11. Analysis of less frequent teaching methods in teaching, their merits and advantages.
12. Outdoor education in biology classes

Recommended or required literature:

Turek, I., 2014. Didaktika. Iura Editor Bratislava 3. preprac. a dopl. vyd., 2014, 618 s. ISBN 978-80-8168-004-.5

Petlák, E., 2016. Všeobecná didaktika. Bratislava : Iris 3. vyd., 2016, 322 s., ISBN 978-80-8153-064-7.

Čapek, R., 2015. Moderní didaktika : lexikon výukových a hodnoticích metod. Praha : Grada , 2015, 604 s., ISBN 978-80-247-3450-7.

Čapek, R., 2020. Líný učitel : kompas moderního učitele. Praha : Raabe , 2020, 164 s., ISBN 978-80-7496-456-5.

Sandanusová, A., 2011. Indoor experimenty – biológia. Nitra: Univerzita Konštantína

Uhereková, M. 2008 Biológia pre 5. ročník základných škôl, 1. vyd. Bratislava: Expol pedagogika, 108 s. ISBN: 978-80-8091-130-0

Uhereková, M. 2009 Biológia pre 6. ročník základných škôl, 1. vyd. Bratislava: Expol pedagogika, 96 s. ISBN 978-80-8091-180-5

Sitná, D.: Metódy aktívneho vyučování, Praha, Portál 2009. ISBN 978-80-7367-246-1

Language of instruction:

Notes:

Course evaluation:

Assessed students in total: 7

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): RNDr. Mária Balážová, PhD., Ing. Dana Blahútová, PhD.

Last modification: 26.08.2022

Supervisor(s):

Person responsible for the delivery, development and quality of the study programme:

doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD109A/22	**Course title:** Didactics III
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture / Seminar **Recommended study range:** **hours weekly:** 1 / 1 **hours per semester:** 13 / 13 **Teaching method:** on-site	
Credits: 2	**Working load:** 50 hours
Recommended semester/trimester: 3.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Assessment of the degree of knowledge, skills and competences of the student is carried out on the basis of theoretical and practical examinations during the semester teaching of the subject. Over the duration of this course, students will receive points for the presentation of commented and simulated lessons in exercises or the creation of applicable preparations for a lesson at elementary school in the specified range (40 points), for describing and presenting several (minimum 10) teaching methods and their application to the elementary school biology curriculum for grades 7 to 9 (30 points), for the preparation of an interactive activity to support interdisciplinary relations in accordance with STEM principles (20 points) and for the selection of TED lectures or other trustworthy websites and their application to the biology curriculum of elementary schools for grades 7 to 9 (10 points). In total, a student can get 100 points. Subject assessment: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: The main aim of the course is to provide the terminological base and practical skills for the correct transformation of the scientific system of biology and ecology into a didactic system for mastering the pedagogical theory and practice of the future biology teacher. After completing the course Didactics III, the student will acquire the following knowledge, skills and competencies: Through annotated and simulated lessons, the student acquires competencies for educational activities. Emphasis is placed on the issue of the content of the biological curriculum, which is demanding from the point of view of the concept-forming process, specifically the curriculum for the 7th to 9th grade of elementary school. The student will also gain practical experience with evaluation.	

The student can apply interdisciplinary relationships during the application of STEM principles to specific topics of biology for the 7th to 9th grade of elementary school

Course contents:

The main aim of the course is to provide the terminological base and practical skills for the correct transformation of the scientific system of biology and ecology into a didactic system for mastering the pedagogical theory and practice of the future biology teacher.

After completing the course Didactics III, the student will acquire the following knowledge, skills and competencies:

Through annotated and simulated lessons, the student acquires competencies for educational activities. Emphasis is placed on the issue of the content of the biological curriculum, which is demanding from the point of view of the concept-forming process, specifically the curriculum for the 7th to 9th grade of elementary school.

The student will also gain practical experience with evaluation.

The student can apply interdisciplinary relationships during the application of STEM principles to specific topics of biology for the 7th to 9th grade of elementary school

Recommended or required literature:

Turek, I., 2014. Didaktika. Iura Editor Bratislava 3. preprac. a dopl. vyd., 2014, 618 s. ISBN 978-80-8168-004-.5

Petlák, E., 2016. Všeobecná didaktika. Bratislava : Iris 3. vyd., 2016, 322 s., ISBN 978-80-8153-064-7.

Čapek, R., 2015. Moderní didaktika : lexikon výukových a hodnoticích metod. Praha : Grada , 2015, 604 s., ISBN 978-80-247-3450-7.

Čapek, R., 2020. Líný učitel : kompas moderního učitele. Praha : Raabe , 2020, 164 s., ISBN 978-80-7496-456-5.

Sandanusová, A., 2011. Indoor experimenty – biológia. Nitra: Univerzita Konštantína

Sitná, D.: Metódy aktívneho vyučování, Praha, Portál 2009. ISBN 978-80-7367-246-1

White, D. W 2014 What Is STEM Education and Why Is It Important? Florida Association of Teacher Educators Journal Volume 1 Number 14 2014 1-9. http://www.fate1.org/journals/2014/white.pdf

Uhereková, M. 2011 Biológia pre 7. ročník základnej školy a 2. ročník gymnázia s osemročným štúdiom, 1. vyd. Bratislava: Expol pedagogika, 135 s. ISBN: 978-80-8091-221-5

Uhereková, M. 2013 Biológia: pre 8. ročník základnej školy a 3. ročník gymnázia s osemročným štúdiom: geológia, ekológia, 2. vydanie. Bratislava, Slovenské pedagogické nakladateľstvo - Mladé letá, 127 s. ISBN: 978-80-10-02557-2

Language of instruction:

Notes:

Course evaluation:

Assessed students in total: 11

A	B	C	D	E	FX
72.73	9.09	18.18	0.0	0.0	0.0

Name of lecturer(s): RNDr. Mária Balážová, PhD., Ing. Dana Blahútová, PhD.

