CONTENS

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ DMS/22	**Name:** History of Mathematics Seminar

Types, range and methods of educational activities:
Form of study: Seminar
Recommended extent of course (in hours):
Per week: 3 **For the study period:** 39
Methods of study: present

Number of credits: 4

Recommended semester/trimester of study: 1.

Level of study: II.

Prerequisites:

Conditions for passing the subject:
In addition to active participation in the seminars, students are required to prepare and deliver a presentation(s) on a given area of the history of mathematics and/or prominent figure(s) (50 points).
Successful completion of the course requires an end-of-semester and oral examination - demonstration of knowledge (50 points). A minimum of 90 points is required for a grade of A, a minimum of 80 points is required for a grade of B, a minimum of 70 points is required for a grade of C, a minimum of 60 points is required for a grade of D and a minimum of 50 points is required for a grade of E.
Student load distribution:
31% of the workload - direct teaching
29% of the workload - preparation of the presentation
15% of the workload - preparation for lectures and tutorials
25% of the workload - exam preparation

Results of education:
A brief sketch of the history of mathematics from pre-history to the present.
After completing the course, the student will gain:
Knowledge:
• He/she is familiar with basic mathematical relations in fields of mathematical analysis, algebra, number theory, geometry, discrete mathematics and probability and statistics.
• He/she understands the basic connections among individual mathematical fields.
• He/she is able to find argumentation gaps.
Skills:
• He/she is able to formulate logical and true mathematical statements with exact specification of their conditions and main consequences.
• He/she is able to apply knowledge of number theory, analysis, algebra, geometry, finite mathematics, probability and statistics.
• He/she is able to perform comparative analysis of various mathematical models.
Competence:
• He/she is able to understand problems specific for other subjects, to cooperate with experts working in these areas and to reformulate their problems into mathematical language.

• Responsibly evaluates mathematical results, their applicability and extents of their use.
• He/she understands value of mathematical statements, their applicability and limits of their use.

Brief syllabus:
Mathematics in prehistoric societies
Mathematics in ancient Egypt
Mathematics in ancient Mesopotamia
Mathematics in ancient Greece and the Hellenistic world
Mathematics in ancient China and India
Mathematics in medieval Islamic countries
Mathematics in medieval Europe (6th-16th centuries)
European mathematics of the 17th century
Mathematics of the 18th century
19th-century mathematics
20th century mathematics (axiomatization, incompleteness, ...)
20th century mathematics (fractals, game theory, ...)

Literature:
• Sain, M.: Matematikatörténeti ABC : Typotex Kiadó, 1993. - 328 s. - ISBN 963 7546 41 3.
• A. P. Juskevics: A középkori matematika története, - 1. vyd. - Budapest : Gondolat, 1982. - 474 s.

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: Dr. habil. Kálmán Csaba Liptai, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ DPO/22	**Name:** Master's Thesis and Defense
Types, range and methods of educational activities: **Form of study:** **Recommended extent of course (in hours):** **Per week: For the study period:** **Methods of study:** present	
Number of credits: 8	
Recommended semester/trimester of study:	
Level of study: II.	
Prerequisites:	

Conditions for passing the subject:

While writing the Master's thesis, the student follows the instructions of the supervisor and the Rector's guidelines on the preparation, registration, access and archiving of Bachelor and Master's theses, dissertations and habilitation theses written at Selye János University. The recommended length of the Master's thesis is 50 to 70 pages (90000 to 126 000 characters with spaces). The deadline for submission of the Master's thesis is specified in the timetable for the academic year. The Master's thesis is checked for authenticity in the central register of final theses. A report is drawn up on the outcome.

The examination of authenticity is a prerequisite for the defence. The submission of the Master's thesis includes a licence agreement between the student and the Slovak Republic, represented by the University, on the use of digital copies of the Master's thesis.

The Master's thesis is evaluated by the supervisor and the assessor who prepare their evaluation on the basis of the criteria provided.

The supervisor mainly assesses the fulfilment of the objective, the student's autonomy and initiative in the development of the topic, the cooperation with the supervisor, the logical structure of the Master's thesis, the chosen methods and methodology, the professional quality of the thesis, the depth and quality of the development of the topic, the usefulness of the thesis, the applicability of its results, the work with literature, the relevance of the sources used, as well as the formal features, spelling, style and originality of the thesis.

The assessor focuses on the relevance and appropriateness of the topic of the thesis, the aim of the thesis and its fulfilment, the logical structure of the Master's thesis, the sequencing and division of chapters, the appropriateness of the methods and methodology used, and the professional quality of the thesis, the depth and quality of the treatment of the topic, the usefulness of the thesis, the applicability of its results, the work with the literature, the relevance of the sources used, and the formal features, spelling, style and originality of the thesis.

The examination board will assess the originality of the thesis, the degree of student involvement in the solution of the academic problem, the student's self-reliance and ability to solve the scientific problem - including the search for literature, the formulation of objectives, the choice of method, the selection of research material, the ability to evaluate, the ability to discuss the results, the summary and presentation of the results, and the relevance to the educational process, etc.

The committee will also assess the ability to present the results, including answers to questions on the topic, adherence to time constraints, etc.
The State Examination Board will evaluate the examination in an informal meeting and decide the mark. The grading is a complex assessment of the quality of the Master's thesis and its defence, taking into account the reviews and the process of thesis defence. The committee will mark the defence with an aggregate mark. The mark may be the same as, or better or worse than, the mark given in the marks, depending on the thesis defence.
The grading scale is A - 100-91%, B - 90-81%, C - 80-71%, D - 70-61%, E - 60-50%. A student who does not achieve 50% will not receive credit.
The results of the oral and theoretical part of the examination will be announced publicly by the chairperson of the board in public.

Results of education:
Knowledge:
- The student is familiar with the structure of an academic publication,
- The student can use the resources in an independent and creative way,
- The student is able to analyse and evaluate the problem under study in his/her field of research,
- The student is able to organise and apply the theoretical knowledge acquired by him (her) in teaching practice,
- The student is able to select research methods and procedures appropriately and to apply them effectively.

Skills:
- The Master's thesis demonstrates the student's knowledge of the theoretical and practical aspects of the problem under study,
- The student is able to present and defend his/her own professional viewpoints on issues related to teaching, and is able to find solutions to these problems,
- The student is able to learn independently, enabling him (her) to continue his (her) studies,
- The student is able to to understand the complexity of phenomena and to make decisions even when information is limited, including his (her) social and ethical responsibility in making decisions,
- The student is able to collect and interpret relevant data (facts) in the field of his (her) study and to make decisions that take into account social, scientific and ethical aspects,
- The student is able to support the ideas presented with arguments and to draw practical conclusions and formulate proposals,
- The student is able to present the results of the Master's thesis,
- The student is able to respect the principles of academic integrity and ethics.

Competences:
The student is able to
- express his/her own linguistic and professional culture and approach to the professional issues encountered in the course of his/her studies, in an appropriate way
- reason and apply knowledge methodologically, both theoretically and practically,
- put knowledge into practice and to organise it,
- apply his (her) knowledge in a creative way in the performance of basic tasks, furthermore, the students is able to analyse the problem and to organise new knowledge,
- answer the questions of the supervisor and the assessor to the required standard and thus be able to defend their Master's thesis successfully.

Brief syllabus:
The procedure for defending the Master's Thesis is as follows:
1. The student presents his/her thesis.

2. The main points of the thesis supervisor' and opponent's reviews are presented.
3. The student answers the questions of the supervisor and the opponent.
4. Professional discussion of the Master's Thesis, when the student answers questions.
The presentation of the Master's thesis should mainly include the following points:
1. A brief justification of the choice of topic, its relevance and practical utility.
2. Explanation of the objectives of the thesis and the methods used.
3. The main content of the thesis.
4. The conclusions and proposals drawn by the student.
A copy of the thesis and its electronic presentation are provided to the student during the presentation. The student presents the thesis on his own for a minimum of 10 minutes. He/she may use computing devices.
The final thesis is available to the committee before and during thesis defence.

Literature:

Language, knowledge of which is necessary to complete a course:
Hungarian language, Slovak language

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher:

Date of last update: 03.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ DR/22	**Name:** Differential equations

Types, range and methods of educational activities:
Form of study: Seminar
Recommended extent of course (in hours):
Per week: 2 **For the study period:** 26
Methods of study: present

Number of credits: 2

Recommended semester/trimester of study: 3.

Level of study: II.

Prerequisites:

Conditions for passing the subject:
For the successful completion of the course students are expected to hand in homework assignments (30 points) and pass an exam at the end of the semester consisting of a written part (60 points). The minimum scores required to achieve for the individual grades are the following: 91 points for A, 81 points for B, 71 points for C, 61 points for D and 51 points for E.
Student Load Sharing:
50% of the workload - direct teaching
15% of the workload - homework
10% of the workload - preparation for lectures and exercises
25% of the workload - preparation for written examinations

Results of education:
The student is able to model elementary processes of natural sciences with ordinary differential equations. He recognizes typical solvable differential equations and can find their solutions. Besides, he knows and is able to apply theorems related to the existence and uniqueness of solutions for general, first-order ordinary differential equations.
After completing the course, the student will gain:
Knowledge:
• He/she understands abstract notions in curriculum and knows the relations among them. He/she recognizes general patterns and concepts in applied problems.
• He/she masters the methodology of creation of mathematical models or analytical frameworks of investigaton of cognitive processes in mathematics and ways of support of hese processes.
• He/she manages to illustrate concepts by means of appropriate examples.
Skills:
• He/she is able to formulate logical and true mathematical statements with exact specification of their conditions and main consequences.
• He/she is able to see and investigate new connections in number theory, analysis, algebra, geometry, finite mathematics, probability and statistics.
• He/she is able to create mathematical models of simple practical tasks and to find and adapt appropriate mathematical means and methods of their solving.
Competence:
• He/she has independent, critical and analytic thinking.

