

WM9A9-15 Big Data, Analytics & Optimisation

27/28

Department

WMG

Level

Taught Postgraduate Level

Module leader

Liping Zheng

Credit value

15

Module duration

4 weeks

Assessment

Multiple

Study locations

University of Warwick main campus, Coventry Primary

Distance or Online Delivery

Description

Introductory description

Advanced eCommerce and Digital Analytics involve the utilisation of many of the newer, and more sophisticated technologies and techniques for optimising digital assets and business processes. This module introduces some of the most important of these, and gives participants practical experience of their uses.

Module aims

The module aims to expose students to essential skills in building and managing big data pipelines and navigating the big data analytics lifecycle from raw data to actionable insights. Students will master data visualisation techniques to effectively communicate findings and drive decision-making. For eCommerce specialists, the module incorporates data-driven website optimisation to enhance digital visibility and performance. Through hands-on experience in cloud-based environments, participants will develop the ability to critically analyse a range of business scenarios and implement sophisticated big data and digital analytics solutions that address real-world business challenges. This comprehensive approach prepares students to leverage data at scale, optimising digital platforms and strategies for competitive advantage in the rapidly evolving

eCommerce and digital operations landscape.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Big data architecture and technologies

- Fundamentals of cloud computing platforms for big data
- Big data collection approaches - Web crawling and API integration
- Big data storage solutions - Relational databases (SQL) vs Non-relational databases (NoSQL); data lakes and data warehouses
- Big data processing frameworks - ETL (Extract, Transform, and Load)and ELT (Extract, Load, and Transform) pipelines

Note: These sessions provide an overview of cutting-edge big data technologies and their business applications. Students will gain exposure to how big data is stored and processed in cloud environments (e.g., Google Cloud Platform or Microsoft Azure) to inform strategic technology recommendations.

Big data analytics

- Big data for eCommerce operation and optimisation
- Artificial intelligence and machine learning
- Natural language processing (NLP)

Data visualisation

- Best practice of data visualisation
- Dashboards
- Data story

Applied data analytics project

You will have chances to apply all the analytics and visualisation techniques to complete a group data project.

Learning outcomes

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

- Critically analyse complex digital business challenges and propose appropriate big data solutions with evidence-based justification of technology choices
- Design data visualisations using established principles and critically evaluate their effectiveness in communicating insights
- Critically assess operational and ethical risks associated with proposed big data solutions and incorporate appropriate considerations into technology recommendations
- Collaboratively evaluate digital business requirements and apply appropriate analytics and optimisation techniques to generate data-driven solutions to business challenges

Indicative reading list

[Specific reading list for the module](#)

Interdisciplinary

A mixture of technology/computing topics and business topics

International

Topics are of high international demand

Subject specific skills

Big data, analytics, visualisation, technical SEO (search engine optimisation), artificial intelligence (AI), machine learning (ML), Natural Language Processing (NLP)

Transferable skills

Presentation skills, research, teamwork and working effectively with others, software development, critical thinking, problem-solving, communication, professionalism, organisational awareness

Study

Study time

Type	Required
Lectures	10 sessions of 1 hour (7%)
Seminars	20 sessions of 1 hour (13%)
Online learning (independent)	30 sessions of 1 hour (20%)
Private study	30 hours (20%)
Assessment	60 hours (40%)
Total	150 hours

Private study description

Private study will include preparing for lectures and seminars, reviewing lecture notes, and engaging with required readings and multimedia resources.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A5

	Weighting	Study time	Eligible for self-certification
Big Data Analytics Presentation	30%	18 hours	No
A group presentation applying analytics and visualisation techniques to extract and communicate actionable insights from business datasets. Peer Marking Process will be adopted in this assessment			
Business report	70%	42 hours	Yes (extension)
A business-style report discussing core topics in big data, optimisation and visualisation			

Assessment group R5

	Weighting	Study time	Eligible for self-certification
Big Data Analytics Presentation with Collaborative Reflection	30%		No
An individual recorded presentation analysing a business dataset using analytics and visualisation techniques. The presentation must demonstrate independent data analysis with appropriate visualisations and business recommendations, and critical reflection on how such analysis would be conducted collaboratively in professional team settings, including consideration of diverse stakeholder requirements and team workflows.			
Business report	70%		No
A business-style report discussing core topics in big data, optimisation and visualisation			

Feedback on assessment

Group assessments will receive in-class verbal feedback and a written summary posted in feedback forms. Written feedback will be provided for the individual assignment. For all reassessments, written feedback will be provided.

Availability

Courses

This module is Optional for:

- Year 1 of TWMS-H1S4 Postgraduate Taught e-Business Management (Full-time)