Last modification: 26.08.2022

Supervisor(s):

Person responsible for the delivery, development and quality of the study programme:

doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD106A/22	**Course title:** Ecology
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture / Seminar **Recommended study range:** **hours weekly:** 2 / 1 **hours per semester:** 26 / 13 **Teaching method:** on-site	
Credits: 3	**Working load:** 75 hours
Recommended semester/trimester: 2.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Verification of the acquisition of the relevant knowledge, skills and competences of the student is implemented on the basis of theoretical and practical reviews during the semester teaching of the subject. In the course of the semester, there will be two writing verifications, for each additional 10 percentage points. During the semester, the student will develop a project or presentation, as well as the consideration of the selected theme with the issue of ecology, even for these 2 activities can get a maximum of 10 percentage points. To participate in the final written or oral test, it is necessary to obtain from semestral reviews and presentations or project as well as for at least 20 points. For the knowledge of the final written or oral exam, the student can get a maximum of 60 percentage points. The overall assessment will be based on the sum of the percentage points obtained from semestral verifications, consideration, semestral presentation or project and the result of a knowledge from the final written or oral exam. Subject evaluation: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: The aim of the course is to provide basic theoretical knowledge and practical skills to ensure the teaching of ecology in primary and secondary schools. Education results: After completing the subject, the student acquires the following knowledge, skills and competences: - student has extensive knowledge of ecology - student can be applied to solving basic, applied and pedagogical research - student is able to organize themselves separately, lead and analyze the educational process in the subject of ecology with regard to Upgraded trends, as well as implemented in teaching the latest scientific knowledge in the area	

- student can organize and plan a work process is able to work in the team and can take decisions and carry responsibility

Course contents:

1. Environment, Conditions of Existence Organisms, Basic Ecological Laws.
2. Organisms, their relationships to basic ecological factors, organism adaptation.
3. Population.
4. Biocenosis.
5. Ecosystem as a basic ecological unit.
6. Sorting ecosystems.
7. Fabric Energy Flow.
8. Production of organic matter.
9. Biogeochemical cycles.
10. Climabioms.
11. Orobioms and forest vegetation tiers in Slovakia.
12. Man as an ecological factor.
13. Integral ecology.

Recommended or required literature:

Barna, M., Bublinec, E.: Základy všeobecnej ekológie. VERBUM – vydavateľstvo Katolíckej univerzity v Ružomberku, Ružomberok, 2016, 130 s. ISBN: 978-80-561-0351-7.
Bedrna, Z.: Environmentálne pôdoznalectvo. Veda, Bratislava, 2002, 352 s.
Bublinec, E., Machava, J., Demko, J., Macko, J.: Základy prírodného prostredia – Pedológia. VERBUM – vydavateľstvo Katolíckej univerzity v Ružomberku, Ružomberok, 2018, 192 s. ISBN: 978-80-561-0530-6.
Odum, E. P.: Základy ekologie. Academia, Praha, 1977, 733 s.
Reichwalder, P. , Jablonský, J.: Všeobecná geológia 1. Univerzita Komenského, Bratislava, 2003, 244 s.
Reichwalder, P. , Jablonský, J.: Všeobecná geológia 2. Univerzita Komenského, Bratislava, 2003, 507 s.
Saniga, M.: Ekologické úvahy. Liptovské Revúce: Miroslav SANIGA, 2007, 107 s. ISBN: 978-80-89253-16-6.
Saniga, M.: Podnikanie v súlade s prírodou. Dolná Tižina: Alfa a Omega, s. r. o., 2015, 50 s. ISBN: 978-80-971266-7-4.
Saniga, M.: Všetko „naj...“ o našich vtákoch. Perfekt, Bratislava, 2015, 271 s. ISBN: 978-80-8046-732-6.
Saniga, M.: Rok v prírode. Perfekt, Bratislava, 2016, 224 s. ISBN: 978-80-8046-774-6.
Saniga, M.: Naša príroda v kocke. Bratislava: Vydavateľstvo SAV, 2016, 181 s. ISBN: 978-80-224-1557-6.
Saniga, M.: Kresťan a ekológia. Bratislava: Don Bosco, 2018, 40 s. ISBN: 978-80-8074-394-9.
Townsend, C. R., Begon, M., Harper, J. L.: Základy ekologie. Univerzita Palackého v Olomouci, Olomouc 2010, 506 s.

Language of instruction:

Notes:

Course evaluation:

Assessed students in total: 7

A	B	C	D	E	FX
42.86	42.86	14.29	0.0	0.0	0.0

Name of lecturer(s): doc. Ing. Miroslav Saniga, CSc., Ing. Jozef Macko, PhD.
Last modification: 23.08.2022
Supervisor(s): **Person responsible for the delivery, development and quality of the study programme:** doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD103B/22	**Course title:** Education to sustainable development
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 1.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Verification of the degree of acquisition of the relevant knowledge, skills and competences of the student is carried out on the basis of theoretical and practical assignments during the course duration. In total the student will prepare 5 papers with a scope of at least 6 pages regarding possible solutions to the individual presented problems from the individual's point of view. In this way, the student's theoretical basis is verified and the student's self-reflection within the given issue is activated. He/she can get 100 points in total, 20 points for each job. Subject assessment: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: The main aim of the course is education to sustainable development within the goals Quality of health and life (4), Responsible production and consumption (12), Climate protection (13), Life under water (14) and Life on land (15). The basis is both the right content and enough teachers qualified in this field and mastering the right methods and psychological strategies. After completing the course Education to sustainable development, the student will acquire the following knowledge, skills and competencies: The student acquires the concept of education for sustainable development with a focus on the environmental problems of the planet (objectives 5, 12, 13, 14 and 15). Based on theoretical knowledge, the student can assess the current state of local as well as at the global level. The student implements appropriate practical activities aimed at improving the overall situation from the individual's point of view and in accordance with education for sustainable development.	
Course contents: Syllabus/Indicative Content: 1. Concept of Sustainable development at the global level.	