• He/she is able self-containedly earn new mathematical knowledge and extend it.
• Using basic knowledge obtained in various mathematical fields he/she is able self-containedly formulate and analyze mathematical problems.

Brief syllabus:
• Interpretation of the differential equation and its solution.
• Practical tasks in the areas of physics, chemistry and biology, the processes of which can be described by primary or secondary differential equations.
• Basic methods of solving ordinary differential equations in the class of explicit first order.
• Differential equations with separable variable.
• Homogeneous differential equations ,
• Exact differential equations
• Linear differential equations.
• Solving method of the Bernoulli, Ricatti differential equations.
• Solving method of the Lagrange and Clairaut differential equations.
• Solving method of second order, linear differential equations with constant coefficients.
• Euler's second order differential equation with variable coefficients.
• Theorems related to the existence of local solutions for general, first-order differential equations and the uniqueness of their solution.

Literature:
• I. N. Bronstejn, K.A. Szemengyajev, G. Musiol, H. Mühlig: Matematikai kézikönyv, Typotex, 2002. 1210s. ISBN 963 9326 53 4.
• G. B. Thomas: Thomas-féle KALKULUS II. kötet, Typotex, 2010. 360 s. ISBN 978 963 279 159 3.

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: prof. RNDr. János Tóth, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ DS/22	**Name:** Master's Thesis Seminar
Types, range and methods of educational activities: **Form of study:** Lecture / Seminar / Practical **Recommended extent of course (in hours):** **Per week:** 0 / 1 / 0 **For the study period:** 0 / 13 / 0 **Methods of study:** present	
Number of credits: 4	
Recommended semester/trimester of study: 3.	
Level of study: II.	
Prerequisites:	
Conditions for passing the subject: Submission of a selected bibliography and research plan related to the topic of the thesis, and drafting of a part of the thesis (about 15 pages). Attendance at the seminar is compulsory. The student prepares part of the Master's thesis and submits the bibliography. The student must hand in a ready part of the thesis to the tutor by the deadline. If the student does not hand in the ready part of the thesis within 7 days after the deadline, he/she will not receive the credits for the course. The length of the ready part of the thesis to be handed in is determined by the tutor, the formal requirements are specified in the Rector's Directive 2/2021. The work must comply with the technical rules and ethics of citation. Criteria for the evaluation of the work: • the student's analytical-synthetic thought process, • expression of personal opinion supported by theoretical knowledge, • the definition of the problem and the aim of the work, the way in which it has been developed, • the structure of the work - logical structure and proportional length of each part, • work with literature and sources of information (how they are selected and used), • compliance with the basic formal requirements of the essay, compliance with citation requirements, • aesthetic and linguistic quality of the essay. Percentages for each task: Work done in seminars: 20 %. Seminar paper: 80 %. The student must complete at least 50 % of all assignments.	
Results of education: Knowledge: The student is able to: - list and explain the general requirements for the preparation of the Master's thesis, describe and characterize the content structure of the Master's thesis and its parts (introduction, main body, appendices),	

- explain the concepts of phenomenon and fact, list and describe ways of investigating educational phenomena,
- describe in more detail the main methods of collecting and processing the data presented in the Master's thesis,
- identify the basic requirements for the author of a thesis, describe and characterise the model, characteristics and formal structure of a thesis,
- list and explain the formal requirements for the Master's thesis,
- define the concept of an abstract, describe its structure, describe the characteristics of a quality abstract, list the most common mistakes in abstract preparation, distinguish between an abstract and an annotation, an extract, a summary and an overview,
- explain the concepts of citation, quotation, paraphrasing, compilation, plagiarism, distinguish between quotating and paraphrasing, and illustrate different citation and referencing techniques with examples,
- define and interpret in his (her) own words the basic concepts and motifs of the chosen subject area,
- be familair with the basic terms used in the thesis,
- explain thebasic terms used in an essay,
- construct (elaborate) the theoretical plane of the thesis, including all its important aspects,
- analyse and justify the conclusions of the thesis,
- critically analyse, re-evaluate and use in theory the knowledge gained.

Skills:

The student is able to:

- write a draft of his (her) own Master's thesis,
- explain the methodological rules for writing a Master's thesis,
- define the main question and the aim of the thesis, formulate hypotheses where appropriate,
- plan a timetable for the preparation of the Master's thesis, including its table of contents,
- work with literature (primary and secondary sources), search for information in library information databases,
- prepare the text of the Master's thesis, based on the knowledge acquired, by formulating ideas in a logical and precise way, producing a quality abstract, writing an introduction and conclusion, taking into account the criteria given,
- present the knowledge acquired in the field, recognising its complexity and drawing conclusions,
- apply knowledge of the ethics and techniques of citation and drafting,
- use correctly the various methods of citation and referencing and compile a bibliography correctly,
- create (develop) the practical aspects of the thesis, including all relevant aspects,
- analyse, synthesise and compare knowledge and propose solutions on this basis,
- draw conclusions and formulate practical implications through critical analysis,
- critically analyse, reassess and apply the knowledge acquired in practice,
- present, discuss and support the ideas with proper arguments, while writing the thesis,
- present, in a group of students and in the presence of the tutor, the outputs of the activity and justify their relevance and practical use,
- complete the Master's thesis and prepare for its public defence,
- to grade the strengths and weaknesses of the topic of the thesis and the thesis itself,
- critically evaluate the methods and procedures used in the thesis and make suggestions for their practical application,
- acquire independent knowledge in the chosen field,
- apply theoretical knowledge to teaching practice.

Competences:
The student
- is aware of the importance of respecting academic ethics and the ethical implications for his/her own student and future teaching activities,
- acts in accordance with the rules of good conduct,
- has mastered the basics of social appearance, and is dressed appropriately for the state examination,
- adheres to the wthical principles of citation
- expresses his/her beliefs and opinions in a straightforward and honest manner, while accepting that the other party has the right to form his/her own opinion,
- bears and accepts the consequences of his/her own actions.

Brief syllabus:
1. Requirements for the Master's thesis in the SJE guidelines.
2. A concise description of the Master's thesis.
3. The importance of the Master's thesis
4. Selection of the topic for the Master's thesis.
5. Preparation of a selected bibliography for the thesis.
6. Tasks and objectives of the Master's thesis.
7. Choosing the appropriate citation.
8. Content of the Master's thesis.
9. Formulating a strategy for the development of each part (chapter).
10. Working with reference books and journals.
11. Use of the Internet and online publications.
12. Preparing and carrying out the research, and getting ready for the defence of the Master's thesis.

Literature:
• A magyar helyesírás szabályai. 2015. Budapest: Akadémiai Kiadó. 12. kiadás. ISBN 978 963 05 9631 2
• Madarásová, J. (red.) 2000. Pravidlá slovenského pravopisu. Bratislava: VEDA. ISBN 8022406554
• Smernica rektora č. 2/2021 o úprave, registrácii, sprístupnení a archivácii záverečných, rigoróznych a habilitačných prác na Univerzite J. Selyeho. 2021. Komárno: UJS

Language, knowledge of which is necessary to complete a course:
Hungarian language, Slovak language

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: prof. RNDr. János Tóth, PhD., prof. László Szalay, DSc., Dr. habil. Kálmán Csaba Liptai, PhD., Dr. habil. RNDr. Peter Csiba, PhD., doc. RNDr. Ferdinánd Filip, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ MEP/22	**Name:** Metric spaces

Types, range and methods of educational activities:
Form of study: Seminar
Recommended extent of course (in hours):
Per week: 2 **For the study period:** 26
Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 1.

Level of study: II.

Prerequisites:

Conditions for passing the subject:
For the successful completion of the course students are expected to hand in homework assignments (30 points) and pass an exam at the end of the semester consisting of a written part (60 points). The minimum scores required to achieve for the individual grades are the following: 91 points for A, 81 points for B, 71 points for C, 61 points for D and 51 points for E.
Student Load Sharing:
37% of the workload - direct teaching
23% of the workload - homework
20% of the workload - preparation for lectures and exercises
30% of the workload - preparation for written examinations

Results of education:
The student having taken the course is in the first place familiar with the definition of topological and metric spaces. He is able to generalize the conceptual system of real analysis related to limits. Thus, he has a good understanding of the theory of general Banach spaces arising in natural ways. He can declare the most important theorems, such as the Banach fixed-point theorem and is able to draw up the main steps of their proof.
After completing the course, the student will gain:
Knowledge:
• He/she understands abstract notions in curriculum and knows the relations among them. He/she recognizes general patterns and concepts in applied problems.
• He/she masters the methodology of creation of mathematical models or analytical frameworks of investigaton of cognitive processes in mathematics and ways of support of hese processes.
• He/she manages to illustrate concepts by means of appropriate examples.
Skills:
• He/she is able to formulate logical and true mathematical statements with exact specification of their conditions and main consequences.
• He/she is able to see and investigate new connections in number theory, analysis, algebra, geometry, finite mathematics, probability and statistics.
• He/she is able to create mathematical models of simple practical tasks and to find and adapt appropriate mathematical means and methods of their solving.
Competence:

• He/she has independent, critical and analytic thinking.
• He/she is able self-containedly earn new mathematical knowledge and extend it.
• Using basic knowledge obtained in various mathematical fields he/she is able self-containedly formulate and analyze mathematical problems.

