



School of Graduate  
and Professional  
Education



# Master of Science (MS) in Data Science

The MS in Data Science is a cutting-edge program that provides advanced knowledge and practical skills in the science of big data. You will learn to turn real-world data into insights, solutions, and tools that drive decision-making in organizations, and have the opportunity to pursue a Professional Certificate in Business Intelligence and Data Mining with SAS.



Deree – The American College of Greece is accredited by the New England Commission of Higher Education.



## Master of Science (MS) in Data Science

### Overview

The MS in Data Science is an advanced program of study that prepares students for a professional career in Information Technology, particularly in handling big volumes of data, finding patterns in data, making predictions, and effectively visualizing and communicating data, with the intent to facilitate organizational decision making. Students develop expertise in dealing with various types of data including business transaction data, text data, and images.

The program equips participants with a well-calibrated, theoretical, and practical synthesis of applied mathematics, computer science, statistics, and business information skills. The program allows students to pursue the **professional pathway**, suitable for immediate professional application, or the **research pathway**, suitable for advanced graduate study and research. In addition, students who select the professional pathway may choose to pursue an extra qualification, the Joint Professional Certificate in Business Intelligence and Data Mining offered in collaboration with SAS, a leading company in the field of analytics.

### Student & Graduate Profile

The program is ideal for recent university or college graduates of information technology, engineering, economics, and science, or working professionals in IT who wish to advance their career in data science or big data. Students coming from different backgrounds, such as business or social sciences, are also encouraged to apply. The qualifications and experience provided by the program provide local and international employment prospects at a time when there is an increasing demand for data scientists worldwide. Graduates of the program can pursue careers in the field of data science such as: business data analyst, data engineer, data scientist, and big data engineer. Furthermore, they may be employed in companies specializing in information technologies, finance and insurance, retail trading, manufacturing, start-ups, and more.

### Program Structure

Students must successfully complete 12 graduate-level courses, representing a total of 36 US credits. Students must choose one of two pathways: the **professional pathway** that leads to a professional certificate by SAS, and project work with an organization; or the **research pathway** that is ideal for pursuing advanced graduate studies in universities or employment in research departments of large organizations.

### Curriculum

#### Required Courses

Introduction to Big Data  
 Exploring and Analyzing Data  
 Applied Machine Learning  
 Data Visualization & Communication  
 Semantic Web  
 Big Data in Business  
 Storing and Retrieving Data  
 Search Engines and Web Mining  
 Machine Vision in Data Science  
 Natural Language Processing

#### Option 1: Professional Pathway

SAS Platform for Business Analytics  
 Capstone Project

#### Option 2: Research Pathway

Advanced Machine Learning  
 Thesis

### Learning Outcomes

By the end of the program, students should be able to:

- Critically evaluate the techniques for storing and processing big volumes of data, including transaction business data, text data, and images, and to apply the relevant tools.

- Analyze the basic machine learning techniques and apply the relevant tools.
- Articulate business problems using data science techniques.
- Formulate ideas and arguments, and communicate them effectively, both in writing and orally, in an academic or business context.
- Design a comprehensive data science solution, and assess it both from a technical and a business perspective.
- Successfully complete a research project in big data or data science.
- Undertake programming at an advanced level: use advanced algorithms, practice distributed computing, use no-SQL databases.

### Flexible Study & Course Duration

The program may be completed in one year (full-time) or up to three years (part-time). Classes run Monday to Thursday from 18:30-21:30. New students are admitted at the start of the fall, winter and spring terms. Completing the program in one year is possible only for students who begin their studies in the fall term.

### Career Services & Placement Opportunities

Deree graduate students receive support from the Office of Career Services, which help them connect with the 50,000 ACG alumni around the globe, expand their professional network, and gain access to various job positions. Our graduate students and alumni may also benefit from the Alba Graduate Business School Services, including career coaching, participation in career events and workshops, participation in the Alba annual career forum, one-to-one career advice sessions, and a direct mail list for job posts and career advice.

### Admission to Program

The minimum graduate admission requirements are:

- A college or university degree in Science, Engineering, Information Technology, Economics, Business, or a recognized equivalent from an accredited institution
- Evidence of proficiency in the English language: TOEFL, IELTS, Proficiency, or GCE
- Basic programming and mathematical skills
- Motivation and/or relevant experience to specialize in this area: Evidence of strong motivation to work in the fields of Data Science or Information Technology will be sought in the interview and the personal statement submitted with the application form.

The admissions committee will consider applications from students holding a Bachelor of Science degree from other disciplines, but they may be required to take up to 3 undergraduate courses in Statistics, Mathematics, and Programming, as needed. The courses are assumed to be preparatory, therefore these credits will not contribute toward the master's completion.

### Tuition & Scholarships

Deree strives to provide opportunities to students regardless of their ability to finance their education. For this reason, we offer scholarships to all applicants who have demonstrated exceptional academic performance. A discount policy is also available for organization and ACG alumni.

### Why pursue an MS in Data Science at Deree

- Become equipped on various levels with the competencies needed to work in the fields of Data Science or Big Data.
- Accelerate your career prospects by choosing a master's program that awards a Professional Certificate in Business Intelligence and Data Mining from SAS.
- Experience first-hand how data mining, big data processing, and visualization can be used to extract useful information at scale from raw data (business transaction, text, or image) and how to communicate it in a corporate environment.
- Obtain hands-on experience with advanced programming techniques, distributed processing platforms, and data mining libraries and tools.
- Engage with experienced faculty with significant research experience, who are committed to support you as you develop and advance your knowledge and relevant professional skills.
- Benefit from a flexible program that may be pursued full-time or part-time.

#### Graduate Program Coordinator

**Dr. Dimitris Vogiatzis** holds a BSc in Computer Science from the National and Kapodistrian University of Athens, an MSc in Knowledge-Based Systems from the University of Edinburgh, and a PhD in Neural Networks from the National Technical University of Athens (NTUA). Since 2010, Dr. Vogiatzis has been a faculty member of the IT department at Deree, teaching courses in the areas of intelligent systems, theoretical computer science, and programming. Over the past 15 years, he has conducted research in the areas of computational intelligence, neural networks, user modeling, recommender systems, and social networks. He has published over 35 articles in referred journals and conference proceedings, and participated in 12 national and European research projects. He has served as a collaborating researcher at NTUA, a visiting lecturer at the Department of Computer Science at the University of Cyprus, and as a collaborating researcher at the NCSR "Demokritos". He has also served as a reviewer at various conferences and journals, and as a consultant to the European Network and Information Security Agency.



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### **Deree School of Graduate and Professional Education**

For more information on programs and online application  
visit our website: [www.acg.edu/graduate](http://www.acg.edu/graduate)  
or contact our Office of Admissions: +30 210 600 2208 · [graduate@acg.edu](mailto:graduate@acg.edu)

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*Deree – The American College of Greece accepts students of any race, color and national or ethnic origin and does not discriminate in its programs*