OBSAH

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD105A/22	**Course title:** Applications of mathematics in non-mathematical disciplines
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: Verification of the extent to which the student has acquired the relevant knowledge, skills and competences is carried out on the basis of a two-stage examination: (a) continuous assessment in the form of written work: 40% (b) final assessment: written examination: 20%, oral examination: 40% Credit will not be awarded to a student who obtains less than 50% of the maximum possible marks for part (a) or part (b). Course 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 is acquainted with the use of basic knowledge and methods from some areas of mathematics and their applications in solving practical problems in various non-mathematical disciplines (natural sciences, engineering, economics and humanities), especially with regard to what is taught in school.	
Course contents: 1. Basic mathematical knowledge and procedures used in solving of practical problems. 2. Mathematics in physics. 3. Mathematics in biology and chemistry. 4. Mathematics in geography. 5. Mathematics in linguistics. 6. Fundamentals of game theory. 7. Cryptology. 8. Mathematics in economic sciences. 9. Mathematics and psychology. 10. Mathematics in fine and musical arts.	

Recommended or required literature:

1. Derbyshire, J.: Posedlost prvočísly. Academia, Praha 2007.
2. Horecký, J.: Využitie matematických metód v jazykovede. In Slovenská reč 5 (26), str. 257-269, 1961.
3. Kraviarová, M., Zimmermann, J.: Zipfov zákon v náučnom texte. In Jazyk a kultúra 2, 2010.
4. Rosenthal, J. S.: Zasažen bleskem. Academia, Praha 2008.
5. Magazines.

Language of instruction:

Slovak language

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): RNDr. Lucia Csachová, PhD.

Last modification: 25.08.2022

Supervisor(s):

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

doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD106A/22	**Course title:** Chapters from financial mathematics
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: A student may earn a maximum of 40 points on two continuous problem-solving papers during the semester. The first test will be written in the seventh week of the semester and the second in the thirteenth week. Students will earn an additional 60 points for theoretical knowledge of the topics. The maximum number of points that can be obtained from the exam is 100. Minimum points for a passing grade student's knowledge is 50.	
Learning outcomes of the course: The student is introduced to the requirements for financial literacy and the basics of mathematical, statistical and numerical methods that can be further applied in the fields of economics and finance. The course also aims to raise awareness of the importance of mathematics in general education.	
Course contents: Financial literacy and current financial literacy requirements. Basic mathematical knowledge used in financial mathematics. Behavioural theories in economics. Game theory and serviceability theory. Simple and compound interest. Cash flow system. Rent and redemption calculus. Savings.	

Recommended or required literature:

1. Chapters from financial mathematics / Igor Melicherčík, Ladislava Olšarová, Vladimír Úradníček. Bratislava : EPOS, 2005
2. Zimka, R.: Mathematics in Economics I, EF UMB Banská Bystrica, Banská Bystrica 2004
3. Skřivánková V., Skřivánek J.: Quantitative methods of financial operations. Iura Edition, Bratislava, 2006
4. Lysá, Ľ., Paruleková, A. 2008. Mathematics for managers. Ružomberok: PF KU, 2008. 111 p. ISBN 978-80-8084-397-7.
5. Cipra, T.: Financial mathematics in practice. Prague: HZ Publishing House, 1993.
6. Čámský, F.: Financial Mathematics. Brno, Czech Republic: Masaryk University, 2005.
7. Pirč, V. - Grinčová, A.: Financial Mathematics. Košice: TU KE, 2008.
8. Radová, J., Dvořák, P.: Financial mathematics for everyone. Czech Republic: Grada, 1993.

Language of instruction:
Slovak

Notes:

Course evaluation:
Assessed students in total: 4

A	B	C	D	E	FX
50.0	50.0	0.0	0.0	0.0	0.0

Name of lecturer(s): doc. Mgr. Eva Litavcová, PhD.