Brief syllabus:
• The concept of metric space.
• The Cartesian product of finite metric spaces.
• Environment of the point , open and closed sets.
• Topological space.
• Mapping limits.
• Sequence convergence. Cauchy sequences.
• Complete metric spaces.
• Compact and coherent metric spaces.
• Continuous mappings.
• Properties of functions continuous on compact coherent sets.
• The Banach fixed-point theorem.
• An overview of the historical development of the function concept.

Literature:
• T. Šalát: Metrické priestory, ALFA 1981. 291s.
• Finta Zoltán.: Matematikai analízis II., 1. vyd. - Kolozsvár : Kolozsvári Egyetemi Kiadó, 2007. - 560 s. - ISBN 978-973-610-650-7.

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: doc. RNDr. Ferdinánd Filip, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ MS/22	**Name:** Mathematical software

Types, range and methods of educational activities:
Form of study: Seminar
Recommended extent of course (in hours):
Per week: 2 **For the study period:** 26
Methods of study: present

Number of credits: 2

Recommended semester/trimester of study: 2.

Level of study: II.

Prerequisites:

Conditions for passing the subject:
Active participation in seminars is required (10 points). Throughout the semester, students work on assignments, use mathematical software to solve mathematical problems (for 40 points), and create their own mathematical applications, applets, and presentations (for 50 points).
At least 91 points are required for an A grade, at least 81 points for a B grade, at least 71 points for a C grade, at least 61 points for a D grade, and at least 51 points for an E grade.
Student Load Sharing:
50% of the workload - direct teaching
35% of the workload - homework
15% of the workload - preparation for lectures and exercises

Results of education:
The student knows the available mathematical software and is able to use it to solve more complex mathematical problems. He/she is able to apply the acquired knowledge in practice.
After completing the course, the student will gain:
Knowledge:
• He/she masters the methodology of creation of mathematical models or analytical frameworks of investigaton of cognitive processes in mathematics and ways of support of hese processes.
• He/she manages to illustrate concepts by means of appropriate examples.
•
Skills:
• He/she is able to apply knowledge of number theory, analysis, algebra, geometry, finite mathematics, probability and statistics.
• He/she is able to create mathematical models of simple practical tasks and to find and adapt appropriate mathematical means and methods of their solving.
Competence:
• He/she is able to understand problems specific for other subjects, to cooperate with experts working in these areas and to reformulate their problems into mathematical language.
• He/she works effectively as an individual as well as a member or a leader of a small team.

Brief syllabus:
Types of mathematical software

Interactive geometry and analytical expression
Universal interactive constructions
Representation and analysis of univariate and bivariate functions
Linear algebra
Functions in number theory
Strereometry
Recursive mathematical algorithms
Spreadsheets
Probability and statistics with software
CAS (computer algebra system)

Literature:
GeoGebra v praxi [elektronický zdroj] / zost. Peter Csiba. - Komárno : Univerzita J. Selyeho v Komárne, 2012. - 1 elektronický optický disk (CD-ROM). - Elektronický zborník. - ISBN 978-80-8122-067-8.

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: Dr. habil. RNDr. Peter Csiba, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ PPX4/22	**Name:** Teaching Practice 4

Types, range and methods of educational activities:
Form of study: Practical
Recommended extent of course (in hours):
Per week: For the study period: 20s
Methods of study: present

Number of credits: 2

Recommended semester/trimester of study: 2.

Level of study: II.

Prerequisites:

Conditions for passing the subject:
The final assessment is a portfolio based on the teaching aids developed during the pedagogical practice. The conditions for the completion of the course are regulated by the Dean's Regulation entitled “The Basic Principles of Pedagogical Practice at the J. Selye University Faculty of Education”. The student is obliged to follow the sections of this document concerning active pedagogical practice (PPX4).
Mandatory parts of the portfolio:
- A protocol certifying the completion of the pedagogical practice
- Analysis of observed lessons and observation forms filled in
- Lesson plans, evaluation and analysis of the lessons taught
- Other documents and attachments related to the pedagogical practice
Assessment of the subject: A 100-90%, B 89-80%, C 79-70%, D 69-60%, E 59-50%. An Fx grade may be given if the student achieves less than 50% of the total score.
Student's workload: 2 credits = 50 hours (20 hours of pedagogical practice: 5 hours of observation, 5 hours of analysis (of lessons observed), 5 hours of teaching, 5 hours of analysis (of lessons taught); 30 hours of preparation: preparation for pedagogical practice - consultation with the practice teacher, preparation for the lesson observation, preparation for the lessons to be taught, preparation of the portfolio and documentation)

Results of education:
Educational outputs:
Knowledge:
The student
- is able to observe and analyse high school and middle school activities.
- is able to evaluate and analyse activities of students of upper and middle school.
- is able to document observed upper primary and secondary school activities and activities.
- is able to consult school documents.
- is familiar with the staffing structure and facilities of the school.
- is familiar with the specific activities of the teacher during the lessons.
- knows and understands the environment, culture and organisation of primary and secondary schools.
Skills:

The student
- is able to identify different manifestations of the structural elements of personality, the psychological processes of the learner in the process of studies and in social interactions.
- is familiar with specific activities of the teacher throughout the day, in the classroom and while teaching subjects related to his/her field of specialisation in primary and secondary schools.
- can identify the teaching objectives set by the teacher, the procedures used to achieve them and the extent to which they are achieved.
- can identify various teaching methods used during the lesson.
- describes the didactic aids, communication technologies and tools used in the teaching process, as well as the possibilities of using computers, interactive whiteboards, the Internet, special educational programmes and software, dynamic systems, interactive learning materials and portals in the teaching of subjects in his/her field of specialisation.
- describes the processes of student assessment in the teaching process.
- identifies the teaching and communication style, as well as professional skills of the teacher.
- is able to process, evaluate and reflect on the results of observation in the context of educational theory.
- recognises his/her own level of competence.
- is able to identify common professional problems and to search for, formulate and solve them from a theoretical and practical background (using various practical procedures in practice).
- is able to identify gifted learners, learners with difficulties or special educational needs, disadvantaged learners, learners with multiple disadvantages, as well as learners with special needs, in order to provide them with appropriate guidance in order to enter the labour market.
- is able to prepare a didactically correct written lesson (including all necessary components such as creativity, autonomy, individualisation and alternativity.
- is able to consult the practice teacher on his/her own written preparation.
- is able to properly prepare, teach and evaluate a lesson.
- is able to document the results, as well as to professionally write reflections and self-reflections on the lesson planned, prepared, implemented and evaluated.
Competences:
The student
- takes a position on observed phenomena based on prior theoretical knowledge.
- self-reflects and receives feedback on his (her) own performance from students, colleagues and practitioners.
- presents own personality traits, communication style, values and professional skills in a responsible manner.
- gives feedback and evaluates students' learning outcomes in accordance with assessment principles for the appropriate level of teaching.
- promotes interaction between learners.
- recognises students' expressions of individuality in the context of the formal social group within the classroom, the specific features of students' learning, their particular educational needs and applies elements of differentiation in teaching.
- implements classroom teaching using teaching methods, strategies, resources and aids optimised by the disciplinary-didactic theory of her (his) field, as well as information and communication technologies.
- understands the relationship between teaching principles, consequences and learning effectiveness.
- reflects on her (his) own pedagogical skills.
- is able to develop self-awareness of the teaching profession in a targeted way.

- is able to plan independently activities that develop knowledge in the context of the teaching profession.
- is able to create the atmosphere of trust, helpfulness, encouragement, attentive acceptance, and openness, as well as to recognize and manage of the working style of others.
- optimises a good atmosphere in the learning group (school classroom) and creates a stimulating and non-threatening environment for teaching and learning by applying rules and safe working conditions, and by using proper methods to motivate and activate learners.

Brief syllabus:

Observation and evaluation of the external and internal environment of a primary and secondary school in practice.
Learning about and working with the pedagogical documentation of the class and the school.
Observation of the creation of conditions, implementation and evaluation of lessons in upper primary and secondary schools.
Carrying out a professional analysis of the lessons observed in collaboration with the practice teacher.
Documenting the process and results of each lesson observed.
Didactical procedures for the preparation of the written preparation (with all its components), consultation with the practice teacher.
Preparation of the necessary conditions for the lesson.
Implementation of the planned and prepared lesson, by using innovative strategies, as well as appropriate teaching tools from primary and secondary schools.
Evaluating the lesson, using planned and selected methods and evaluation tools from the point of view of the teacher, the students (and elements of self-evaluation).
Professional analysis done together with the student's practice teacher: preparation, documentation and evaluation of the preparation and its use, as well as other components of the lesson.
Preparation of a portfolio of the lessons observed, with all its components, based on criteria predefined by the practice teacher, using autonomy and alternativity, based on current trends in didactics.

