Course descriptions

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COURSE DESCRIPTION

Academic year: 2021/2022	

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAG/1-UMA-124/15	**Course title:** Combinatorics

Educational activities:
  Type of activities: lecture / practicals
  Number of hours:
    per week: 2 / 2 **per level/semester:** 26 / 26
  Form of the course: on-site learning

Number of credits: 4

Recommended semester:

Educational level: D, I.

Prerequisites:

Course requirements: Continuous evaluation: homework (50 p.) Final exam: written exam (50 p.) Grades: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 50/50

Learning outcomes: Gaining comprehensive overview of basic combinatorial problems and skills to solve them.

Class syllabus: Basic combinatorial tools, permutations, combinations, binomial coefficients and Pascal triangle, Binomial and Multinomial theorem, combinatorial identities, Principle of inclusion and exlusion, Dirichlet principle.

Recommended literature: Kapitoly z diskrétní matematiky: Jiří Matoušek, Jaroslav Nešetřil. Praha: Karolinum, 2009 Kombinatorika a teória grafov: Martin Knor. Bratislava: Vydavateľstvo UK, 2000 Lecture notes.

Languages necessary to complete the course: slovak, english

Notes:

Past grade distribution
Total number of evaluated students: 216

A	B	C	D	E	FX
36,57	15,28	13,43	14,81	16,2	3,7

Lecturers: RNDr. Jana Tomanová, CSc.

Last change: 19.06.2022

Approved by:

STATE EXAM DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KDMFI/2-pUMA-912/19	**Course title:** Didactics of Mathematics
Number of credits: 0	
Educational level: D	
State exam syllabus:	
Last change: 04.12.2019	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAG+KDMFI/2- UMA-106/15	**Course title:** Didactics of Mathematics (2)

Educational activities:
  Type of activities: seminar
  Number of hours:
    per week: 3 **per level/semester:** 39
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: D, II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 115

A	B	C	D	E	FX
72,17	16,52	7,83	3,48	0,0	0,0

Lecturers: Mgr. Michaela Vargová, PhD.

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KMANM/2- pUMA-901/19	**Course title:** Diploma Thesis Project

Educational activities:
  Type of activities: seminar
  Number of hours:
   per week: 2 **per level/semester:** 26
  Form of the course: on-site learning

Number of credits: 0
Recommended semester: 4.
Educational level: D
Prerequisites:
Course requirements:
Learning outcomes:
Class syllabus:
Recommended literature:
Languages necessary to complete the course:
Notes:
Past grade distribution Total number of evaluated students: 10

A	B	C	D	E	FX
90,0	10,0	0,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Zbyněk Kubáček, CSc.
Last change:
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAG/1-UMA-116/15	**Course title:** Elementary Theory of Numbers

Educational activities:
  Type of activities: lecture / practicals
  Number of hours:
   per week: 2 / 1 **per level/semester:** 26 / 13
  Form of the course: on-site learning

Number of credits: 4

Recommended semester:

Educational level: D, I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 179

A	B	C	D	E	FX
41,34	25,14	20,67	7,82	1,68	3,35

Lecturers: RNDr. Jana Chalmovianská, PhD., Mgr. Klaudia Hamajová

Last change: 15.01.2018

Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022	

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAG/1-UMA-107/15	**Course title:** Geometry (1)

Educational activities:
 Type of activities: lecture / practicals
 Number of hours:
  per week: 2 / 2 **per level/semester:** 26 / 26
 Form of the course: on-site learning

Number of credits: 5

Recommended semester:

Educational level: D, I.