Last modification: 27.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD104A/22	**Course title:** Chapters from geometry
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 extent to which the student has acquired the relevant knowledge, skills and competences is carried out on the basis of a two-stage examination: (a) continuous assessment in the form of written work: 40% (b) final assessment: written examination: 20% oral examination: 40% Credit will not be awarded to a student who obtains less than 50% of the maximum possible marks for part (a) or part (b). Course 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 course, the student will acquire the following knowledge, skills and competences: The student knows and understands the basic definitions, has an idea of the correctness of the definition, can illustrate the definition with appropriate examples. The student knows and understands basic mathematical theorems, has an idea of the meaning and logical structure of the theorem, can support the theorem with appropriate examples and counterexamples, can prove the theorem. The student can solve basic types of problems, knows and can specifically use the computational procedures needed to solve a problem, can justify all steps in his/her solution of a problem. The student can express him/herself in terms and symbols and can graphically illustrate reasoning with a picture when possible.	
Course contents: 1. Axiomatic construction of geometry. Geometry of the axioms of incidence, ordering, congruence.	

2. Conformities in the plane. Classification of congruences in the plane. Axial symmetry, composition of axial symmetries. Theorems on congruence of triangles.
3. Perpendicularity. Parallelism. Properties of geometric figures related to parallelism and perpendicularity.
4. Parallelism. Monge's theorem on the composition of parallelograms.
5. Sets of points of given properties. Properties of n-angles, tangent and tangent n-angles.
6. Solution of construction and proof problems in school mathematics.
7. Free parallel projection - principle of projection method, basic properties , projection of point, line, plane, solid image.
8. Solving position and metric problems on simple solids in free parallel projection - angle of two lines, plane sections of solids, intersection of two planes, intersection of a line with a plane, angle of a line and a plane, angle of two planes.

Recommended or required literature:

1. Monoszová, G.: Konštrukčná geometria. Banská Bystrica, UMB, 1993.
2. Piják a kol.: Konštrukčná geometria pre matematicko-fyzikálne a pedagogické fakulty, SPN, Bratislava 1985.
3. Sklenáriková, Z. – Čižmár, J.: Elementárna geometria Euklidovskej roviny. Vydavateľstvo UK Bratislava 2002.
4. Billich, M. - Trenkler, M.: Zbierka úloh z geometrie. Verbum, Ružomberok 2013.

Language of instruction:
Slovak

Notes:

Course evaluation:
Assessed students in total: 3

A	B	C	D	E	FX
66.67	33.33	0.0	0.0	0.0	0.0

Name of lecturer(s): doc. PaedDr. Martin Papčo, PhD.

Last modification: 29.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD110A/22	**Course title:** Chapters from modern mathematics
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture / Seminar **Recommended study range:** **hours weekly:** 2 / 2 **hours per semester:** 26 / 26 **Teaching method:** on-site	
Credits: 3	**Working load:** 75 hours
Recommended semester/trimester: 3.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: A student may earn a maximum of 40 points during the semester for independent work on the application of problems from one of the modern mathematical disciplines. Students earn an additional 60 points for theoretical knowledge on the given topics. The maximum number of points that can be obtained is 100. The minimum number of points for a satisfactory assessment of a student's knowledge is 50. Course 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 course, the student will acquire the following knowledge, skills and competences: - knowledge of the basic concepts of one of the modern mathematical disciplines - knowledge and skill to apply some algorithms of one of the modern mathematical disciplines - an overview of the applications of some concepts and algorithms of one of the modern mathematical disciplines	
Course contents: The aim of the course is to familiarize students with the basic concepts, techniques, algorithms and applications of one of the modern mathematical disciplines appropriately chosen by the teacher and based on the interest of the current students. The recommended readings for the course include appropriately chosen texts that provide familiarity with the basic concepts, techniques, algorithms, and applications of the chosen modern mathematical discipline.	

Recommended or required literature:
The recommended readings for the course include appropriately chosen texts that provide familiarity with the basic concepts, techniques, algorithms, and applications of the chosen modern mathematical discipline.

Language of instruction:
Slovak

Notes:

Course evaluation:
Assessed students in total: 3

A	B	C	D	E	FX
66.67	33.33	0.0	0.0	0.0	0.0

Name of lecturer(s): prof. RNDr. Miroslav Haviar, CSc.

