# WARWICK INSTITUTE FOR THE SCIENCE OF CITIES

THE UNIVERSITY OF
# WARWICK

Our MSc in Data Analytics taps into the pulse of contemporary computer science, mathematics and engineering, addressing real-world challenges related to big data analysis and informatics. The course covers fundamental principles and their application, and features collaboration with industry and government partners to ensure best practice.

**Professor Stephen Jarvis**, Director of the Warwick Institute for the Science of Cities

# MSc in Data Analytics

Advances in scientific instrumentation, mobile devices, remote sensing, internet technology and digital personalisation present significant challenges when it comes to the capture, curation, storage, analysis and visualisation of large data sets.

The rewards for meeting these challenges, and enabling big data sets to be exploited, are significant and range from identifying fraudulent insurance claims, analysing customer retail habits, developing personalised drugs, implementing targeted advertising, to improving public services and identifying business trends and financial opportunities.

"**Big data:** High-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making."
GARTNER

A recent report by e-Skills UK and SAS (*Big Data Analytics: An assessment of the demand for labour and skills, 2012-2017*) forecasts that demand for staff with big data skills will rise by 92% by 2017, which equates to approximately 28,000 new positions per annum. The same report states that demand for data scientists has grown by 350% over the past five years. Remuneration levels are also good, with permanent jobs in this field attracting salaries of around £52k per annum, compared with £43k for general IT staff.

This MSc course will equip you with a broad knowledge and understanding of several advanced topics and methods in computer science, mathematics and engineering. In addition, you will develop the ability to critically evaluate problems, research and experimental results. The project component of the MSc provides a valuable opportunity for you to develop an in-depth knowledge and understanding of one particular area of data analytics and its application. The project also gives you experience of working with industry and city stakeholders.
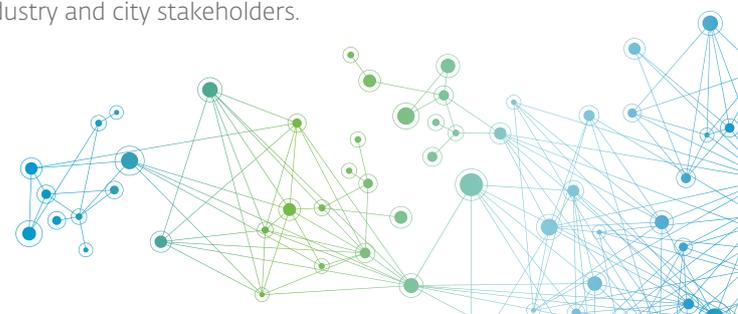
## COURSE COMPOSITION

We have designed this degree course in collaboration with industry, government and academic stakeholders. Topics include tools and statistical techniques for data analysis, clustering and classification, graph analysis, stream analytics, spatial and non-spatial analytics, visualisation, social media analytics, geo-processing and GIS.

**Core modules:** Foundations of Data Analytics; Data Mining; Research Methods; Dissertation Project in Data Analytics.

**Optional modules** are drawn from courses across several university departments and faculties and include: Operational Research and Optimisation; Sensor Networks and Mobile Data Communications; Information Theory and Coding; Image and Video Analysis; Methods and Practice in Urban Science; Advanced Computer Security; Semantic Web; Social Informatics; Agent-based Systems; Signal and Image Processing; High Performance Computing; Optical Communication Systems; Advanced Wireless Systems and Networks.

## UNIQUE INTERNATIONAL SETTING

We have developed the MSc in Data Analytics as part of our collaboration with the New York *Center for Urban Science and Progress* (CUSP) – a partnership between five world-class universities: Carnegie Mellon University, IIT Mumbai, New York University, University of Toronto and the University of Warwick.



*Center for Urban Science and Progress, New York*

Our MSc in Data Analytics is a core element in a portfolio of urban science courses offered by CUSP and Warwick's EPSRC Centre for Doctoral Training (CDT) in Urban Science and Progress. Signing up for the MSc in Data Analytics as part of the CDT therefore gives you a gateway to a unique international experience.

As part of the CDT, you will take part in multi-institutional collaboration, will have unprecedented access to industry experts both in the UK and overseas, will have the opportunity to visit and work with other international laboratories, and will be part of a wider global cohort working on real-world problems and solutions.

"Students conduct applied research and development in this growing and vital area and graduate with all the skills, both technical and complementary, to make immediate impact and thus gain a flying start to their careers."
IBM

A number of competitive scholarships are available for the MSc in Data Analytics and are awarded in May/June prior to October entry. Opportunities also exist for follow-on PhD scholarships, funded through the EPSRC Centre for Doctoral Training in Urban Science and Progress, which is based at Warwick. Apply any time throughout the year by emailing enquiries@wisc.warwick.ac.uk. We are always pleased to hear from potential applicants.

Find out more at **www.wisc.warwick.ac.uk**.

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