



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 and solutions, that drive decision-making in organizations.



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 visualising and communicating data, with the intent to facilitate decision making. Students become acquainted with various types of data including structured data, text data, and images.

The program equips participants with a well-calibrated theoretical, and practical synthesis of applied mathematics, statistics, machine learning, computer science, and business skills. It is appropriate for students from a variety of backgrounds, including information technology, computer science, engineering, economics, MIS, as well as business with some basic programming knowledge.

## Student & Graduate Profile

The MS in Data Science is ideal for:

- Recent university or college graduates from information technology, engineering, economics or working professionals who wish to start a career in data science or big data
- Graduates with a Business, Management or Marketing degrees who wish to make a career change

Graduates of the program can pursue careers in the fields of Data Science, Knowledge Engineering, Data Analytics etc.

## Program Structure

Students must successfully complete 12 graduate-level courses, representing a total of 36 US Credits. This includes contains 4 elective courses, and the choice between doing a Thesis or a Capstone project. The Thesis caters for a

research outcome and a possible publication, whereas the Capstone is more practical oriented.

## Curriculum

### Required Courses

Introduction to Big Data  
Exploring and Analyzing Data  
Applied Machine Learning  
Data Visualization  
Knowledge Graphs  
Big Data Architectures  
Search Engines and Web Mining  
Machine Vision in Data Science  
Natural Language Processing

### Electives (2 out of 4)

SAS Platform for Business Analytics  
Deep Learning  
Leadership and Strategic Thinking for Scientists and Engineers  
Machine Learning and Applications

### Final project (1 out of 2)

Thesis  
Capstone Project

## Learning Outcomes

At 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 in data science
- Undertake programming at an advanced level: use advanced algorithms, practice distributed computing, use NoSQL databases

## Admission to Program

The minimum graduate admission requirements are:

- A bachelor's degree in Science, Engineering, Information Technology, Economics, Business or recognized equivalent from an accredited institution
- At minimum, a cumulative grade point average equivalent to at least 3.0 on a 4.0 scale (B grade) in all prior undergraduate and graduate level work
- Basic programming and mathematical skills
- Moreover, students coming from different backgrounds are encouraged to apply, but they may be required to take preparatory courses
- Motivation to undertake graduate-level study in Information and Data Science (to be determined by interview)
- Evidence of Proficiency in English

## Career Services & Placement Opportunities

Students and alumni of the program receive support from the ACG Office of Career Services, which helps them expand their professional network and gain access to an international database of job positions and career opportunities. Moreover they can benefit from career coaching, participate in career events, workshops, and a direct mailing list for job posts and career advice.

## Course Duration

Courses are taught starting at 18:30 thus facilitating working professionals. The program can be completed in one year (full-time) or up to three years (part-time). New students are admitted at the Fall, Winter or Spring terms.

## Tuition & Scholarships

ACG 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 ACG

The program will equip you on various levels with the competencies to work in field of data science or big data. In particular students will:

- Benefit from a flexible program that can commence in the Fall, Winter or Spring semester
- Experience first-hand how data mining, big data processing, and visualization can be used to extract useful information at scale from raw data (structured data, text, or images) and to communicate findings in a corporate environment
- Obtain hands on experience with advanced programming techniques, distributed processing platforms, and data mining libraries and tools
- Guided by experienced instructors with significant research experience, and industrial experience and be supported in developing your own professional and academic interests
- Choose between a research-oriented Thesis or a practical oriented Capstone project

### 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 20 years, he has conducted research in the areas of machine learning,

neural networks and their applications in user modeling, recommender systems, social networks and precision medicine. He has published over 40 articles in referred journals and conference proceedings and participated in 14 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**

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