Last modification: 29.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD101A/22	**Course title:** Chapters from probability theory and statistics
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: 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 on the basis of ongoing evaluation and the processing and defense of the final work focused on quantitative research. 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 will learn: - apply probability theory – interpret and use the basic descriptive characteristics of a statistical file, - use statistical methods used in pedagogical research and apply them in the analysis of empirical data in pedagogical research, – interpret the results of statistical procedures and outputs obtained using appropriate software.	
Course contents: 1. Basic terms of probability theory 2. Random variable and distribution of random variable 3. Basic statistical terms 4. Statistical file processing 5. Descriptive characteristics and their calculation 6. Random selection and estimation of the parameters of the basic set 7. Basics of hypothesis testing 8. Comparing two sets (testing hypotheses about the parameters of 2 basic dependent and independent sets) 9. Comparing more than two sets - ANOVA 10. Jarque-Ber's normality test	

11. Investigating the dependence of qualitative features
12. Investigating the dependence of quantitative traits (correlation and regression analysis, multiple linear regression model)

Recommended or required literature:

1. D. Markechová, D., Tirpáková, A., Stehlíková,B.: Základy štatistiky pre pedagógov, UKF Nitra 2011
2. Jurečková, M., Molnárová, I.: Štatistika s excelom. AOS, Liptovský Mikuláš 2005
3. Tomšik Robert, Kvantitatívny výskum v pedagogických vedách, Nitra 2017, ISBN 978-80-558-1207-6
4. Walker, I.: Výzkumné metody a statistika, Grada Publishing, 2013, ISBN 978-80-247-3920-5

Language of instruction:
Slovak

Notes:

Course evaluation:
Assessed students in total: 4

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

Name of lecturer(s): doc. RNDr. Mária Jurečková, CSc.

Last modification: 16.09.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD102A/22	**Course title:** Didactics of mathematics 2
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 student's acquisition of the relevant knowledge, skills and competences is carried out on the basis of theoretical and practical tasks during the semester course (40%) and the final examination (60%). The final assessment is based on the total number of points obtained from the assignments and the final examination. Course 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 continue the acquisition of knowledge and skills necessary for the pedagogical practice of a teacher. The core of the course is the process of mathematical knowledge discovery respecting the different levels and principles of constructivism. These are further applied to topics such as developing the concept of number and fractions. Upon completion of the course, the student will acquire the following knowledge, skills and competencies: - The student is familiar with the basic theories of mathematics education. - The student understands the process of constructing mathematical knowledge, and can describe and explain each level of the process for areas of school mathematics. - The student understands the role of motivation in mathematics education and designs a course of motivation as the first level of the cognitive process for selected areas of school mathematics. - The student will develop a logical-didactic analysis for a thematic unit in school mathematics. - The student will expand his/her understanding of innovative methods appropriate for teaching mathematics. - The student will have mastered the basic principles of constructivism. - The student has mastered some didactic approaches to teaching the thematic unit Fractions, knows different models for fractions and operations with them.	

- The student is familiar with mathematical competitions for lower and upper secondary education, learns the specifics of working with talented students and their preparation for mathematical competitions.

Course contents:

1. Basic theories of mathematics education
2. The process of mathematical knowledge formation
3. Motivation
4. Constructivism
5. Developing of the concept of number
6. Fractions - models of fractions
7. Fractions - operations with fractions
8. Innovative methods in mathematics education
9. Mathematical competitions

Recommended or required literature:

Language of instruction:
Slovak language

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): RNDr. Lucia Csachová, PhD.

Last modification: 25.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD108A/22	**Course title:** Didactics of mathematics 3
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: Verification of the student's acquisition of the relevant knowledge, skills and competences is carried out on the basis of theoretical and practical tasks during the semester course (40%) and the final examination (60%). The final assessment is based on the total number of points obtained from the assignments and the final examination. Course 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 continue the acquisition of knowledge and skills necessary for the pedagogical practice of a teacher. The core of the course is school geometry, its propedeutics, content and approaches to eduaction, as well as the creation of a didactic test for the subject of mathematics. The focus on school geometry is due to the unsuccessfulness of pupils in solving problems from the T9 testing, but also the external part of the final examination (at the end of higher secondary school). After completing the course the student will acquire the following knowledge, skills and competences: - The student has mastered the basic theories describing geometric thinking, its development and levels. - The student knows the content of school geometry (ISCED 2, ISCED 3), concepts and relevant relations and applies them in solving problems. - The student applies the basics of propedeutics to topics in school geometry. - The student has mastered the basic rules for constructivist approaches in school geometry. - The student implements constructions from school geometry respecting all phases of construction problems and their sequential succession.	

- The student masters the principles for didactic test development and creates a didactic test for a thematic unit in mathematics.

