

# Postgraduate Course Data Science Foundations and Applications (MSc)

## Instructor Information

**Federico Álvarez García**

**E-mail:** fag@gatv.ssr.upm.es

**Work Phone:** +34 913367366 ext. 8073

## Course Information

### Course Description

The course provides an overview of the scientific foundations and major technological challenges when extracting knowledge from the rich variety of signals and data provided by current and future communication systems. A main focus is placed on large, diverse, distributed and heterogeneous data sets that can be described by the Big Data paradigm. The course also presents application scenarios covering a wide range of industrial sectors: Cognitive Radio, Cognitive Networks, Future Internet Services, Social Networks and Multimedia Analytics, Internet-of-Things, Machine-to-Machine, Smart Cities, Smart Grids, Biomedical Applications, Biometrics and Forensics, Financial Services, Robotic systems... Case studies and debates are addressed over a set of conferences bringing together leading experts in different sectors. Seminars are devoted to special topics such as Privacy and Big Data, Big Data Project Management or the connections between Next-Generation Communications, Internet-of-Things, Big Data Platforms and Cognitive and Knowledge-based Services.

### Prerequisites

No prerequisites are required.

### Summary of intended course outcomes

The main outcome of the course will be to reinforce the applicability of the contents acquired during the MSc to the market, follow the trends and real cases from the big data applications market and increase the contact of the student with professionals from the sector. This will enhance their skills for developing their future professional carriers.

A basic outcome of this course will be to help students to have a global perspective on

contents, complementarity and practical values of the different courses in this Track.

Another important course outcome will be to prepare students to critically assess the value of scientific and technological approaches to derive knowledge from data in real-world applications.

## Syllabus

The course will be developed through the presentation and study of several case studies addressed over a set of conferences and seminar bringing together leading experts in different sectors.

## Student Assessment Criteria

Personal presentations	50%
Conferences and seminars attendance	50%