

## PROGRAMME PROFILE

Educational Program	<b>Mathematics</b>
Degree Awarded	Bachelor in Mathematics
Standard Length of Studies (Number of ECTS Credits)	3 years—6 semesters; 180 credits
Type of Study	Full-Time
Higher Education Institution	Babes-Bolyai University Cluj-Napoca, Romania
Faculty / Department	Faculty of Mathematics and Computer Science
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Profile of the Degree Program	Mathematics
Target Group / Addressees	High school students from the real profile classes, students with a bachelor degree in Natural Sciences, in Economics or in Technical Sciences interested to understand and manipulate basic concepts of fundamental mathematical structures.
Entrance Conditions	The four-year high school average grade in Mathematics or Computer Science, the average grade of the Mathematics or Computer Science exam of the school-leaving examination and the final grade of the school-leaving examination are taken into consideration as selection criterion.
Further Education Possibilities	The bachelor programme in Mathematics provides the students with the appropriate knowledge and tools for further master degree studies and/or for their professional activity in education, administration, industry or finance.
Description of Study	The programme's purpose is to provide the students with the capacity to understand and manipulate the basic concepts of fundamental mathematical structures, to transmit and value the studied knowledge and methods, to permanently learn, understand and apply the most recent scientific results and to understand and approach problems of mathematical nature from other sciences. Core courses: Algebra (I-III), Mathematical Analysis (I-III), Geometry (I-III), Differential Equations and Dynamical Systems, Complex Function Theory, Number Theory, Mathematical Software, Fundamentals of Programming, Probability and Statistics, Mechanics, Optimization Techniques
Purposes of the program	The purpose of the programme is to offer the following competences: <ul style="list-style-type: none"> <li>- to teach fundamental knowledge in mathematics</li> <li>- to elaborate algorithms and use modern computer systems.</li> <li>- to generate and implement new scientific and didactic approaches and methods.</li> </ul>

	<ul style="list-style-type: none"> <li>- to use basic and complementary knowledge in pursuing a master program in the field of Mathematics or related fields.</li> </ul>
Specialization / Area of Expertise	<p>Fundamental skills and methods in the main fields of pure mathematics:</p> <ul style="list-style-type: none"> <li>• Algebra (Basic Algebraic Structures, Linear Algebra)</li> <li>• Geometry (Analytical Geometry, Differential Geometry),</li> <li>• Mathematical Analysis (Calculus, Topology, Functional Analysis, Optimization, Complex Analysis)</li> <li>• Differential Equations</li> <li>• Probability and Statistics</li> <li>• Numerical Analysis</li> <li>• Mathematical Models in other Sciences</li> </ul>
Extra Peculiarities	<p>Fundamentals of Programming, Data Structures and Algorithms, Mathematical Software, History of Mathematics, Teaching: Pedagogical Theories in Math Education, Psychology of Education, Documentation Methodology for Scientific Projects</p>
Practical Training	Practice in Math Education
Final Examinations	<p>A licence thesis is defended in an oral examination. The student should demonstrate the ability to understand, value and transmit ideas, methods and knowledge in the fundamental fields of mathematics.</p>
Gained Abilities and Skills	<p><u>General competencies</u></p> <ul style="list-style-type: none"> <li>• Ability to understand and manipulate basic concepts of fundamental mathematical structures.</li> <li>• Ability to transmit and value the studied knowledge and methods.</li> <li>• Ability to understand and approach problems of mathematical nature from other sciences.</li> <li>• Ability to permanently learn, understand and apply the most recent scientific results.</li> <li>• Ability to analyze and synthesize.</li> <li>• Ability to work independently and/or in a team in order to solve problems in defined professional contexts.</li> <li>• Ability for verbal and written communication of ideas and knowledge in the fundamental fields of mathematics.</li> </ul> <p><u>Speciality competencies</u></p> <ul style="list-style-type: none"> <li>• Ability to teach fundamental knowledge in the field of mathematics.</li> <li>• Ability to elaborate algorithms and use modern computer systems.</li> <li>• Ability to generate and implement new scientific and didactic approaches and methods.</li> <li>• Ability to use basic and complementary knowledge in pursuing a master program in the field of Mathematics or related fields.</li> </ul>

Job Placement, Potential Field of Professional Activity	The holder of a bachelor diploma in Mathematics may activate, under the condition of graduating the pedagogical module, as teacher in the Speciality of Mathematics in any state or private educational institution of gymnasial level. As well, the holder of this diploma may activate in any institution or company in economy or administration in positions requiring the study and application of knowledge in the field of mathematics.
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