Course contents:

1. Geometric thinking and geometric imagination
2. Van Hiele levels of geometric thinking
3. School geometry - content
4. School geometry - basic knowledge
5. Planimetry
6. Building the idea of measurements
7. Stereometry
8. Construction problems
9. Creation of idactic test

Recommended or required literature:

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): RNDr. Lucia Csachová, PhD.

Last modification: 25.08.2022

Supervisor(s):

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

doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD112A/22	**Course title:** Didactics of mathematics 4
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: Verification of the student's acquisition of the relevant knowledge, skills and competences is carried out on the basis of theoretical and practical tasks during the semester course (40%) and the final examination (60%). The final assessment is based on the total number of points obtained from the assignments and the final examination. Course 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 continue the acquisition of knowledge and skills necessary for the pedagogical practice of a teacher. Upon completion of the course the student will acquire the following knowledge, skills and competences: - The student knows different types of mathematical problems and can construct a mathematical problem for a desired topic, mathematical model or context. - The student can use student error in mathematics as feedback for teacher work and as a constructivist element of the process of acquiring mathematical knowledge. - The student has mastered the basic principles of the Heiny's method of mathematics education, which can be applied in "traditional" education. - The student knows the project method and its phases, and is able to design an appropriate project for certain knowledge in mathematics. - The student has mastered didactical approaches to teaching combinatorics, probability and statistics.	
Course contents: 1. Creation of mathematical problems	

2. Working with error in mathematics
3. The Hejny's method of teaching mathematics
4. Project method in mathematics
5. Combinatorics in school mathematics
6. Probability in school mathematics
7. Statistics in school mathematics

Recommended or required literature:

1. Callingham, R., Watson, J. M.: The Development of Statistical Literacy at School. In: Statistics Education Research Journal 1(16), 2017, 181 – 201. ISSN 1570-1824.
2. Gal, I.: Adults´ Statistical Literacy: Meanings, Components, Responsibilities. In: International Statistical Review 1(70), 2002, 1 – 25.
3. Plocki, A.: Pravdepodobnosť okolo nás. Ružomberok: Katolícka univerzita, 2007. ISBN 9788080842604
4. Watson, J. M., Callingham, R.: Statistical Literacy: A Complex Hierarchial Construct. In: Statistics Education Research Journal 2(2), 2003, 3 – 46. ISNN 1570-1826.
5. Matehmatics text-books for lower and higher secondary education

Language of instruction:
Slovak 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): RNDr. Lucia Csachová, PhD.

Last modification: 25.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD103A/22	**Course title:** Mathematics Teaching Practice 2
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:

Verification of the degree of acquisition of the relevant knowledge, skills and competences of the student is carried out on the basis of continuous control during the semester teaching of the subject. The prerequisite for the successful completion of the course is the completion of hospitalization for the required number of lessons and the processing of records of lessons and post-hospitalization interviews, the processing of sample lessons and the subsequent evaluation of micro-outcomes within the lessons taught.

Course 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 observe methodological approaches, specific features of teaching of mathematics and the basic stages of the teaching process. Furthermore, it is the observation of the work of the mathematics teacher and his/her creative component during the whole lesson. Also not negligible is the observation of the specific structure of the lesson according to the following model: emotional and cognitive sensitization, value reflection, classroom practice through experiential learning, real-life experience and connection to life.

After completion of the course, the student will acquire the following knowledge, skills and competences:

- The student has hands-on experience in direct mathematics instruction.
- The student is able to analyse the different phases of a lesson on the basis of pedagogical-psychological and mathematical-didactic knowledge.
- The student is able to explain new material using different methods, to activate and motivate pupils and to carry out didactic diagnosis and evaluation.
- The student is able to make a detailed preparation for a mathematics lesson in consultation with the trainee teacher and the practice methodologist.

Course contents:
The content of the practice is a combination of hospitalizations and independent outcomes of the student. In addition to the creation of records of hospitalizations, the student has to methodically process the course of the mathematics lesson on the basis of methodological procedures, instructions from the trainee teachers, to prepare for the lesson, to consult with the methodologist of the practice and the trainee teacher and then to independently conduct the lesson.

Recommended or required literature:
1. Petlák, E.: Pedagogicko-didaktická práca učiteľa. Bratislava: IRIS, 2007. ISBN 808901805X
2. Čapek, R.: Moderní didaktika. České Budějovice: Grada, 2017. ISBN 9788024734507
3. Mathematics text-books for lower and higher education

Language of instruction:
Slovak language

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): RNDr. Lucia Csachová, PhD.

