



Bachelor's Program in Cybersecurity and Data Science

Description

The rapid digital transformation of society has made information one of the world's most valuable assets. As organizations increasingly rely on data-driven technologies, cloud computing, artificial intelligence, and interconnected systems, ensuring the security, integrity, and intelligent use of data has become a strategic priority. This evolving landscape has created a growing demand for professionals who combine expertise in cybersecurity, data science, and modern information technologies.

The **Bachelor's Program in Cybersecurity and Data Science** provides students with a comprehensive education at the intersection of computer science, mathematics, artificial intelligence, and information security. The program combines strong theoretical foundations with extensive practical training, enabling students to develop secure software systems, analyze complex datasets, detect cyber threats, and design intelligent solutions for real-world applications.

Throughout the program, students acquire advanced knowledge of programming, algorithms, cryptography, machine learning, databases, network security, and data analytics while developing the analytical and computational skills required to address the challenges of an increasingly connected digital world.

Why Choose This Program?

The program offers a unique interdisciplinary curriculum that integrates cybersecurity, artificial intelligence, and data science within a modern engineering framework. Students benefit from hands-on laboratory activities, project-based learning, and exposure to contemporary technologies used in both academia and industry.

Graduates develop a highly versatile skill set that enables them not only to protect digital infrastructures but also to extract valuable knowledge from data and support intelligent decision-making across a wide range of applications.

Competencies Acquired

Upon graduation, students will be able to:

- Design, develop, and evaluate secure software systems and applications.
- Apply cryptographic methods to ensure confidentiality, integrity, and authenticity of digital information.



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- Detect, analyze, and mitigate cybersecurity threats and vulnerabilities.
- Design and manage secure computer networks and information systems.
- Develop machine learning models for prediction, classification, and anomaly detection.
- Process, analyze, and visualize large and complex datasets using modern analytical tools.
- Design and implement database systems and data processing pipelines.
- Apply artificial intelligence techniques to cybersecurity and data-driven applications.
- Conduct security assessments, risk analysis, and incident response activities.
- Work effectively in multidisciplinary teams while adhering to ethical, legal, and professional standards.

Curriculum Highlights

The curriculum includes courses in:

- Programming Fundamentals
- Object-Oriented Programming
- Data Structures and Algorithms
- Computer Networks
- Operating Systems
- Database Systems
- Information Security
- Applied Cryptography
- Cybersecurity
- Machine Learning
- Data Science
- Artificial Intelligence
- Big Data Analytics
- Cloud Computing
- Software Engineering
- Probability and Statistics
- Applied Mathematics



Practical Training

The program emphasizes experiential learning through:

- Cybersecurity laboratories and penetration testing exercises
- Programming and software development projects
- Data science and machine learning laboratories
- Capture-the-Flag (CTF) cybersecurity competitions
- Team-based software engineering projects
- Internships with technology companies, cybersecurity organizations, and research institutes
- Undergraduate research opportunities in cybersecurity and artificial intelligence

Students gain practical experience using modern programming languages, security tools, cloud platforms, and machine learning frameworks widely employed in academia and industry.

Career Opportunities

Graduates are well prepared for careers across a broad range of sectors where cybersecurity and data-driven technologies are essential, including information technology, finance, healthcare, telecommunications, government, energy, manufacturing, and digital services.

Typical career paths include:

- Cybersecurity Analyst
- Security Engineer
- Information Security Consultant
- Security Operations Center (SOC) Analyst
- Penetration Tester
- Data Scientist
- Data Analyst
- Machine Learning Engineer
- Artificial Intelligence Engineer
- Security Software Developer
- Cloud Security Engineer
- Digital Forensics Specialist



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The program also provides an excellent foundation for graduate studies in cybersecurity, artificial intelligence, data science, computer science, software engineering, and related disciplines.

Program Highlights

- Interdisciplinary curriculum combining cybersecurity, artificial intelligence, and data science.
- Strong mathematical foundation supporting advanced analytical and computational methods.
- Extensive hands-on training through laboratories, programming projects, and cybersecurity exercises.
- Modern curriculum aligned with current industry technologies and emerging digital challenges.
- Excellent preparation for careers in both cybersecurity and AI-driven data analysis.
- Strong foundation for master's studies and research in computer science, cybersecurity, and data science.

Additional Information

- **Language of instruction:** Romanian
- **Duration:** 3 years (180 ECTS)
- **Degree awarded:** Bachelor of Science (B.Sc.)