Prerequisites: FMFI.KAG/1-UMA-112/22 - Algebra and Theoretical Arithmetic (1)

Course requirements:
 Preliminary assessment: homework (20%), written tests (40%)
 Final assessment: oral exam (40%)
 Grading: A 90%, B 80%, C 70%, D 60%, E 50%

Learning outcomes:
 Master the analytical methods of studying the geometric properties of subspaces of n-dimensional affine (or Euclidean) space and its maps

Class syllabus:
 - n-dimensional affine space A^n and Euclidean space E^n;
 - coordinate systems;
 - affine maps;
 - orientation of affine space;
 - subspaces / linear varieties in E^n: parametric description and implicit equations, relative positions, distances and angles of some subspaces;
 - invariants of affine maps (fixed points, eigenvectors);
 - isometries, reflections as generators of the group of isometries of the Euclidean plane

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 179

A	B	C	D	E	FX
25,14	15,08	21,79	11,73	17,88	8,38

Lecturers: RNDr. Jana Chalmovianská, PhD., Mgr. Klaudia Hamajová

Last change: 21.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAG/1-UMA-220/15	Course title: Geometry (2)

Educational activities: Type of activities: lecture / practicals Number of hours: per week: 2 / 2 per level/semester: 26 / 26 Form of the course: on-site learning

Number of credits: 5

Recommended semester:

Educational level: D, I.

Prerequisites:

Course requirements: Preliminary assessment: homework (20%), written tests (40%) Final assessment: oral exam (40%) Grading: A 90%, B 80%, C 70%, D 60%, E 50%

Learning outcomes: The student gets familiar with the axiomatic construction of planimetry. He learns partly Euclid's, but especially Hilbert's axiomatic system. They will practice thorough mathematical argumentation and get knowledge of several models of different groups of axioms.

Class syllabus: - history of axiomatics of geometry, Euclidean constructions - axioms of incidence, incidence geometry models - axioms of order, ordered plane models - axioms of congruence, theorems about the congruence of triangles, arithmetics of line segments and angles, Hilbert plane - controversy of the axiom of parallelism - axioms of continuity and circle continuity principles - some of Apollonius' problems

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution Total number of evaluated students: 176

A	B	C	D	E	FX
22,16	16,48	26,14	12,5	10,23	12,5

Lecturers: RNDr. Jana Chalmovianská, PhD., Mgr. Klaudia Hamajová

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAG/1-UMA-301/15	**Course title:** Geometry (3)

Educational activities:
  Type of activities: lecture / practicals
  Number of hours:
    per week: 2 / 1 **per level/semester:** 26 / 13
  Form of the course: on-site learning

Number of credits: 4
Recommended semester:
Educational level: D, I.
Prerequisites:
Course requirements:
Learning outcomes:
Class syllabus:
Recommended literature:
Languages necessary to complete the course:
Notes:
Past grade distribution Total number of evaluated students: 161

A	B	C	D	E	FX
28,57	21,12	18,63	13,66	9,32	8,7

Lecturers: RNDr. Jana Chalmovianská, PhD., Mgr. Alžbeta Mackovová
Last change: 02.06.2015
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAG+KDMFI/2-UMA-104/15	**Course title:** Introduction to Didactics of Mathematics

Educational activities:
  Type of activities: seminar
  Number of hours:
    per week: 3 **per level/semester:** 39
  Form of the course: on-site learning

Number of credits: 3
Recommended semester: 3.
Educational level: D, II.
Prerequisites:
Course requirements:
Learning outcomes:
Class syllabus:
Recommended literature:
Languages necessary to complete the course:
Notes:

Past grade distribution
Total number of evaluated students: 142

A	B	C	D	E	FX
92,25	4,93	0,7	0,7	0,0	1,41

Lecturers: doc. PaedDr. Mária Slavíčková, PhD.
Last change: 02.06.2015
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KDMFI/2-UMA-114/15	**Course title:** New Pedagogical Approaches in Teaching Not Only Mathematics

Educational activities:
  Type of activities: seminar
  Number of hours:
    per week: 3 **per level/semester:** 39
  Form of the course: on-site learning

Number of credits: 2
Recommended semester: 3.
Educational level: D, II.
Prerequisites:
Course requirements:
Learning outcomes:
Class syllabus:
Recommended literature:
Languages necessary to complete the course:
Notes:
Past grade distribution Total number of evaluated students: 42