Last modification: 25.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD109A/22	**Course title:** Mathematics Teaching Practice 3
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:

Verification of the degree of acquisition of the relevant knowledge, skills and competences of the student is carried out on the basis of continuous control during the semester teaching of the subject. A prerequisite for successful completion of the course is the preparation of sample lessons and subsequent evaluation of the lessons taught. The output is a processed pedagogical diary.

Course 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 practice is to create detailed preparations for mathematics lessons, to teach the required number of lessons according to the preparations and to analyse them.

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

- The student has practical experience in direct mathematics teaching.
- The student is able to analyse the different phases of a lesson on the basis of pedagogical-psychological and mathematical-didactic knowledge.
- The student is able to explain new material using different methods, to activate and motivate pupils and to carry out didactic diagnosis and evaluation.
- The student can independently prepare a detailed preparation for a mathematics lesson.

Course contents:

The content of the practice is on the basis of methodical procedures, instructions from trainee teachers to methodically process the course of the lesson, preparation for the lesson to consult with the didactics of mathematics and subsequently independently conduct the lesson.

Recommended or required literature:

1. Petlák, E.: Pedagogicko-didaktická práca učiteľa. Bratislava: IRIS, 2007. ISBN 808901805X
2. Čapek, R.: Moderní didaktika. České Budějovice: Grada, 2017. ISBN 9788024734507
3. Mathematics text-books for lower and higher education

Language of instruction:

Slovak language

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): RNDr. Lucia Csachová, PhD.

Last modification: 25.08.2022

Supervisor(s):

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

doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD113A/22	**Course title:** Mathematics Teaching Practice 4
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 degree of acquisition of the relevant knowledge, skills and competences of the student is carried out on the basis of continuous control during the semester teaching of the subject. A prerequisite for successful completion of the course is the preparation of sample lessons and subsequent evaluation of the lessons taught. The output is a processed pedagogical diary. Course 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 practice in the subject is to create detailed preparations for mathematics lessons, to teach the required number of lessons according to the preparations and to evaluate their progress. Upon completion of the course, the student will acquire the following knowledge, skills and competences: - The student has practical experience in direct mathematics teaching. - The student is able to analyse the different phases of a lesson on the basis of pedagogical-psychological and mathematical-didactic knowledge. - The student is able to explain new material using different methods, to activate and motivate pupils and to carry out didactic diagnosis and evaluation. - The student can independently prepare a detailed preparation for a mathematics lesson. - The student is able to evaluate the progress and results of his/her lessons.	
Course contents: The content of the practice is on the basis of methodical procedures, instructions from trainee teachers to methodically process the course of the lesson, preparation for the lesson to consult with the didactics of mathematics and subsequently independently conduct the lesson.	

Recommended or required literature:

1. Petlák, E.: Pedagogicko-didaktická práca učiteľa. Bratislava: IRIS, 2007. ISBN 808901805X
2. Čapek, R.: Moderní didaktika. České Budějovice: Grada, 2017. ISBN 9788024734507
3. Mathematics text-books for lower and higher secondary school

Language of instruction:

Slovak 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): RNDr. Lucia Csachová, PhD.

Last modification: 25.08.2022

Supervisor(s):

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

doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD114A/22	**Course title:** Seminar in mathematics 10
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: 4.	
Level of study: II.	
Prerequisities:	
Requirements for passing the course: The final grade of the course will be determined by the points earned for the student's discussion activity, the level and content of the student's presentations, as well as the quality of the final written work. Course evaluation: A - 100 % - 93 %, B - 92 % - 85 %, C - 84 % - 77 %, D - 76 % - 69 %, E - 68 % - 60 %, Fx - 59 % - 0 %	
Learning outcomes of the course: Students will learn to think critically, discuss, present, study a selected piece of mathematics, present undergraduate/diploma work, and build community at the same time. Referring to the matrix of learning objectives and outcomes, upon completion of the course, the student will acquire the following knowledge, skills, and competencies: V3 He/she has an overview of the methodology and epistemology of their subject specialisation. V4 He/she has relevant knowledge of mathematical analysis, algebra, geometry and didactics of mathematics as the foundations of the profession of mathematics teacher, as well as of other parts of modern mathematics, appropriately selected to his/her liking and with respect to the content of school mathematics. Z2 He/she is able to think and argue critically. Z3 He/she is able to estimate the strengths and weaknesses of things, to carry out mental experiments. Z4 He/she is able to present in a sophisticated manner. K4 He/she is able to seek out new technical information and process it independently. K5 He/she does not trust cheap and quick solutions to difficult problems. K6 He/she is interested in social events, willing to work on himself/herself, enjoys problem solving, views phenomena of various kinds (natural, social, economic) with a reasonable distance.	
Course contents: The basic skeleton of the implementation of the course will consist of a series of meetings, the content of which will be critical discussions and reflections on agreed topics related to mathematics and its teaching, sometimes raised by the guest during his lecture, critical readings of selected texts and their presentation, presentations of the results of bachelor's and master's theses.	