2. Education for sustainable development at the global level, goals 5, 12, 13, 14 and 15
3. The main environmental global problems of the planet
4. Climate change and possible solutions at the global and local level,
5. Loss of biodiversity, specific examples and consequences
6. Degradation of habitats and possible solutions at the global and local level
7. Invasive organisms and possible solutions at the global and local level
8. Education for sustainable development at the local level, goals 5, 12, 13, 14 and 15
9. Possibilities of the individual in achieving sustainable development within the chosen goals
10. Ecological footprint
11. Education for sustainable development (goals 5, 12, 13, 14 and 15) in biology lessons
12. Education for sustainable development (goals 5, 12, 13, 14 and 15) in cross-cutting topics

Recommended or required literature:

UNESCO Education for sustainable development: a roadmap. ESD for 2030. United Nations Educational, Scientific and Cultural Organization, 7, place de Fontenoy, 75352 Paris 07 SP, France, 66 s. ISBN: 978-92-3-100394-3 https://unesdoc.unesco.org/ark:/48223/pf0000374802.locale=en

Ivanegová, B. 2020 Sprievodca neformálnou environmentálnou výchovou a vzdelávaním pre udržateľný rozvoj na Slovensku. Inšpirácie pre učiteľov a pracovníkov s mládežou. 1. vyd. Ministerstvo životného prostredia Slovenskej republiky Námestie Ľ. Štúra 1, 812 35 7Bratislava, ISBN: 978-80-88833-72-https://www.minzp.sk/files/sprievodca-neformalnou-environmentalnou-vychovou-slovensku.pdf

De Vries, B.J.M. 2013. Sustainability science, 1st ed. New York, NY: Cambridge Univ. Press, ISBN: 978-0-521-18470-0

Kress, W.J. et al. 2017 Living in the anthropocene: earth in the age of humans. Washington, DC: Smithsonian Books, 198 s. ISBN: 978-1-58834-645-2

OECD environmental performance review: Slovak Republic 2011/OECD, [1. vyd.] ISBN 978-92-64-12182-9 http://dx.doi.org/10.1787/978964121836-en

Townsend, C. R., Begon, M., Harper, J. L. 2010 Základy ekologie. 1. české vyd. Olomouc: Univerzita Palackého

Language of instruction:

Notes:

Course evaluation:

Assessed students in total: 9

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): RNDr. Mária Balážová, PhD.

Last modification: 24.08.2022

Supervisor(s):

Person responsible for the delivery, development and quality of the study programme:

doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD102A/22	**Course title:** Environmental Chemistry
Type and range of planned learning activities and teaching methods: **Form of instruction:** Seminar **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 1.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Verification of the degree of acquisition of the relevant knowledge, skills and competencies of the student is carried out on the basis of theoretical and practical examinations during the semester teaching of the subject. During the semester, the student demonstrates his theoretical knowledge and practical skills in applied chemistry to the environment, while monitoring and analyzing selected indicators of environmental components. Continuous assessment during the semester: - The student demonstrates practical skills in monitoring selected components of the environment in the field and the laboratory can obtain max. 10 points. - The student prepares and presents a semester paper on a specific topic in accordance with the content outline of the subject (maximum 40 points). Final assessment: cumulative percentage gain from the interim assessment (50%) and the oral practical exam (50%). Subject evaluation: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: After completing the subject, the student will acquire the following knowledge, skills and competences: - is able to deal critically with the theoretical background from applied chemistry to the environment, - knows how to implement, monitor and analyze in the laboratory, in the field the quality of monitored indicators for selected components of the environment, - is able to analyze and synthesize new knowledge from professional and scientific literature in the field of environmental chemistry and implement them appropriately in pedagogical practice.	

Course contents:

1. Biosphere, human living and working environment.
2. Air and its pollution.
3. Water and its pollution.
4. Land and its protection.
5. Treatment and purification of water.
6. Limitation of air pollution.
7. Radioactive contamination of the natural environment.
8. Waste disposal.
9. Assessment of pollution of environmental components.
10. Water analysis.
11. Soil analysis.
12. Assessment and management of environmental risks.

Recommended or required literature:

ILAVSKÝ, J. a kol., 2008. Chémia vody a hydrobiológia. STU Bratislava, 2008, 303 s., ISBN 978-80-227-2930-7.
PITTER, P., 2009. Hydrochemie. VŠCHT Praha, 2009, 579 s., ISBN 978-80-7080-701-9.
VYSOUDIL M., 2002. Ochrana ovzduší. Univerzita Palackého v Olomouci, Olomouc, 2002, 114 s., ISBN 80-244-0400-1.
PROUSEK, J., ČÍK, G., 2011. Základy ekológie a environmentalistiky. STU, Bratislava, 2011, 212 s., ISBN 978-80-227-3601-5.
ČERMÁK, O., a kol., Životné prostredie. Bratislava : Slovenská technická univerzita , 2008, 390 s. ISBN 978-80-227-2958-1.

Language of instruction:

English language.

Notes:

Course evaluation:

Assessed students in total: 12

A	B	C	D	E	FX
91.67	0.0	0.0	8.33	0.0	0.0

Name of lecturer(s): Ing. Dana Blahútová, PhD.