Literature:

Štátny vzdelávací program pre 2. stupeň základnej školy v Slovenskej republike ISCED 2 – nižšie sekundárne vzdelávanie. https://www.statpedu.sk/files/articles/dokumenty/statny-vzdelavaci-program/isced2_spu_uprava.pdf
Štátny vzdelávací program pre gymnázia v Slovenskej republike ISCED 3A – Vyššie sekundárne vzdelávanie. https://www.statpedu.sk/files/articles/dokumenty/statny-vzdelavaci-program/isced3_spu_uprava.pdf
Zákon č. 245/2008 Z. z. – Zákon o výchove a vzdelávaní (školský zákon) a o zmene a doplnení niektorých zákonov. Bratislava : MŠ SR, 2008 (respektíve aktuálny školský zákon).
Aktuálny vnútorný predpis UJS: Zásady realizácie pedagogickej praxe na Pedagogickej fakulte UJS
Gadušová, Z. a kol.: Mentor Training : Ostrava : Ostravská univerzita, 2021. - online, 268 s. - ISBN 978-80-7599-294-9.

Language, knowledge of which is necessary to complete a course:

Hungarian language, Slovak language

Notes:

Evaluation of subjects

Total number of evaluated students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0
Teacher: doc. RNDr. Ferdinánd Filip, PhD.					
Date of last update: 02.03.2022					
Approved by: prof. RNDr. János Tóth, PhD.					

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ PPX5/22	**Name:** Teaching Practice 5

Types, range and methods of educational activities:
Form of study: Practical
Recommended extent of course (in hours):
Per week: For the study period: 20s
Methods of study: present

Number of credits: 2

Recommended semester/trimester of study: 3.

Level of study: II.

Prerequisites:

Conditions for passing the subject:
The final assessment is a portfolio based on the teaching aids developed during the pedagogical practice. The conditions for the completion of the course are regulated by the Dean's Regulation entitled “The Basic Principles of Pedagogical Practice at the J. Selye University Faculty of Education”. The student is obliged to follow the sections of this document concerning active pedagogical practice (PPX5).
Mandatory parts of the portfolio:
- A protocol certifying the completion of the pedagogical practice
- Analysis of observed lessons and observation forms filled in
- Lesson plans, evaluation and analysis of the lessons taught
- Other documents and attachments related to the pedagogical practice
Assessment of the subject: A 100-90%, B 89-80%, C 79-70%, D 69-60%, E 59-50%. An Fx grade may be given if the student achieves less than 50% of the total score.
Student's workload: 2 credits = 50 hours (20 hours of pedagogical practice: 5 hours of observation, 5 hours of analysis (of lessons observed), 5 hours of teaching, 5 hours of analysis (of lessons taught); 30 hours of preparation: preparation for pedagogical practice - consultation with the practice teacher, preparation for the lesson observation, preparation for the lessons to be taught, preparation of the portfolio and documentation)

Results of education:
Educational outputs:
Knowledge:
The student
- is able to observe and analyse high school and middle school activities.
- is able to evaluate and analyse activities of students of upper and middle school.
- is able to document observed upper primary and secondary school activities and activities.
- is able to consult school documents.
- is familiar with the staffing structure and facilities of the school.
- is familiar with the specific activities of the teacher during the lessons.
- knows and understands the environment, culture and organisation of primary and secondary schools.
Skills:

The student
- is able to identify different manifestations of the structural elements of personality, the psychological processes of the learner in the process of studies and in social interactions.
- is familiar with specific activities of the teacher throughout the day, in the classroom and while teaching subjects related to his/her field of specialisation in primary and secondary schools.
- can identify the teaching objectives set by the teacher, the procedures used to achieve them and the extent to which they are achieved.
- can identify various teaching methods used during the lesson.
- describes the didactic aids, communication technologies and tools used in the teaching process, as well as the possibilities of using computers, interactive whiteboards, the Internet, special educational programmes and software, dynamic systems, interactive learning materials and portals in the teaching of subjects in his/her field of specialisation.
- describes the processes of student assessment in the teaching process.
- identifies the teaching and communication style, as well as professional skills of the teacher.
- is able to process, evaluate and reflect on the results of observation in the context of educational theory.
- recognises his/her own level of competence.
- is able to identify common professional problems and to search for, formulate and solve them from a theoretical and practical background (using various practical procedures in practice).
- is able to identify gifted learners, learners with difficulties or special educational needs, disadvantaged learners, learners with multiple disadvantages, as well as learners with special needs, in order to provide them with appropriate guidance in order to enter the labour market.
- is able to prepare a didactically correct written lesson (including all necessary components such as creativity, autonomy, individualisation and alternativity.
- is able to consult the practice teacher on his/her own written preparation.
- is able to properly prepare, teach and evaluate a lesson.
- is able to document the results, as well as to professionally write reflections and self-reflections on the lesson planned, prepared, implemented and evaluated.
Competences:
The student
- takes a position on observed phenomena based on prior theoretical knowledge.
- self-reflects and receives feedback on his (her) own performance from students, colleagues and practitioners.
- presents own personality traits, communication style, values and professional skills in a responsible manner.
- gives feedback and evaluates students' learning outcomes in accordance with assessment principles for the appropriate level of teaching.
- promotes interaction between learners.
- recognises students' expressions of individuality in the context of the formal social group within the classroom, the specific features of students' learning, their particular educational needs and applies elements of differentiation in teaching.
- implements classroom teaching using teaching methods, strategies, resources and aids optimised by the disciplinary-didactic theory of her (his) field, as well as information and communication technologies.
- understands the relationship between teaching principles, consequences and learning effectiveness.
- reflects on her (his) own pedagogical skills.
- is able to develop self-awareness of the teaching profession in a targeted way.

- is able to plan independently activities that develop knowledge in the context of the teaching profession.
- is able to create the atmosphere of trust, helpfulness, encouragement, attentive acceptance, and openness, as well as to recognize and manage of the working style of others.
- optimises a good atmosphere in the learning group (school classroom) and creates a stimulating and non-threatening environment for teaching and learning by applying rules and safe working conditions, and by using proper methods to motivate and activate learners.

Brief syllabus:

Observation and evaluation of the external and internal environment of a primary and secondary school in practice.
Learning about and working with the pedagogical documentation of the class and the school.
Observation of the creation of conditions, implementation and evaluation of lessons in upper primary and secondary schools.
Carrying out a professional analysis of the lessons observed in collaboration with the practice teacher.
Documenting the process and results of each lesson observed.
Didactical procedures for the preparation of the written preparation (with all its components), consultation with the practice teacher.
Preparation of the necessary conditions for the lesson.
Implementation of the planned and prepared lesson, by using innovative strategies, as well as appropriate teaching tools from primary and secondary schools.
Evaluating the lesson, using planned and selected methods and evaluation tools from the point of view of the teacher, the students (and elements of self-evaluation).
Professional analysis done together with the student's practice teacher: preparation, documentation and evaluation of the preparation and its use, as well as other components of the lesson.
Preparation of a portfolio of the lessons observed, with all its components, based on criteria predefined by the practice teacher, using autonomy and alternativity, based on current trends in didactics.

Literature:

Štátny vzdelávací program pre 2. stupeň základnej školy v Slovenskej republike ISCED 2 – nižšie sekundárne vzdelávanie. https://www.statpedu.sk/files/articles/dokumenty/statny-vzdelavaci-program/isced2_spu_uprava.pdf
Štátny vzdelávací program pre gymnázia v Slovenskej republike ISCED 3A – Vyššie sekundárne vzdelávanie. https://www.statpedu.sk/files/articles/dokumenty/statny-vzdelavaci-program/isced3_spu_uprava.pdf
Zákon č. 245/2008 Z. z. – Zákon o výchove a vzdelávaní (školský zákon) a o zmene a doplnení niektorých zákonov. Bratislava : MŠ SR, 2008 (respektíve aktuálny školský zákon).
Aktuálny vnútorný predpis UJS: Zásady realizácie pedagogickej praxe na Pedagogickej fakulte UJS
Gadušová, Z. a kol.: Mentor Training : Ostrava : Ostravská univerzita, 2021. - online, 268 s. - ISBN 978-80-7599-294-9.

Language, knowledge of which is necessary to complete a course:

Hungarian language, Slovak language

Notes:

Evaluation of subjects

Total number of evaluated students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0
Teacher: doc. RNDr. Ferdinánd Filip, PhD.					
Date of last update: 02.03.2022					
Approved by: prof. RNDr. János Tóth, PhD.					

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ PPX6/22	**Name:** Teaching Practice 6

Types, range and methods of educational activities:
Form of study: Practical
Recommended extent of course (in hours):
Per week: For the study period: 40s
Methods of study: present

Number of credits: 4

Recommended semester/trimester of study: 4.

Level of study: II.