Recommended or required literature:
The selection of appropriate study literature will be made at the beginning of each semester, also taking into account student preferences.

Language of instruction:
Slovak

Notes:

Course evaluation:
Assessed students in total: 2

A	B	C	D	E	FX
50.0	50.0	0.0	0.0	0.0	0.0

Name of lecturer(s): doc. PaedDr. Martin Papčo, PhD.

Last modification: 29.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD100A/22	**Course title:** Seminar in mathematics 7
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: The final grade of the course will be determined by the points earned for the student's discussion activity, the level and content of the student's presentations, as well as the quality of the final written work. Course evaluation: A - 100 % - 93 %, B - 92 % - 85 %, C - 84 % - 77 %, D - 76 % - 69 %, E - 68 % - 60 %, Fx - 59 % - 0 %	
Learning outcomes of the course: Students will learn to think critically, discuss, present, study a selected piece of mathematics, present undergraduate/diploma work, and build community at the same time. Referring to the matrix of learning objectives and outcomes, upon completion of the course, the student will acquire the following knowledge, skills, and competencies: V3 He/she has an overview of the methodology and epistemology of their subject specialisation. V4 He/she has relevant knowledge of mathematical analysis, algebra, geometry and didactics of mathematics as the foundations of the profession of mathematics teacher, as well as of other parts of modern mathematics, appropriately selected to his/her liking and with respect to the content of school mathematics. Z2 He/she is able to think and argue critically. Z3 He/she is able to estimate the strengths and weaknesses of things, to carry out mental experiments. Z4 He/she is able to present in a sophisticated manner. K4 He/she is able to seek out new technical information and process it independently. K5 He/she does not trust cheap and quick solutions to difficult problems. K6 He/she is interested in social events, willing to work on himself/herself, enjoys problem solving, views phenomena of various kinds (natural, social, economic) with a reasonable distance.	
Course contents: The basic skeleton of the implementation of the course will consist of a series of meetings, the content of which will be critical discussions and reflections on agreed topics related to mathematics and its teaching, sometimes raised by the guest during his lecture, critical readings of selected texts and their presentation, presentations of the results of bachelor's and master's theses.	

Recommended or required literature:
The selection of appropriate study literature will be made at the beginning of each semester, also taking into account student preferences.

Language of instruction:
Slovak

Notes:

Course evaluation:
Assessed students in total: 6

A	B	C	D	E	FX
83.33	16.67	0.0	0.0	0.0	0.0

Name of lecturer(s): doc. PaedDr. Martin Papčo, PhD.

Last modification: 29.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD107A/22	**Course title:** Seminar in mathematics 8
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: The final grade of the course will be determined by the points earned for the student's discussion activity, the level and content of the student's presentations, as well as the quality of the final written work. Course evaluation: A - 100 % - 93 %, B - 92 % - 85 %, C - 84 % - 77 %, D - 76 % - 69 %, E - 68 % - 60 %, Fx - 59 % - 0 %	
Learning outcomes of the course: Students will learn to think critically, discuss, present, study a selected piece of mathematics, present undergraduate/diploma work, and build community at the same time. Referring to the matrix of learning objectives and outcomes, upon completion of the course, the student will acquire the following knowledge, skills, and competencies: V3 He/she has an overview of the methodology and epistemology of their subject specialisation. V4 He/she has relevant knowledge of mathematical analysis, algebra, geometry and didactics of mathematics as the foundations of the profession of mathematics teacher, as well as of other parts of modern mathematics, appropriately selected to his/her liking and with respect to the content of school mathematics. Z2 He/she is able to think and argue critically. Z3 He/she is able to estimate the strengths and weaknesses of things, to carry out mental experiments. Z4 He/she is able to present in a sophisticated manner. K4 He/she is able to seek out new technical information and process it independently. K5 He/she does not trust cheap and quick solutions to difficult problems. K6 He/she is interested in social events, willing to work on himself/herself, enjoys problem solving, views phenomena of various kinds (natural, social, economic) with a reasonable distance.	
Course contents: The basic skeleton of the implementation of the course will consist of a series of meetings, the content of which will be critical discussions and reflections on agreed topics related to mathematics and its teaching, sometimes raised by the guest during his lecture, critical readings of selected texts and their presentation, presentations of the results of bachelor's and master's theses.	