Last modification: 22.08.2022

Supervisor(s):

Person responsible for the delivery, development and quality of the study programme:

doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD110A/22	**Course title:** Environmental Education
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 2	**Working load:** 50 hours
Recommended semester/trimester: 3.	
Level of study: II.	
Prerequisities:	

Requirements for passing the course:
Verification of the acquisition of the relevant knowledge, skills and competences of the student is implemented on the basis of theoretical and practical reviews during the semester teaching of the subject. Total final evaluation: 1) The student will develop a project or presentation on it chosen theme with environmental issues - 50 percentage points, 2) Student writes a speech, consideration or other literary act (poem, essay, fairy tale, short story) with environmental content - 50 percentage points. Student presents the literary act, project or presentation at the end of the semester or at the exam before the plenary of classmates.
Subject evaluation:
A – 100%-93%
B – 92%-85%
C – 84%-77%
D – 76%-69%
E – 68%-60%
Fx – 59%- 0%

Learning outcomes of the course:
The aim of the course is to provide basic theoretical knowledge and practical skills for teaching in environmental education in primary and secondary schools.
Education results:
After completing the course, the student gains the following knowledge, skills and competences: - the student understands the individual context between the biological science disciplines related to science and the specifics of environmental education at such a degree so that it can implement it as an integrated object to be implemented into their approval objects and was properly prepared for Implementation of qualified ENV coordinator at primary and secondary schools
- learns with appropriate methods and forms to mediate environmental information by various target groups of primary schools and students and prepare short-term and long-term environmental education projects with a proper science and environmental literacy, which it allows him to work on environmental focus projects

Course contents:
1. Basic concepts in the teaching of environmental education.

2. Education methods in environmental education.
3. Holistic access in environmental education.
4. Implementation of environmental education in integration objects.
5. Nature dialog - responsible personal access to every person to nature and life-building.
6. Environment and laws.
7. Scientific knowledge to modify and guide our conduct on nature and the environment.
8. Nature in the surroundings - explanation of primary natural - minerals, minerals, plants.
9. Nature in the surroundings - explanation of primary natural - animals.
10. Looking into relationships between naturalities on the example of model ecosystems (forest, meadow, marsh).
11. Methods of forming organic feelings and awareness of pupils from kindergartens to secondary school students on an example of an expert learning.
12. Man's behaviour to nature should be consistent with God's will.

Recommended or required literature:

Andreotti, V. a kol.: Environmentálna výchova v súvislostiach. Vydavateľstvo TU Zvolen, 2015. 267 s. ISBN: 978-80-228-2794-2.
Andreotti, V. a kol.: Väčšinový svet. Vydavateľstvo TU Zvolen, 2016. 160 s. ISBN: 978-80-228-2885-7.
Saniga, M.: Rozprávky prababičky prírody. Bratislava: Epos, 2003, 164 s. ISBN: 80-88977-84-3.
Saniga, M.: Rozprávky spod Čierneho kameňa. Bratislava: Epos, 2004, 174 s. ISBN: 80-89977-94-0.
Saniga, M.: Ekologické úvahy. Liptovské Revúce: Miroslav SANIGA, 2007, 107 s. ISBN: 978-80-89253-16-6.
Saniga, M.: Kalendár prírody. Banská Bystrica: Slovenská agentúra životného prostredia, 2011, 400 s. ISBN: 978-80-89503-10-0.
Saniga, M.: Ne(po)vinná čítanka malého prírodovedca – 1. diel: Rozprávky z dolinôčky Olinôčky. Banská Bystrica: EU-DTP-EUROART, 2010, 127 s. ISBN: 978-80-970384-3-4.
Saniga, M.: Ne(po)vinná čítanka malého prírodovedca – 2. diel: Rozprávky z dolinôčky Olinôčky. Banská Bystrica: EU-DTP-EUROART, 2011, 127 s. ISBN: 978-80-970692-8-5.
Saniga, M.: Zrkadlenie Stvoriteľa v prírode. Bratislava: Karmelitánske nakladateľstvo, 2013, 96 s. ISBN: 978-80-8135-041-2.
Saniga, M.: Božia signatúra na úžasnom diele prírody. Bratislava: Karmelitánske nakladateľstvo, 2014, 120 s. ISBN: 978-80-8135-048-1.
Saniga, M.: Podnikanie v súlade s prírodou. Dolná Tižina: Alfa a Omega, s. r. o., 2015, 50 s. ISBN: 978-80-971266-7-4.
Saniga, M.: Životopisy prírodnín v riekankách. Liptovské Revúce: Miroslav Saniga, 2015, 72 s. ISBN: 978-80-971999-9-9.
Saniga, M.: Rok v prírode. Bratislava: Perfekt, 2016, 224 s. ISBN: 978-80-8046-774-6.
Saniga, M.: Naša príroda v kocke. Bratislava: Vydavateľstvo SAV, 2016, 181 s. ISBN: 978-80-224-1557-6.
Saniga, M.: Kresťan a ekológia. Bratislava: Don Bosco, 2018, 40 s. ISBN: 978-80-8074-394-9.

Language of instruction:

Notes:

Course evaluation:
Assessed students in total: 11

A	B	C	D	E	FX
81.82	18.18	0.0	0.0	0.0	0.0

Name of lecturer(s): doc. Ing. Miroslav Saniga, CSc.

Last modification: 23.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD110B/22	**Course title:** Environmental Ethics and Bioethics
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 3.	
Level of study: II.	
Prerequisities:	

Requirements for passing the course:

Verification of the degree of acquisition of the relevant knowledge, skills and competences of the student is carried out on the basis of theoretical and practical examinations during the semester teaching of the subject.

Continuous assessment: active participation and partial written tests for which the student receives max. 40 points. Final assessment: oral exam with presentation of the treated topic. At least 60 points must be obtained to successfully complete the subject.

Subject evaluation:

A – 100%-93%
B – 92%-85%
C – 84%-77%
D – 76%-69%
E – 68%-60%
Fx – 59%- 0%

Learning outcomes of the course:

The aim of the subject is to provide basic theoretical knowledge and practical skills for the provision of teaching within the subject of biology in the field of environmental education and bioethics at primary and secondary schools.