Prerequisites:

Conditions for passing the subject:
The final assessment is a portfolio based on the teaching aids developed during the pedagogical practice. The conditions for the completion of the course are regulated by the Dean's Regulation entitled “The Basic Principles of Pedagogical Practice at the J. Selye University Faculty of Education”. The student is obliged to follow the sections of this document concerning active pedagogical practice (PPX6).
Mandatory parts of the portfolio:
- A protocol certifying the completion of the pedagogical practice
- Analysis of observed lessons and observation forms filled in
- Lesson plans, evaluation and analysis of the lessons taught
- Other documents and attachments related to the pedagogical practice
Assessment of the subject: A 100-90%, B 89-80%, C 79-70%, D 69-60%, E 59-50%. An Fx grade may be given if the student achieves less than 50% of the total score.
Student's workload: 2 credits = 50 hours (20 hours of pedagogical practice: 5 hours of observation, 5 hours of analysis (of lessons observed), 5 hours of teaching, 5 hours of analysis (of lessons taught); 30 hours of preparation: preparation for pedagogical practice - consultation with the practice teacher, preparation for the lesson observation, preparation for the lessons to be taught, preparation of the portfolio and documentation)

Results of education:
Educational outputs:
Knowledge:
The student
- is able to observe and analyse high school and middle school activities.
- is able to evaluate and analyse activities of students of upper and middle school.
- is able to document observed upper primary and secondary school activities and activities.
- is able to consult school documents.
- is familiar with the staffing structure and facilities of the school.
- is familiar with the specific activities of the teacher during the lessons.
- knows and understands the environment, culture and organisation of primary and secondary schools.
Skills:

The student
- is able to identify different manifestations of the structural elements of personality, the psychological processes of the learner in the process of studies and in social interactions.
- is familiar with specific activities of the teacher throughout the day, in the classroom and while teaching subjects related to his/her field of specialisation in primary and secondary schools.
- can identify the teaching objectives set by the teacher, the procedures used to achieve them and the extent to which they are achieved.
- can identify various teaching methods used during the lesson.
- describes the didactic aids, communication technologies and tools used in the teaching process, as well as the possibilities of using computers, interactive whiteboards, the Internet, special educational programmes and software, dynamic systems, interactive learning materials and portals in the teaching of subjects in his/her field of specialisation.
- describes the processes of student assessment in the teaching process.
- identifies the teaching and communication style, as well as professional skills of the teacher.
- is able to process, evaluate and reflect on the results of observation in the context of educational theory.
- recognises his/her own level of competence.
- is able to identify common professional problems and to search for, formulate and solve them from a theoretical and practical background (using various practical procedures in practice).
- is able to identify gifted learners, learners with difficulties or special educational needs, disadvantaged learners, learners with multiple disadvantages, as well as learners with special needs, in order to provide them with appropriate guidance in order to enter the labour market.
- is able to prepare a didactically correct written lesson (including all necessary components such as creativity, autonomy, individualisation and alternativity.
- is able to consult the practice teacher on his/her own written preparation.
- is able to properly prepare, teach and evaluate a lesson.
- is able to document the results, as well as to professionally write reflections and self-reflections on the lesson planned, prepared, implemented and evaluated.
Competences:
The student
- takes a position on observed phenomena based on prior theoretical knowledge.
- self-reflects and receives feedback on his (her) own performance from students, colleagues and practitioners.
- presents own personality traits, communication style, values and professional skills in a responsible manner.
- gives feedback and evaluates students' learning outcomes in accordance with assessment principles for the appropriate level of teaching.
- promotes interaction between learners.
- recognises students' expressions of individuality in the context of the formal social group within the classroom, the specific features of students' learning, their particular educational needs and applies elements of differentiation in teaching.
- implements classroom teaching using teaching methods, strategies, resources and aids optimised by the disciplinary-didactic theory of her (his) field, as well as information and communication technologies.
- understands the relationship between teaching principles, consequences and learning effectiveness.
- reflects on her (his) own pedagogical skills.
- is able to develop self-awareness of the teaching profession in a targeted way.

- is able to plan independently activities that develop knowledge in the context of the teaching profession.
- is able to create the atmosphere of trust, helpfulness, encouragement, attentive acceptance, and openness, as well as to recognize and manage of the working style of others.
- optimises a good atmosphere in the learning group (school classroom) and creates a stimulating and non-threatening environment for teaching and learning by applying rules and safe working conditions, and by using proper methods to motivate and activate learners.

Brief syllabus:

Observation and evaluation of the external and internal environment of a primary and secondary school in practice.
Learning about and working with the pedagogical documentation of the class and the school.
Observation of the creation of conditions, implementation and evaluation of lessons in upper primary and secondary schools.
Carrying out a professional analysis of the lessons observed in collaboration with the practice teacher.
Documenting the process and results of each lesson observed.
Didactical procedures for the preparation of the written preparation (with all its components), consultation with the practice teacher.
Preparation of the necessary conditions for the lesson.
Implementation of the planned and prepared lesson, by using innovative strategies, as well as appropriate teaching tools from primary and secondary schools.
Evaluating the lesson, using planned and selected methods and evaluation tools from the point of view of the teacher, the students (and elements of self-evaluation).
Professional analysis done together with the student's practice teacher: preparation, documentation and evaluation of the preparation and its use, as well as other components of the lesson.
Preparation of a portfolio of the lessons observed, with all its components, based on criteria predefined by the practice teacher, using autonomy and alternativity, based on current trends in didactics.

Literature:

Language, knowledge of which is necessary to complete a course:
Hungarian language, Slovak language

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: doc. RNDr. Ferdinánd Filip, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ SPS/22	**Name:** Seminar on probability and basic of statistics

Types, range and methods of educational activities:
Form of study: Seminar
Recommended extent of course (in hours):
Per week: 2 **For the study period:** 26
Methods of study: present

Number of credits: 2

Recommended semester/trimester of study: 2.

Level of study: II.

Prerequisites:

Conditions for passing the subject:
During the semester will be held two written tests by 35 points and for the active work of student can the student obtain 30 points. Of the total of 100 points it is needed to obtain at least 90 points on the valuation A, for grade B is necessary to obtain 80 points, for grade C at least 70 points, for grade D at least 60 points and for grade E at least 50 points. If this condition is not met, a written test will be given in the exam period to obtain max. 70 points. Points earned will be counted in the overall rating.
Student Load Sharing:
50% of the workload - direct teaching
15% of the workload - preparation for lectures and exercises
35% of the workload - preparation for written examinations

Results of education:
The successful completion of the course gives basic knowledge from probability theory and an overview of descriptive statistics methods. The student understands the basic concepts and know about the different formulas for calculating probability. Using random variables the student describes random events and calculate its numerical characteristics. Students master the basic methods of descriptive statistics to analyze the results of random experiments.
After completing the course, the student will gain:
Knowledge:
He/she understands abstract notions in curriculum and knows the relations among them. He/she recognizes general patterns and concepts in applied problems.
He/she masters the methodology of creation of mathematical models or analytical frameworks of investigaton of cognitive processes in mathematics and ways of support of hese processes.
He/she manages to illustrate concepts by means of appropriate examples.
Skills:
He/she is able to formulate logical and true mathematical statements with exact specification of their conditions and main consequences.
He/she is able to deduce qualitative conclusions from quantitative data.
He/she is able to design experiments for data collection and to analyse their results using mathematical and IT means.
Competence:

He/she has independent, critical and analytic thinking.
He/she is able self-containedly earn new mathematical knowledge and extend it.
Using basic knowledge obtained in various mathematical fields he/she is able self-containedly formulate and analyze mathematical problems.

Brief syllabus:
• Random events. Operations with random events.
• Probability of random events. Definition of the probability. The Kolmogorovs field of probability.
• Conditional and total probability. Bayes theorem.
• Independence of events. Bernoulli scheme.
• Random variable. Probability distribution, probability density function.
• Characteristics of random variable.
• Discrete distributions. Expected value and standard deviation. Calculations of probability.
• Continuous distributions. Probability density function, expected value and standard deviation. Calculations of probability.
• Laws of large numbers. Central limit theorem.
• Introduction to descriptive statistics. Statistical methods of the analysis of random experiment.
• Frequency analysis and graphical display of data.
• Measures of central tendency and variability.
• Statistical relationship between data.

Literature:
• Bukor J., Árki Z., Fehér Z.: Valószínűségszámítás. 1. vyd. Komárom : Selye János Egyetem Gazdaságtudományi Kara, 2010. - 120s. - ISBN 978-80-89234-94-3.
• Obádovics, Gy.: Valószínűségszámítás és matematikai statisztika, SCOLAR, Budapest, 2003. 302 s. ISBN 963 9534 005.
• Nemetz T., Wintshe G.: Valószínűségszámítás és statisztika mindenkinek. - Szeged : Bolyai Intézet POLYGON, 1999. - 243 s. ISSN 1218-4071.
• Nemetz T.: Valószínűségszámítás : Speciális matematika tankönyvek. - 4., változatlan utánnyomás. - Budapest : Typotex kiadó, 2010. - 292 s. - ISBN 978 963 279 164 7.
• Nagy-György J., Oszténiné Krauczi É., Székely L.: Valószínűségszámítás és statisztika példatár. - 3. vyd. - Szeged : Szegedi Egyetemi Kiadó POLYGON, 2010. - 111 s. ISSN 1417-0590.