A	B	C	D	E	FX
85,71	7,14	4,76	0,0	0,0	2,38

Lecturers: RNDr. Monika Dillingerová, PhD.
Last change: 22.05.2019
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KMANM/2-UMA-211/15	**Course title:** Seminar in History of Mathematics (1)

Educational activities:
  Type of activities: seminar
  Number of hours:
   per week: 3 **per level/semester:** 39
  Form of the course: on-site learning

Number of credits: 2
Recommended semester: 3.
Educational level: D, II.
Prerequisites:
Course requirements:
Learning outcomes:
Class syllabus:
Recommended literature:
Languages necessary to complete the course:
Notes:
Past grade distribution Total number of evaluated students: 118

A	B	C	D	E	FX
55,08	36,44	7,63	0,85	0,0	0,0

Lecturers: doc. RNDr. Zbyněk Kubáček, CSc.
Last change: 02.06.2015
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022	

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KMANM/2-UMA-212/15	**Course title:** Seminar in History of Mathematics (2)

Educational activities:
 Type of activities: seminar
 Number of hours:
  per week: 2 **per level/semester:** 26
 Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: D, II.

Prerequisites:

Course requirements:
 Ongoing evaluation: presentation of the prepared lesson (20 points), preparation of the written exam for other participants (10 points), active participation in the evaluation of presentations and written exams of other participants (30 points).
 Grading: A (56-60 points), B (51-55 points), C (46-50 points), D (41-45 points), E (36-40 points), Fx (0-35 points).
 Weight of the ongoing / final assessment: 100/0
 Scale of assessment (preliminary/final): 100/0

Learning outcomes:
 The student will gain an overview of the various periods of mathematics development, including examples of problems solved in individual basic works.

Class syllabus:
 Students will choose from the following topics: Ptolemy. Apollonius. Chinese and Arabic mathematics. Fibonacci. Alcuin's problems. Cardano´s Ars Magna. Pascal's Arithmetic Triangle. Huygens´s De Ratprivate.... Huygens´s De Ratiociniis in Ludo Aleae. Bernoulli's Ars Conjectandi. Cavalieri's Geometry of indivisibles. Euler's Introductio and Letters to a German Princess. Venn´s Symbolic Logic.

Recommended literature:
 Matematika v proměnách věků III / Editori Jindřich Bečvář, Eduard Fuchs. Praha : Výzkumné centrum pro dějiny vědy, 2004
 Dějiny matematiky / Dirk J. Struik ; přeložili Jaroslav Folta, Luboš Nový. Praha : Orbis, 1963
 Dějiny matematiky ve starověku / Arnošt Kolman. Praha : Academia, 1968
 Dějiny matematiky ve středověku / Adolf P. Juškevič. Praha : Academia, 1977
 Dejiny matematiky / Ján Čižmár. Bratislava : Perfekt, 2020
 The history of mathematics / Roger L. Cooke. Hoboke, NJ : John Wiley, 2003
 The history of mathematics / David M. Burton, New York : McGraw-Hill, 2011

Languages necessary to complete the course:
 Slovak, English

Notes:					
Past grade distribution Total number of evaluated students: 116					
A	B	C	D	E	FX
90,52	8,62	0,0	0,86	0,0	0,0
Lecturers: doc. RNDr. Zbyněk Kubáček, CSc.					
Last change: 24.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KDMFI/2- pUMAx-211/19	**Course title:** Teaching Practice

Educational activities:
  Type of activities: practice
  Number of hours:
    per week: **per level/semester:** 20s
  Form of the course: on-site learning, combined

Number of credits: 0

Recommended semester: 3.

Educational level: D

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 34

A	ABS	B	C	D	E	FX	NEABS
14,71	85,29	0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: Mgr. Michaela Vargová, PhD.

Last change:

Approved by:

STATE EXAM DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KDMFI/2- pUMA-911/19	**Course title:** Thesis Defence
Number of credits: 0	
Educational level: D	
State exam syllabus:	
Last change:	
Approved by:	