Learning outcomes:

- The student can apply the acquired knowledge from the point of view of contemporary philosophical concepts to the relationship of man to nature and basic ethical principles in relation to life in general and specifically in relation to human life.
- Has developed argumentation skills in ethical philosophy and its methods.

Course contents:

1. Brief outline of the problem of the current threat to the environment.
2. Description of philosophical concepts presenting their starting points for nature protection (anthropocentric, biocentric and integrating concepts).
3. Basic ethical principles of the given relationship based on the value of the human person and human rights.
4. A short outline of theological conceptions of man's responsibility for creation.

5. Definition of concepts and bioethical problems.
6. Short history of bioethics.
7. Ethical relationship of man to nature.
8 - 13 Analysis of ethical problems in relation to human life (contraceptive techniques, abortion, artificial insemination, genetic manipulations, prenatal diagnostics, cloning, murder, capital punishment, euthanasia, etc.).

Recommended or required literature:

Language of instruction:
English language.

Notes:

Course evaluation:
Assessed students in total: 5

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): doc. Ing. Jaroslav Demko, CSc.

Last modification: 30.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD106B/22	**Course title:** Etology
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 2.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Verification of the relevant knowledge, skills and competencies of the student is carried out based on theoretical and practical examinations during the semester teaching. During the semester, the student demonstrates his / her skills by working independently on characterizing individual types of animal behaviour. After completing the subject, he / she will undergo an examination of his theoretical knowledge. Final assessment: total percentage gain from practical driving tests 50% and from theoretical knowledge 50%. Subject evaluation: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: Subject objective: The aim of the course is to introduce students to the most important forms and ways of animal behaviour, as well as the methods and techniques of its study. Education outcomes: (knowledge, skills, and competencies): - the student has acquired basic knowledge about different types of animal behaviour - can identify and differentiate forms of innate and learned behaviour - he / she orients himself / herself in the zoological system and knows how to identify species with a higher degree of learning ability - master the basic methodologies and procedures for the study of animal behaviour	
Course contents: 1. General characteristics of ethology as a scientific discipline and its historical development. 2. Methods and techniques of studying animal behaviour. 3. Internal control of animal behaviour - chemical and nervous regulation. 4. Basic forms of animal behaviour - innate behaviour.	

5. Learned forms of animal behaviour and the ability to learn.
6. Different types and forms of communication between animals.
7. Social behaviour - forms of behaviour in a group of animals.
8. Sexual behaviour - forms of behaviour related to reproduction.
9. Parental behaviour and care of offspring.
10. Behaviour under the influence of daily and seasonal rhythms.
11. Abnormal and pathological forms of animal behaviour.
12. Types and forms of human behaviour from the point of view of ethology.

Recommended or required literature:

Language of instruction:

Notes:

Course evaluation:
Assessed students in total: 9

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): doc. RNDr. Michal Baláž, PhD.

Last modification: 24.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD105A/22	**Course title:** Human ecology
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture **Recommended study range:** **hours weekly:** 2 **hours per semester:** 26 **Teaching method:** on-site	
Credits: 2	**Working load:** 50 hours
Recommended semester/trimester: 2.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: During the semester, students complete several partial tests and tasks aimed at continuous assessments of understanding of the subject matter and with the aim of ensuring steady continuity of the subject matter and self-evaluation of the student. At the end of the semester, they will take a final exit written test, which will be used to determine the final assessment of the subject. Subject assessment: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: The aim of the subject is to define the regularities of human interaction with its environment from the period before the creation of the species to the present day After completing the course Human ecology, the student will acquire the following knowledge, skills and competencies: The student will gain information about hypotheses and theories of biological evolution, about the origin of life and the evolution of organisms up to the origin of our species The student can characterize the origin of human ecosystems, the settlement of individual continents, adaptations to the conditions of the external environment and the variability of modern man The student can apply this knowledge within the framework of contemporary anthropocenosis with an emphasis on nature protection, health and ethical issues.	
Course contents: Syllabus/Indicative Content: 1. Theories of the origin of life, 2. Darwin and his theory, Mechanisms of evolution 3. Human evolution, Pre-sapient ancestors 4. Homo sapiens, anatomical characteristics	

5. Competition of our species with other Homo species
6. Human adaptations to abiotic environmental factors
7. Human interactions with biotic environmental factors, parasitic infections
8. Human interactions with biotic environmental factors, microbial infections
9. Dispersal and migration of our species,
10. The emergence of agriculture and its impact on the ecology of our species
11. Population growth, factors influencing population birth rate and mortality rate
12. Urbanization
13. Human impact on the environment

Recommended or required literature:

Kardong, K.V. An introduction to biological evolution, 2nd ed. New York: McGraw-Hill Higher Education, 2008
Svoboda J.A. Předkové : evoluce člověka, 2. uprav. vyd. Praha: Academia, 2017
Townsend, C. R., Begon, M., Harper, J. L. Základy ekologie. 1. české vyd. Olomouc: Univerzita Palackého, 2010
Flegr, J. Úvod do evoluční biologie. Praha : Academia, 2007

Language of instruction:

Notes:

Course evaluation:
Assessed students in total: 7

A	B	C	D	E	FX
0.0	57.14	28.57	14.29	0.0	0.0

Name of lecturer(s): RNDr. Mária Balážová, PhD.

Last modification: 23.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD107B/22	**Course title:** Information and Communication Technologies in Biology
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 2.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Assessment of relevant knowledge, skills and competences of the student is carried out on the basis of the completion of practical assignments during the semester teaching of the course. In total, the student works out 6 assignments, for each he can get 10 points. The evaluation of the course will depend on the total number of points obtained (60 points). Course assessment: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: The main aim of the course is to learn how to effectively use digital technologies and the Internet both theoretically and practically to improve education in the field of biology and ecology After completing the course information and communication technologies in biology, the student will acquire the following knowledge, skills and competencies: The student can control and correctly use basic information and communication technologies (ICT) in biology classes. The student is able to use ICT in biology lessons with regard to the didactic point of view. Acquired theoretical knowledge will enable the student to use ICT to engage students in various extracurricular activities and participate in various national and global events directly from school.	
Course contents: Syllabus/Indicative Content: 1. Common mistakes in using Power-point. 2. Working with an interactive whiteboard in biology classes. 3. Searching, evaluating and working with the use of various software designed for biology classes. 4. Searching, evaluating and working with the use of various applications intended for biology lessons. 5. WWW in biology classes.	