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: prof. László Szalay, DSc.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ STC/22	**Name:** Number theory seminar
Types, range and methods of educational activities: **Form of study:** Seminar **Recommended extent of course (in hours):** **Per week:** 2 **For the study period:** 26 **Methods of study:** present	
Number of credits: 3	
Recommended semester/trimester of study: 1.	
Level of study: II.	
Prerequisites:	
Conditions for passing the subject: For the successful completion of the course students are expected to hand in homework assignments (30 points) and pass an exam at the end of the semester consisting of a written part (60 points). The minimum scores required to achieve for the individual grades are the following: 91 points for A, 81 points for B, 71 points for C, 61 points for D and 51 points for E. Student Load Sharing: 37% of the workload - direct teaching 23% of the workload - homework 20% of the workload - preparation for lectures and exercises 30% of the workload - preparation for written examinations	
Results of education: After completing the course, the student will gain: Knowledge: • He/she understands abstract notions in curriculum and knows the relations among them. He/she recognizes general patterns and concepts in applied problems. • He/she masters the methodology of creation of mathematical models or analytical frameworks of investigaton of cognitive processes in mathematics and ways of support of hese processes. • He/she manages to illustrate concepts by means of appropriate examples. Skills: • He/she is able to formulate logical and true mathematical statements with exact specification of their conditions and main consequences. • He/she is able to see and investigate new connections in number theory, analysis, algebra, geometry, finite mathematics, probability and statistics. • He/she is able to create mathematical models of simple practical tasks and to find and adapt appropriate mathematical means and methods of their solving. Competence: • He/she has independent, critical and analytic thinking. • He/she is able self-containedly earn new mathematical knowledge and extend it. • Using basic knowledge obtained in various mathematical fields he/she is able self-containedly formulate and analyze mathematical problems.	

Brief syllabus:

Literature:

• Šalát a kol.: Algebra a teoretická aritmetika 2, Bratislava, Alfa 1986
• László, B. - Tóth, J.: Bevezetés a számelméletbe, Lilium Aurum, 1999
• Freud, R. a kol.: Számelmélet, Nemzeti Tankönyvkiadó, Budapest, 2000. ISBN 9631907848
• Bege A.: Bevezetés a számelméletbe - 1. vyd. - Cluj-Napoca : Scientia, 2002. - 198 s. - ISBN 973-85750-7-9.
• Apostol. T. M.: Introduction to Analytic Number Theory - 1. vyd. - New York : Springer Science+Business Media, 1976. - 338 s. - ISBN 0-387-90163-9.

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: prof. László Szalay, DSc.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ SV1/22	**Name:** Theory of Mathematics Teaching Seminar 1
Types, range and methods of educational activities: **Form of study:** Seminar **Recommended extent of course (in hours):** **Per week:** 2 **For the study period:** 26 **Methods of study:** present	
Number of credits: 3	
Recommended semester/trimester of study: 1.	
Level of study: II.	
Prerequisites:	
Conditions for passing the subject: During the semester, the student actively participates in the teaching process, solves mathematical problems in seminars, and solves the problems of the teacher's designated collection of secondary school mathematics problems. Student Load Sharing: 37% of the workload - direct teaching 33% of the workload - homework 30% of the workload - preparation for lectures and exercises	
Results of education: The aim of the course is the didactic analysis of the thematic areas of the mathematics curriculum of regional education. After completing the course, the student will gain: Knowledge: • He/she is familiar with basic mathematical relations in fields of mathematical analysis, algebra, number theory, geometry, discrete mathematics and probability and statistics. • He/she understands the basic connections among individual mathematical fields. • He/she understands specific features of mathematical thinking. Skills: • He/she is able to apply knowledge of number theory, analysis, algebra, geometry, finite mathematics, probability and statistics. • He/she is able to perform comparative analysis of various mathematical models. • He/she is able to create mathematical models of simple practical tasks and to find and adapt appropriate mathematical means and methods of their solving. Competence: • He/she is able appropriately and professionally present his/her opinion on solving mathematical problems to various audiences. • He/she demonstrates a high level of self-activity in solving mathematical problems. • He/she works effectively as an individual as well as a member or a leader of a small team.	
Brief syllabus: Introduction of number concepts	

Counting and number, the decimal number system
Extension of the number field and the set of numbers
Introduction of rational numbers and fractions
Number theory in the primary school curriculum
Algorithms for efficient counting
Introduction of negative numbers
Introduction of equations and inequalities, systems of equations
Algebra, interpretation of algebraic identities
Introduction of irrational numbers
Combinatorics
Probability experiments
Complex numbers

Literature:

Pólya Gy.: A gondolkodás iskolája : Hogyan oldjunk meg feladatokat? Budapest: Akkord, 2000. - 226 s. - ISBN 963 7803 75 0.
Pólya Gy.: A problémamegoldás iskolája, Budapest : Tankönyvkiadó, 1979. - 228 s. - ISBN 963 17 3844 2.
Hejný a kol.: Teória vyučovania matematiky 2, SPN, Bratislava, 1990. 560 s. ISBN 80-08-01344-3.
Journals: A matematika tanítása, Polygon
Mathematics textbooks and task collections for grade 2 of primary schools and secondary schools

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: Dr. habil. RNDr. Peter Csiba, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ SV2/22	**Name:** Theory of Mathematics Teaching Seminar 1
Types, range and methods of educational activities: **Form of study:** Seminar **Recommended extent of course (in hours):** **Per week:** 2 **For the study period:** 26 **Methods of study:** present	
Number of credits: 2	
Recommended semester/trimester of study: 2.	
Level of study: II.	
Prerequisites:	
Conditions for passing the subject: During the semester, the student actively participates in the teaching process, solves mathematical problems in seminars, and solves the problems of the teacher's designated collection of secondary school mathematics problems. Student Load Sharing: 37% of the workload - direct teaching 33% of the workload - homework 30% of the workload - preparation for lectures and exercises	
Results of education: The aim of the course is the didactic analysis of the thematic areas of the mathematics curriculum of regional education. After completing the course, the student will gain: Knowledge: • He/she is familiar with basic mathematical relations in fields of mathematical analysis, algebra, number theory, geometry, discrete mathematics and probability and statistics. • He/she understands the basic connections among individual mathematical fields. • He/she understands specific features of mathematical thinking. Skills: • He/she is able to apply knowledge of number theory, analysis, algebra, geometry, finite mathematics, probability and statistics. • He/she is able to perform comparative analysis of various mathematical models. • He/she is able to create mathematical models of simple practical tasks and to find and adapt appropriate mathematical means and methods of their solving. Competence: • He/she is able appropriately and professionally present his/her opinion on solving mathematical problems to various audiences. • He/she demonstrates a high level of self-activity in solving mathematical problems. • He/she works effectively as an individual as well as a member or a leader of a small team.	
Brief syllabus: Introduction to the basic concepts and relations of geometry, measurement,	

Geometrical places and their role in geometric constructions
Mathematical thinking in geometric construction tasks
Difficulties of symbolic description in geometry, analytical reprezentation
Making geometric concepts meaningful
Possibilities and limitations of spatial perception
Introduction to the concept of functions
Linear and inverse proportionality
Ratios and power functions
Quadratic equation and function
Arithmetic and geometric series
Exponential and logarithmic functions and equations
Introduction to infinitesimal calculus

Literature:

Pólya Gy.: A gondolkodás iskolája : Hogyan oldjunk meg feladatokat? Budapest: Akkord, 2000. - 226 s. - ISBN 963 7803 75 0.
Pólya Gy.: A problémamegoldás iskolája, Budapest : Tankönyvkiadó, 1979. - 228 s. - ISBN 963 17 3844 2.
Hejný a kol.: Teória vyučovania matematiky 2, SPN, Bratislava, 1990. 560 s. ISBN 80-08-01344-3.
Journals: A matematika tanítása, Polygon
Mathematics textbooks and task collections for grade 2 of primary schools and secondary schools

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: Dr. habil. RNDr. Peter Csiba, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ TEA/22	**Name:** Theoretical arithmetics
Types, range and methods of educational activities: **Form of study:** Lecture / Seminar **Recommended extent of course (in hours):** **Per week:** 2 / 1 **For the study period:** 26 / 13 **Methods of study:** present	
Number of credits: 4	
Recommended semester/trimester of study: 3.	
Level of study: II.	
Prerequisites:	
Conditions for passing the subject: For the successful completion of the course students are expected to hand in homework assignments (30 points) and pass an exam at the end of the semester consisting of a written part (50 points) and an oral part (20 points). The minimum scores required to achieve for the individual grades are the following: 91 points for A, 81 points for B, 71 points for C, 61 points for D and 51 points for E. Student Load Sharing: 39% of the workload - direct teaching 21% of the workload - homework 15% of the workload - preparation for lectures and exercises 25% of the workload - exam preparation	
Results of education: After completing the course, the student will gain: Knowledge: • He/she understands abstract notions in curriculum and knows the relations among them. He/she recognizes general patterns and concepts in applied problems. • He/she masters the methodology of creation of mathematical models or analytical frameworks of investigaton of cognitive processes in mathematics and ways of support of hese processes. • He/she manages to illustrate concepts by means of appropriate examples. Skills: • He/she is able to formulate logical and true mathematical statements with exact specification of their conditions and main consequences. • He/she is able to see and investigate new connections in number theory, analysis, algebra, geometry, finite mathematics, probability and statistics. • He/she is able to create mathematical models of simple practical tasks and to find and adapt appropriate mathematical means and methods of their solving. Competence: • He/she has independent, critical and analytic thinking. • He/she is able self-containedly earn new mathematical knowledge and extend it.	

• Using basic knowledge obtained in various mathematical fields he/she is able self-containedly formulate and analyze mathematical problems.

Brief syllabus:

Literature:

• Šalát a kol.: Algebra a teoretická aritmetika 2, Bratislava, Alfa 1986
• Apostol. T. M.: Introduction to Analytic Number Theory - 1. vyd. - New York : Springer Science+Business Media, 1976. - 338 s. - ISBN 0-387-90163-9.
• Freud, R. a kol.: Számelmélet, Nemzeti Tankönyvkiadó, Budapest, 2000. ISBN 9631907848

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: doc. RNDr. Ferdinánd Filip, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ TEC/22	**Name:** Number theory

Types, range and methods of educational activities:
Form of study: Lecture / Seminar
Recommended extent of course (in hours):
Per week: 2 / 1 **For the study period:** 26 / 13
Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 1.

