

STUDY

CYBER SECURITY

IN THE MIDDLE OF
TRANSYLVANIA

@BABEŞ-BOLYAI UNIVERSITY

- AN EIT DIGITAL MASTER'S PROGRAMME
- DOUBLE DEGREE FROM TWO DIFFERENT UNIVERSITIES
- STRONG INNOVATION & ENTREPRENEURSHIP COMPONENT



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ABOUT THE CYBER SECURITY MASTER'S PROGRAMME

This Cyber Security Master's Programme was built to comply with the EIT (European Institute of Innovation & Technology) recommendations. These recommendations relate both to the cyber security component of the curriculum and to the innovation and entrepreneurship component.



The overall goal of this specialization is for students to understand and assess different software security issues, in order to learn how to detect security vulnerabilities as soon as possible in the development cycle and to develop a more secure software from design to implementation.

The programme has a strong emphasis on practical knowledge in the field of cyber security, the curricula being discussed with several companies that offer services and solutions in this field. The city of Cluj-Napoca is known as a strong development hub in the field of IT& C. This master's programme will benefit from the collaboration between the Computer Science Department and the Transylvania Digital Innovation Hub, one of the leading innovation hubs in Romania.

THE CURRICULUM

Core disciplines of cyber security in the first year are: *Cryptography, Security Audit and Risk Management, Web and Internet Security, Network Security and Administration.*

From the courses in the 2nd year, the students will gather knowledge about Software Security, including *Advanced Software Security* (a course having its inception in a BitDefender collaboration), *Securing Mobile Applications, Program Analysis for Software Security, Cloud Application, and Infrastructure Security.*

To increase the entrepreneurial spirit of the students, the programme offers courses such as: *Entrepreneurship in IT, Agile Project Management, and Digital Economy Principles.* The academic staff involved in teaching these courses comes from the field of Economics, while some others have vast experience in Academia and the private sector.



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SCHOLARSHIP OPPORTUNITIES

Students enrolled in this master's programme will benefit from all facilities the Babeş-Bolyai University (BBU) provides to its pupils, namely:

- housing in the university campus buildings, at special rates;
- scholarships offered from the state budget, that are accessible to all students enrolled as Romanian and EU citizens, based on academic performance (approximately 15% of the top-ranked students receive scholarships);
- BBU special scholarships for scientific performance, awarded based on previous academic performance and a future research plan.

Besides the aforementioned facilities, during their mandatory internship programme, students might benefit from paid internships offered by partner companies.



Source: Flickr/ Universitatea Babeş-Bolyai

GAINED ABILITIES AND SKILLS

- Know and understand the main paradigms related to data protection: confidentiality, integrity and data availability;
- Knowledge of all security aspects that can impact the processes and IT&C assets of an organization;
- Proficient use of verification, validation, and evaluation criteria and methods in order to ensure software security;
- Demonstrate advanced skills to analysis, design, and construction of secure software systems;
- Ability to create distributed applications in the Cloud, respecting the ethical and secure policies;
- Acquiring a solid theoretical foundation in communication through unsafe medium, as well as the use of secure communication protocols on the Internet;
- Learning how the main forms of malware and the main forms of attacks on the Internet work, as well as the methods of protection against them.

REQUIREMENTS

- bachelor's degree studies in computer science or a related field;
- self-driven and motivated to learn;
- awareness of the importance of the cyber security field in the current context of Internet development and the role and impact that this network has on our daily activities,
- proficiency in English.



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ABOUT THE UNIVERSITY, THE FACULTY & THE CITY

The **Babeş-Bolyai University** has become in time an emblem of success for the Cluj county area and the entire state. As the largest university and with the highest international ranking in Romania, it is a dynamic and constructive institution, well integrated into society and oriented towards the future; a future which it can design, prepare and build. An institution that can only be conceived within the framework that consecrated it, that of the Universitas magistrorum et scholarium (“community of magistrates and disciples”), of the community of teachers and students, of the “corporation of equals” with an exclusive preoccupation for innovation and knowledge.

The **Faculty of Mathematics and Computer Science** is today a fortunate blend of tradition, experience, and modernity in a large and prestigious university. Computer Science is undeniably the science of the present and, beyond all questions, of the future as well. The number of students attending the courses in this branch has rapidly increased and graduates of Computer Science study programmes can compete fearlessly and deeply confidently in the international labor market of Information Technology.

In the last decade, both domains of the Faculty of Mathematics and Computer Science of the Babeş-Bolyai University had a constant appearance in international academic rankings.

In the latest World University Rankings by Subjects released by QS in 2022, Mathematics at BBU ranks 301-350 internationally, while Computer Science ranks 451-500 internationally. Both fields of the Faculty of Mathematics and Computer Science rank first in Romania.

Cluj-Napoca is one of the largest cities in Romania. Located in the north-western part of Transylvania, it has developed into a multi-cultural city with a metropolitan area that includes a population of over 500.000 inhabitants and an active business environment oriented towards innovation and development.

The city has experienced remarkable growth in the IT sector during the last two decades and, as it continues to develop in this area.

With over 1.200 IT companies that involve more than 20.000 employees, important multinational companies establishing regional headquarters or offices here and a bustling business environment, and with the constant support coming from the local authorities and universities, Cluj-Napoca is on its way to becoming a major digital hub in Eastern Europe.

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