6. Search, assessment of suitability and inclusion of electronic games in teaching biology.
7. E-learning in teaching biology.
8. Finding and developing projects to improve information technology in teaching biology.
9. Search and sorting of suitable actions with a biological focus and instructions for appropriate involvement.
10. Searching and sorting suitable competitions at extracurricular level and instructions for suitable participation.
11. Searching for appropriate discussion forums and teleprojects aimed at improving the quality of biology teaching with regard to didactic and ethical aspects.
12. Social networks and biology lessons

Recommended or required literature:

1. Mázorová H., Trnková J. 2000. Počítače a Internet pre učiteľov biológie. SPN, Bratislava.
2. Kalaš I. 1999. Integrácia informačných a komunikačných technológií do všeobecného vzdelania. Návrh vládnej koncepcie, ŠPÚ, Bratislava.

Language of instruction:

Notes:

Course evaluation:
Assessed students in total: 6

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): RNDr. Mária Balážová, PhD.

Last modification: 26.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD112A/22	**Course title:** Introduction to Statistics for Biologists
Type and range of planned learning activities and teaching methods: **Form of instruction:** Seminar **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 4.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Assessment of acquired knowledge, skills and competencies of the student is carried out on the basis of the practical elaboration of tasks in the table operating system during the semester teaching of the subject. In total, the statistician must analyze three tasks, for each of which he can get 20 points. In total, he can get 60 points. Course assessment: A – 100%-93% B – 92%-85% C – 84%-77% D – 76%-69% E – 68%-60% Fx – 59%- 0%	
Learning outcomes of the course: The aim of the course is to acquire basic practical skills in the analysis obtained through experimental, investigative and pedagogical research. After completing the course Introduction to Statistics for Biologists, the student will acquire the following knowledge, skills and competencies: The student will master the basics of working with a spreadsheet operating system and data preparation for further statistical processing. The student can perform basic descriptive statistics and determine data distributions. The student can use appropriate parametric and non-parametric statistical tests for biological data processing.	
Course contents: Syllabus/Indicative Content: 1. Statistics and biological disciplines. 2. Basic functions of the table operating system 3. Work with a table operating system 4. Preparation of biological data and variables. 5. Quantitative and qualitative data 6. Descriptive statistics of biological quantitative data.	

7. Distribution of random variables.
8. Basic comparative parametric statistical tests.
9. Basic comparative non-parametric statistical tests.
10. Correlation and regression
11. Brief overview of multifactor analyzes and their use
12. Practical evaluation of own results of diploma thesis
13. Practical evaluation of own results of diploma thesis

Recommended or required literature:

Zvára, K. 1999. Biostatistika. Karolínum, Praha.
Rimarčík, M. 2006. Základy štatistiky. Fakulta zdravotníctva a sociálnej práce bl. P. P. Gojdiča, Prešov.
Magnello, E., Loon, B. V. 2010. Seznamte se...Statistika. Portál, Praha.
Zvárová, J. 2011 Základy statistiky pro biomedicínské obory. 2., dopl. vyd. Praha: Karolinum
Škaloudová, A. 1998 Statistika v pedagogickém a psychologickém výskumu. Praha: Pedagogická fakulta Univerzity Karlovy
Chajdiak, J. Štatistika jednoducho v Exceli, 1. vyd., Bratislava: STATIS

Language of instruction:

Notes:

Course evaluation:
Assessed students in total: 4

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): MVDr. Gabriela Hrkľová, PhD., RNDr. Mária Balážová, PhD.

Last modification: 30.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD104B/22	**Course title:** Medicinal Plants
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 2.	
Level of study: II.	
Prerequisities:	

Requirements for passing the course:

Verification of the degree of acquisition of the relevant knowledge, skills and competences of the student is carried out on the basis of theoretical and practical examinations during the semester teaching of the subject.

Continuous assessment: active participation and partial written tests for which the student receives max. 40 points. Final assessment: oral exam with presentation of the treated topic. At least 60 points must be obtained to successfully complete the subject.

Subject evaluation:

A – 100%-93%
B – 92%-85%
C – 84%-77%
D – 76%-69%
E – 68%-60%
Fx – 59%- 0%

Learning outcomes of the course:

Objective of the subject:

The goal of the course is to provide basic theoretical knowledge and practical skills for teaching biology in the field of medicinal and useful plants in primary and secondary schools.

Learning outcomes:

- the student masters the basic morphological and physiological characteristics of plants with regard to medicinal parts and isolates,
- knows the methods of using active substances of individual species and according to the procedures of the Slovak European Pharmacopoeia and the Slovak Pharmaceutical Code,
- is able to master procedures for the preparation of products made from medicinal plants.

Course contents:

1. History of the use of medicinal plants
2. The importance of medicinal plants
3. Phytopharmacy
4. Medicinal effects of individual species according to their systematic classification.
5. Collection of medicinal plants

6. Drying the drug
7. Proper processing and storage of dried material
8. Preparation of teas
9. Production of ointments.
10. Production of tinctures.
11 - 13Usage with effects on individual anatomical and functional systems of a person.