Level of study: II.

Prerequisites:

Conditions for passing the subject:
For the successful completion of the course students are expected to hand in homework assignments (30 points) and pass an exam at the end of the semester consisting of a written part (50 points) and an oral part (20 points). The minimum scores required to achieve for the individual grades are the following: 90 points for A, 80 points for B, 70 points for C, 60 points for D and 50 points for E.
Student Load Sharing:
31% of the workload - direct teaching
29% of the workload - homework
15% of the workload - preparation for lectures and exercises
25% of the workload - exam preparation

Results of education:
The course is designed to introduce the basic arithmetic function and show the existing relationships between them. The most important theorems related to the distribution of number theory functions are also presented as well as the most important formulas regarding the distribution of prime numbers.
After completing the course, the student will gain:
Knowledge:
• He/she understands abstract notions in curriculum and knows the relations among them. He/she recognizes general patterns and concepts in applied problems.
• He/she masters the methodology of creation of mathematical models or analytical frameworks of investigaton of cognitive processes in mathematics and ways of support of hese processes.
• He/she manages to illustrate concepts by means of appropriate examples.
Skills:
• He/she is able to formulate logical and true mathematical statements with exact specification of their conditions and main consequences.
• He/she is able to see and investigate new connections in number theory, analysis, algebra, geometry, finite mathematics, probability and statistics.
• He/she is able to create mathematical models of simple practical tasks and to find and adapt appropriate mathematical means and methods of their solving.
Competence:

• He/she has independent, critical and analytic thinking.
• He/she is able self-containedly earn new mathematical knowledge and extend it.
• Using basic knowledge obtained in various mathematical fields he/she is able self-containedly formulate and analyze mathematical problems.

Brief syllabus:

Literature:

• Šalát a kol.: Algebra a teoretická aritmetika 2, Bratislava, Alfa 1986
• László, B. - Tóth, J.: Bevezetés a számelméletbe, Lilium Aurum, 1999
• Freud, R. a kol.: Számelmélet, Nemzeti Tankönyvkiadó, Budapest, 2000. ISBN 9631907848
• Bege A.: Bevezetés a számelméletbe - 1. vyd. - Cluj-Napoca : Scientia, 2002. - 198 s. - ISBN 973-85750-7-9.
• Apostol. T. M.: Introduction to Analytic Number Theory - 1. vyd. - New York : Springer Science+Business Media, 1976. - 338 s. - ISBN 0-387-90163-9.

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: prof. RNDr. János Tóth, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ TPS/22	**Name:** Probability theory and basic of statistics

Types, range and methods of educational activities:
Form of study: Lecture / Seminar
Recommended extent of course (in hours):
Per week: 2 / 1 **For the study period:** 26 / 13
Methods of study: present

Number of credits: 4

Recommended semester/trimester of study: 2.

Level of study: II.

Prerequisites:

Conditions for passing the subject:
For the successful completion of the course students are expected to hand in homework assignments (30 points) and pass an exam at the end of the semester consisting of a written part (50 points) and an oral part (20 points). The minimum scores required to achieve for the individual grades are the following: 90 points for A, 80 points for B, 70 points for C, 60 points for D and 50 points for E.
Student Load Sharing:
39% of the workload - direct teaching
21% of the workload - homework
15% of the workload - preparation for lectures and exercises
25% of the workload - exam preparation

Results of education:
The successful completion of the course gives basic knowledge from probability theory and an overview of descriptive statistics methods. The student understands the basic concepts and know about the different formulas for calculating probability. Using random variables the student describes random events and calculate its numerical characteristics. Students master the basic methods of descriptive statistics to analyze the results of random experiments.
After completing the course, the student will gain:
Knowledge:
He/she understands abstract notions in curriculum and knows the relations among them. He/she recognizes general patterns and concepts in applied problems.
He/she masters the methodology of creation of mathematical models or analytical frameworks of investigaton of cognitive processes in mathematics and ways of support of hese processes.
He/she manages to illustrate concepts by means of appropriate examples.
Skills:
He/she is able to formulate logical and true mathematical statements with exact specification of their conditions and main consequences.
He/she is able to deduce qualitative conclusions from quantitative data.
He/she is able to design experiments for data collection and to analyse their results using mathematical and IT means.
Competence:

He/she has independent, critical and analytic thinking.
He/she is able self-containedly earn new mathematical knowledge and extend it.
Using basic knowledge obtained in various mathematical fields he/she is able self-containedly formulate and analyze mathematical problems.

Brief syllabus:
• Random events. Operations with random events.
• Probability of random events. Definition of the probability. The Kolmogorovs field of probability.
• Conditional and total probability. Bayes theorem.
• Independence of events. Bernoulli scheme.
• Random variable. Probability distribution, probability density function.
• Characteristics of random variable.
• Discrete distributions. Expected value and standard deviation. Calculations of probability.
• Continuous distributions. Probability density function, expected value and standard deviation. Calculations of probability.
• Laws of large numbers. Central limit theorem.
• Introduction to descriptive statistics. Statistical methods of the analysis of random experiment.
• Frequency analysis and graphical display of data.
• Measures of central tendency and variability.
• Statistical relationship between data.

Literature:
• Bukor J., Árki Z., Fehér Z.: Valószínűségszámítás. 1. vyd. Komárom : Selye János Egyetem Gazdaságtudományi Kara, 2010. - 120s. - ISBN 978-80-89234-94-3.
• Obádovics, Gy.: Valószínűségszámítás és matematikai statisztika, SCOLAR, Budapest, 2003. 302 s. ISBN 963 9534 005.
• Nemetz T., Wintshe G.: Valószínűségszámítás és statisztika mindenkinek. - Szeged : Bolyai Intézet POLYGON, 1999. - 243 s. ISSN 1218-4071.
• Nemetz T.: Valószínűségszámítás : Speciális matematika tankönyvek. - 4., változatlan utánnyomás. - Budapest : Typotex kiadó, 2010. - 292 s. - ISBN 978 963 279 164 7.
• Nagy-György J., Oszténiné Krauczi É., Székely L.: Valószínűségszámítás és statisztika példatár. - 3. vyd. - Szeged : Szegedi Egyetemi Kiadó POLYGON, 2010. - 111 s. ISSN 1417-0590.

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: prof. László Szalay, DSc.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ TV1/22	**Name:** Theory of mathematics teaching and problem solving 1

Types, range and methods of educational activities:
Form of study: Lecture / Seminar
Recommended extent of course (in hours):
Per week: 1 / 2 **For the study period:** 13 / 26
Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 2.

Level of study: II.

Prerequisites:

Conditions for passing the subject:
During the semester, the student actively participates in the teaching process, solves mathematical problems in seminars, and solves the problems of the teacher's designated collection of secondary school mathematics problems.
He/she prepares a model lesson and "teaches" that lesson from the designated area of the elementary school curriculum in the seminars.
In addition to the above, the assessment of the course is determined by passing both the written and oral parts of the examination.
Student Load Sharing:
31% of the workload - direct teaching
36% of the workload - preparation for lectures and exercises
25% of the workload - exam preparation

Results of education:
After completing the course, the student will gain:
Knowledge:
• He/she understands abstract notions in curriculum and knows the relations among them. He/she recognizes general patterns and concepts in applied problems.
• He/she masters the methodology of creation of mathematical models or analytical frameworks of investigaton of cognitive processes in mathematics and ways of support of hese processes.
• He/she manages to illustrate concepts by means of appropriate examples.
Skills:
• He/she is able to formulate logical and true mathematical statements with exact specification of their conditions and main consequences.
• He/she is able to see and investigate new connections in number theory, analysis, algebra, geometry, finite mathematics, probability and statistics.
• He/she is able to create mathematical models of simple practical tasks and to find and adapt appropriate mathematical means and methods of their solving.
Competence:
• He/she has independent, critical and analytic thinking.
• He/she is able self-containedly earn new mathematical knowledge and extend it.

• Using basic knowledge obtained in various mathematical fields he/she is able self-containedly formulate and analyze mathematical problems.

Brief syllabus:
Objectives, principles and methods of teaching mathematics,
Conceptual and cognitive process in mathematics, its stages and deformations,
Parallel of phylogeny and ontogenesis of mathematical thinking,
Motivation in the teaching of mathematics,
The language of mathematics, its historical development and didactic significance,
Symbolism of mathematics, Concepts of mathematics education,
Legislative framework and content of the mathematics curriculum in primary and secondary schools,
Methods of solving mathematical problems,
Personality of the mathematics teacher,
Teaching aids and didactic technology in mathematics teaching,
Some current trends in the theory of mathematics teaching,
Internet, computers and multimedia in mathematics teaching,
Diagnostics and classification in mathematics lessons

Literature:
Hejný a kol.: Teória vyučovania matematiky 2, SPN, Bratislava, 1990. 560 s. ISBN 80-08-01344-3.
Pólya Gy.: A gondolkodás iskolája : Hogyan oldjunk meg feladatokat? Budapest: Akkord, 2000. - 226 s. - ISBN 963 7803 75 0.
Pólya Gy.: A problémamegoldás iskolája, Budapest : Tankönyvkiadó, 1979. - 228 s. - ISBN 963 17 3844 2.
Szendrei J.: Gondolod, hogy egyre megy?, Typotex Kiadó, Budapest, 2005. 471 s. ISBN 963 9548 52 9.
Ambrus, A.: Bevezetés a matematikadidaktikába, ELTE, Budapest, 1995. 200 s. ISBN 0005023.
Richard Skemp: A matematikatanulás pszichológiája, Budapest: Gondolat, 1975. 410 s. ISBN 963 280 218 7.
Journals: A matematika tanítása, Polygon
Mathematics textbooks for grade 2 of primary and secondary schools

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: Dr. habil. RNDr. Peter Csiba, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ TV2/22	**Name:** Theory of mathematics teaching and problem solving 2

Types, range and methods of educational activities:
Form of study: Lecture / Seminar
Recommended extent of course (in hours):
Per week: 1 / 2 **For the study period:** 13 / 26
Methods of study: present

Number of credits: 4

Recommended semester/trimester of study: 3.