Recommended or required literature:
The selection of appropriate study literature will be made at the beginning of each semester, also taking into account student preferences.

Language of instruction:
Slovak

Notes:

Course evaluation:
Assessed students in total: 6

A	B	C	D	E	FX
66.67	16.67	0.0	0.0	16.67	0.0

Name of lecturer(s): doc. PaedDr. Martin Papčo, PhD.

Last modification: 29.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KMAT/Ma-MD111A/22	**Course title:** Seminar in mathematics 9
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: The final grade of the course will be determined by the points earned for the student's discussion activity, the level and content of the student's presentations, as well as the quality of the final written work. Course evaluation: A - 100 % - 93 %, B - 92 % - 85 %, C - 84 % - 77 %, D - 76 % - 69 %, E - 68 % - 60 %, Fx - 59 % - 0 %	
Learning outcomes of the course: Students will learn to think critically, discuss, present, study a selected piece of mathematics, present undergraduate/diploma work, and build community at the same time. Referring to the matrix of learning objectives and outcomes, upon completion of the course, the student will acquire the following knowledge, skills, and competencies: V3 He/she has an overview of the methodology and epistemology of their subject specialisation. V4 He/she has relevant knowledge of mathematical analysis, algebra, geometry and didactics of mathematics as the foundations of the profession of mathematics teacher, as well as of other parts of modern mathematics, appropriately selected to his/her liking and with respect to the content of school mathematics. Z2 He/she is able to think and argue critically. Z3 He/she is able to estimate the strengths and weaknesses of things, to carry out mental experiments. Z4 He/she is able to present in a sophisticated manner. K4 He/she is able to seek out new technical information and process it independently. K5 He/she does not trust cheap and quick solutions to difficult problems. K6 He/she is interested in social events, willing to work on himself/herself, enjoys problem solving, views phenomena of various kinds (natural, social, economic) with a reasonable distance.	
Course contents: The basic skeleton of the implementation of the course will consist of a series of meetings, the content of which will be critical discussions and reflections on agreed topics related to mathematics and its teaching, sometimes raised by the guest during his lecture, critical readings of selected texts and their presentation, presentations of the results of bachelor's and master's theses.	

Recommended or required literature:
The selection of appropriate study literature will be made at the beginning of each semester, also taking into account student preferences.

Language of instruction:
Slovak

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): doc. PaedDr. Martin Papčo, PhD.

Last modification: 29.08.2022

Supervisor(s):
Person responsible for the delivery, development and quality of the study programme:
doc. Mgr. Eva Litavcová, PhD.

COURSE INFORMATION SHEET

University: Catholic University in Ružomberok

Faculty: Faculty of Education

Course code: KMAT/Ma-MD100S/22	**Course title:** State Final Examination - Mathematics 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 examination in the regular term, determined by the study schedule, may be taken by a student who has fulfilled the obligations stipulated by the accredited study programme and the Study Regulations of the KU in Ružomberok during the study control carried out in the last year of study. The state examination has the character of a colloquium. The grade will be included in the overall assessment of the state examination.

Learning outcomes of the course:
After completing the course, the student will acquire the following knowledge, skills and competences:
He/she has relevant knowledge of didactics of mathematics and appropriately selected parts of mathematics with respect to the content of school mathematics.

Course contents:
Updated theses for the colloquial examination are published on the faculty's website no later than the beginning of the summer semester in a given academic year.

Recommended or required literature:
According to the literature of compulsory courses of the given study programme.

Language of instruction:
Slovak

Notes:

Course evaluation:
Assessed students in total: 22

A	B	C	D	E	FX
36.36	18.18	22.73	13.64	9.09	0.0

Name of lecturer(s):

Last modification: 29.08.2022

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

doc. Mgr. Eva Litavcová, PhD.