Recommended or required literature:

BUBLINEC, E., MACHAVA, J., DEMKO, J., MACKO, J. Základy prírodného prostredia. Verbum. Ružomberok, 2018. 191 strán ISBN 978-80-561-0530-6
SCHILLER, R. Zdravie z lekárne sv. Hildegardy : liečivé prostriedky v súlade s prírodou : ako si uchovať životnú energiu. Ikar , 1998. 104 s., ISBN 80-7118-625-2
THURZOVÁ, Ľ. Malý atlas liečivých rastlín. Osveta. Martin, 1983. 448 s.
MIKA, K. Fytoterapia z pera. Osveta, Martin, 2016. 512 s. ISBN 978-80-8063-436-0

Language of instruction:
English language.

Notes:

Course evaluation:
Assessed students in total: 7

A	B	C	D	E	FX
85.71	14.29	0.0	0.0	0.0	0.0

Name of lecturer(s): doc. Ing. Jaroslav Demko, CSc.

Last modification: 30.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD108B/22	**Course title:** Microbiology and virology
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 3.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course:	
Learning outcomes of the course:	
Course contents:	
Recommended or required literature:	
Language of instruction:	
Notes:	

Course evaluation:
Assessed students in total: 5

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): MVDr. Gabriela Hrkľová, PhD.	
Last modification: 26.08.2022	
Supervisor(s): **Person responsible for the delivery, development and quality of the study programme:** doc. Ing. Miroslav Saniga, CSc.	

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD100B/22	**Course title:** Plant Ecology
Type and range of planned learning activities and teaching methods: **Form of instruction:** Seminar **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 1.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Verification of the degree of acquisition of the relevant knowledge, skills and competences of the student is carried out on the basis of theoretical and practical examinations during the semester teaching of the subject. During the semester, the student demonstrates his theoretical knowledge and practical skills in the form of a semester project from various areas of plant ecology. For the independent preparation, submission and defense of the project with subsequent self-reflection, the student can receive max. 100 points. The final evaluation will be based on the total number of points obtained from the semester project. A – 100%-93%, B – 92%-85%, C – 84%-77%, D – 76%-69%, E – 68%-60%, Fx – 59%- 0%	
Learning outcomes of the course: Objective of the subject: The aim of the subject is to provide basic theoretical knowledge and practical skills to ensure teaching within the biology subject in the field of plant ecology at primary and secondary schools. Learning outcomes: - The student will gain knowledge about the general principles conditioning the variability of plant populations and their communities, - The student masters the basic terminology of plant ecology, ontogenesis, life strategies - The student has the skills to use methods and procedures used in ecological research and phytocenology. - It is able to handle the indicative value of plant populations and plant-environment relationships.	
Course contents: Ecology and its place in the system of scientific disciplines. ecological factors, Basic abiotic factors in relation to plant populations Basic biotic factors in relation to plant populations Food as an ecological factor, basic methods of nutrition of living organisms Adaptations of plants to environmental factors Ecological differentiation of plants Ecology of populations, intraspecific relationships, signs and characteristics of populations.	

Ecology of communities, interspecies relations
Signs and properties of phytocenoses
Strategies of plant populations
Invasive plants
Ecological-biogeographic characteristics of biomes.

Recommended or required literature:

BARNA, M., BUBLINEC E. Základy všeobecnej ekológie. Verbum: Katolícka univerzita Ružomberok, 2016. 129 s. ISBN 978-80-561-0351-7
BEGON, H., HARPER, J. J., TOWNSEND, C. R. 1999. Ekologie: jedinci, populace a společenstva. Vyd. Univerzity Paláckeho, Olomouc. 949 p. ISBN 80-7067-695-7
BUBLINEC, E., MACHAVA, J., DEMKO, J., MACKO, J. Základy prírodného prostredia. Verbum. Ružomberok, 2018. 191 strán ISBN 978-80-561-0530-6
COLIN R. TOWNSEND, C.R., BEGON, M., HARPER, J.L. Základy ekologie. Univerzita Palackého, Olomouc, 2010, 505 s. ISBN 978-80-244-2478-1
BUBLINEC, E., MACHAVA, J., JANČEKOVÁ, M., DEMKO, J., MACKO, J., BLAHÚTOVÁ, D. Chemizmus zrážok a jeho dynamika v Liptovskej kotline. Ružomberok, Verbum - vydavateľstvo KU, 2014, 156 s. ISBN 978-80-561-0192-6.
MACKO J.: Rastliny a hmyz . Biológia v škole dnes a zajtra IV. : zborník referátov z konferencie : Ružomberok 8. - 10. septembra 2008 / ed. Jozef Macko. - Ružomberok : Pedagogická fakulta Katolíckej univerzity v Ružomberku, 2009. - 124 s. - ISBN 978-80-8084-477-6
MORAVEC, J. Fytocenologie. Academia Praha. 1994. 403 s. ISBN 80-200-0128-X

Language of instruction:

Notes:

Course evaluation:
Assessed students in total: 7

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): Ing. Jozef Macko, PhD.

Last modification: 23.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD108A/22	**Course title:** Plant Physiology
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture / Seminar **Recommended study range:** **hours weekly:** 2 / 1 **hours per semester:** 26 / 13 **Teaching method:** on-site	
Credits: 2	**Working load:** 50 hours
Recommended semester/trimester: 3.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: Verification of the degree of acquisition of the relevant knowledge, skills and competences of the student is carried out on the basis of theoretical and practical examinations during the semester teaching of the subject. During the semester, the student proves his theoretical knowledge in the field of plant physiology in the form of a partial exam for which he can get a maximum of 20 points. Subsequently, he demonstrates practical skills when working independently in the laboratory. For completed and submitted laboratory exercises, the student can receive max. 20 points. In order to participate in the exam, it is necessary to obtain at least 50% from the partial exam and submitted assignments. From the final exam, the student can get max. 60 points. The final evaluation will be based on the total number of points obtained from the background checks and the oral exam. Subject evaluation: A – 100%-93%, B – 92%-85%, C – 84%-77%, D – 76%-69%, E – 68%-60%, Fx – 59%- 0%	
Learning outcomes of the course: Objective of the subject: The aim of the subject is to provide basic theoretical knowledge and practical skills for the provision of teaching within the subject of biology in the field of plant organism functioning in primary and secondary schools. Learning outcomes: - The student can define the basic functions of a plant organism in connection with the anatomy and morphology of plants. - The student knows practical and theoretical connections about the physiological manifestations of plant organisms. - The student has the skills to use methods and procedures when working with a microscope and microscopic material during laboratory work. - The student is able to solve problems with material and laboratory equipment during laboratory exercises and practical teaching.	
Course contents: Water regime of plants Mineral nutrition of plants	