Level of study: II.

Prerequisites:

Conditions for passing the subject:
During the semester, the student actively participates in the teaching process, solves mathematical problems in seminars, and solves the problems of the teacher's designated collection of secondary school mathematics problems. He/she prepares a model lesson and "teaches" that lesson from the designated area of the secondary school curriculum in the seminars. In addition to the above, the assessment of the course is determined by passing both the written and oral parts of the examination.
Student Load Sharing:
39% of the workload - direct teaching
21% of the workload - homework
15% of the workload - preparation for lectures and exercises
25% of the workload - exam preparation

Results of education:
After completing the course, the student will gain:
Knowledge:
• He/she understands abstract notions in curriculum and knows the relations among them. He/she recognizes general patterns and concepts in applied problems.
• He/she masters the methodology of creation of mathematical models or analytical frameworks of investigaton of cognitive processes in mathematics and ways of support of hese processes.
• He/she manages to illustrate concepts by means of appropriate examples.
Skills:
• He/she is able to formulate logical and true mathematical statements with exact specification of their conditions and main consequences.
• He/she is able to see and investigate new connections in number theory, analysis, algebra, geometry, finite mathematics, probability and statistics.
• He/she is able to create mathematical models of simple practical tasks and to find and adapt appropriate mathematical means and methods of their solving.
Competence:
• He/she has independent, critical and analytic thinking.
• He/she is able self-containedly earn new mathematical knowledge and extend it.

• Using basic knowledge obtained in various mathematical fields he/she is able self-containedly formulate and analyze mathematical problems.

Brief syllabus:

Mathematical concepts, concept formation, conceptual systems and hierarchies. Methods and types of tasks for teaching new concepts.
A systematic view of the curriculum in mathematics education, characteristics of the spiral curriculum.
Mathematical thinking and reasoning
Developing mathematical, thinking strategies
Analogy
Generalisation - specialisation
Induction - deduction
Variation of a problem
Analysis - synthesis
Heuristics
Problem-oriented mathematics teaching
Class organisation and management
Structure of a mathematics lesson

Literature:

Hejný a kol.: Teória vyučovania matematiky 2, SPN, Bratislava, 1990. 560 s. ISBN 80-08-01344-3.
Pólya Gy.: A gondolkodás iskolája : Hogyan oldjunk meg feladatokat? Budapest: Akkord, 2000. - 226 s. - ISBN 963 7803 75 0.
Pólya Gy.: A problémamegoldás iskolája, Budapest : Tankönyvkiadó, 1979. - 228 s. - ISBN 963 17 3844 2. Szendrei J.: Gondolod, hogy egyre megy?, Typotex Kiadó, Budapest, 2005. 471 s. ISBN 963 9548 52 9.
Ambrus, A.: Bevezetés a matematikadidaktikába, ELTE, Budapest, 1995. 200 s. ISBN 0005023.
Richard Skemp: A matematikatanulás pszichológiája, Budapest: Gondolat, 1975. 410 s. ISBN 963 280 218 7. Journals: A matematika tanítása, Polygon
Mathematics textbooks for grade 2 of primary and secondary schools

Language, knowledge of which is necessary to complete a course:

Hungarian, Slovak

Notes:

Evaluation of subjects

Total number of evaluated students: 0

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

Teacher: Dr. habil. Kálmán Csaba Liptai, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ UMS/22	**Name:** Problems in mathematical competitions
Types, range and methods of educational activities: **Form of study:** Seminar **Recommended extent of course (in hours):** **Per week:** 2 **For the study period:** 26 **Methods of study:** present	
Number of credits: 2	
Recommended semester/trimester of study: 3.	
Level of study: II.	
Prerequisites:	
Conditions for passing the subject: Successful completion of the course requires active participation in seminars, submission of assignments, and successful completion of a final written test at the end of the semester. Student Load Sharing: 50% of the workload - direct teaching 15% of the workload - homework 10% of the workload - preparation for lectures and exercises 25% of the workload - preparation for written examinations	
Results of education: After completing the course, the student will gain: Knowledge: • He/she understands abstract notions in curriculum and knows the relations among them. He/she recognizes general patterns and concepts in applied problems. • He/she masters the methodology of creation of mathematical models or analytical frameworks of investigaton of cognitive processes in mathematics and ways of support of hese processes. • He/she manages to illustrate concepts by means of appropriate examples. Skills: • He/she is able to formulate logical and true mathematical statements with exact specification of their conditions and main consequences. • He/she is able to see and investigate new connections in number theory, analysis, algebra, geometry, finite mathematics, probability and statistics. • He/she is able to create mathematical models of simple practical tasks and to find and adapt appropriate mathematical means and methods of their solving. Competence: • He/she has independent, critical and analytic thinking. • He/she is able self-containedly earn new mathematical knowledge and extend it. • Using basic knowledge obtained in various mathematical fields he/she is able self-containedly formulate and analyze mathematical problems.	
Brief syllabus:	
Literature:	

• Engel, A.: Problem-Solving Strategies, Springer-Verlag, New York, 2000. 406s. ISBN 0-387-98219-1.
• Časopisy: KoMaL, Abacus, MatLap, A matematika tanítása, Polygon, Matematické obzory
• Hódi E.: Matematikai mozaik, Typotex, Budapest, 1999. 323s. ISBN 963 9132 36 5.

Language, knowledge of which is necessary to complete a course:
Hungarian, Slovak

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher: Dr. habil. Kálmán Csaba Liptai, PhD.

Date of last update: 02.03.2022

Approved by: prof. RNDr. János Tóth, PhD.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Education	
Code: KMAT/ ŠSMgr/22	**Name:** Mathematics - state examination
Types, range and methods of educational activities: **Form of study:** **Recommended extent of course (in hours):** **Per week: For the study period:** **Methods of study:** present	
Number of credits: 3	
Recommended semester/trimester of study:	
Level of study: II.	
Prerequisites:	
Conditions for passing the subject: All students who have met the requirements of the programme of study in the final year of their studies may take the state examination at the regular time according to the study schedule. In the oral state examination, the student gives an account of his/her knowledge and skills in his/her field of specialisation and the interdisciplinary connection with the relevant fields of specialisation. He/she demonstrates the ability to select the content of education in accordance with the required and expected educational objectives and to enrich it with school and regional characteristics. The student demonstrates the ability to communicate information, ideas, problems and solutions to professional and lay audience. The state examination takes the form of a colloquium in which the student's performance is assessed on a scale from A to FX. The grade counts for the overall state examination grade. The oral examination is graded on the following scale: A - 100-91%, B - 90-81%, C - 80-71%, D - 70-61%, E - 60-50%. A student who fails to achieve 50% receives no credit. The results of the state examination and the thesis defence are publicly announced by the chair of the board.	
Results of education: Knowledge: - the student has acquired knowledge in the compulsory and profile subjects of the study programme, - the student is able to define and interpret basic concepts in his/her own words, to explain and describe basic processes, to characterise and to apply academic methods of research in the areas indicated in the subject's thematic plan, - the student is able to analyse and evaluate the knowledge acquired in the subject. - be able to characterise the concept of teaching, to list the different types of teaching and to describe the framework for teaching and learning for 11-19 year olds. Skills: - the student is able to present his/her expertise, - the student is able to hand over his/her knowledge - the student is able to organise and apply the theoretical knowledge acquired in practical teaching activities, - the student can select and apply teaching procedures appropriately,	

- the student is able to guide the learner in the acquisition of knowledge, taking into account the individual needs of the learner,
- the student has the ability to organise and apply the knowledge acquired in the course of his (her) studies.
Competences:
- the student is able to express his/her linguistic and professional culture in the oral examination,
- the student is able to use the knowledge acquired in a wider context,
- the student is able to put the knowledge acquired into practice and organise it,
- the student is able to use his/her knowledge in a creative way while solving problems, as well as to analyse the problem and organise new solutions,
- the student is able to answer the questions of the committee at the expected level.

Brief syllabus:
- Theory of teaching mathematics
- Number theory
- Probability theory and basic statistics
- Theoretical arithmetic

Literature:
Literature indicated in the information sheets of the study programme

Language, knowledge of which is necessary to complete a course:
Hungarian language, Slovak language

Notes:

Evaluation of subjects
Total number of evaluated students: 0

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

Teacher:

Date of last update: 03.03.2022

Approved by: prof. RNDr. János Tóth, PhD.