Transpiration
Photosynthesis
Respiration
Metabolism of lipids, proteins, N, S and P
Secondary metabolites
Photoreceptors
Plant hormones
Biorhythms, germination, flowering, aging
Movements of plants
Physiology of stress
Plant biotechnology

Recommended or required literature:

BUBLINEC, E., DEMKO, J., MACKO, J. MACHAVA, J., Základy prírodného prostredia 1. časť : Pedológia Ružomberok, VERBUM - vydavateľstvo KU, 2018. - 191 s. ISBN 978-80-561-0530-6
REPČÁK, M., PASTÝRIK, Ľ., ERDELSKÝ, K., GAŠPARÍKOVÁ, O., JEŠKO, T., MISTRÍK, I., Fyziológia rastlín Bratislava : Univerzita Komenského , 2008, 307 s. ISBN 978-80-223-2470-0
ERDELSKÝ, K., MASAROVIČOVÁ, E. Praktikum z fyziológie rastlín. Univerzita Komenského, Bratislava, 2012, 136 s. ISBN 978-80-223-3205-7
MASAROVIČOVÁ, E., REPČÁK, M. Fyziológia rastlín. Univerzita Komenského, Bratislava , 2015 319 s. ISBN 978-80-223-3687-1
SLOVÁKOVÁ, Ľ: Fyziologické procesy rastlín v podmienkach stresu, Univerzita Komenského, Bratislava, 2007, 238 s. ISBN 978-80-223-2322-2

Language of instruction:

Notes:

Course evaluation:
Assessed students in total: 11

A	B	C	D	E	FX
18.18	36.36	45.45	0.0	0.0	0.0

Name of lecturer(s): Ing. Jozef Macko, PhD., doc. Ing. Jaroslav Demko, CSc.

Last modification: 23.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KBE/Bi-MD101B/22	**Course title:** Toxicology
Type and range of planned learning activities and teaching methods: **Form of instruction:** Seminar **Recommended study range:** **hours weekly:** 1 **hours per semester:** 13 **Teaching method:** on-site	
Credits: 1	**Working load:** 25 hours
Recommended semester/trimester: 1.	
Level of study: II.	
Prerequisities:	

Requirements for passing the course:

Verification of the degree of acquisition of the relevant knowledge, skills and competences of the student is carried out on the basis of theoretical and practical examinations during the semester teaching of the subject.

During the semester, the student demonstrates his theoretical knowledge of toxicology, the effect of toxic substances and their mechanism of transformation in the organism, natural toxins and the toxicological significance of selected groups of substances.

Continuous assessment during the semester:

- Active participation in seminars (maximum 10 points).
- The student prepares and presents seminar papers on a specific topic in accordance with the subject outline (maximum 40 points).

The final assessment of the subject is in the form of a written exam with a total percentage gain of 50% and a verification of practical skills from an ongoing assessment with a gain of 50%.

Subject evaluation:

A – 100%-93%
B – 92%-85%
C – 84%-77%
D – 76%-69%
E – 68%-60%
Fx – 59%- 0%

Learning outcomes of the course:

After completing the subject, the student will acquire the following knowledge, skills and competences:

- knows and possesses extensive knowledge of toxicology,
- can present acquired knowledge and skills and discuss current problems in the field of toxicology and environmental health,
- is able to analyze and synthesize new knowledge from professional and scientific literature in the field of toxicology and implement them appropriately in the teaching process.

Course contents:

1. Chemistry and toxicology.

2. Poison, toxicity concept and assessment.
3. The effect of toxic substances and their entry into the body.
4. The mechanism of transformations of substances and their compounds in the organism.
5.-7. Toxic effect of elements and their compounds.
8.-10. Natural poisons and toxins.
11. Hygiene and occupational safety.
12. Legal regulations of the Slovak Republic and the EU related to the issue of chemical safety.

Recommended or required literature:

PROKEŠ, J., 2005. Základy toxikológie: obecná toxikologie a ekotoxikologie. Galén - Karolinum, Praha, 2005, 248 s., ISBN 80-7262-301-X (Galén), ISBN 80-246-1085-X (Karolinum).
DURDIAK, J., 2010. Vybrané kapitoly z toxikológie. Verbum, Ružomberok, 2010, 128 s., ISBN 978-80-8084-564-3.
HRDINA, V., a kol., 2004. Přírodní toxiny a jedy. Galén - Karolinum, Praha, 2004, 302 s., ISBN 80-7262-256-0, ISBN 80-246-0823-5.
FARGAŠOVÁ, A., Enviromentálna toxikológia a všeobecná ekotoxikológia. Bratislava : Orman , 2008, 350 s., ISBN 978-80-969675-6-8.
LINHART, I.,KOČÍ, R., 2012. Toxikologie : interakce škodlivých látek s živými organismy, jejich mechanismy, projevy a důsledky. Praha : Vysoká škola chemicko-technologická , 2012, 375 s., ISBN 978-80-7080-806-1.

Language of instruction:
English language.

Notes:

Course evaluation:
Assessed students in total: 2

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Name of lecturer(s): Ing. Dana Blahútová, PhD.

Last modification: 22.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Ing. Miroslav Saniga, CSc.