

Designing Big Data Analytics Undergraduate and Postgraduate Programmes for Employability

BDA EdCon 2014

Las Vegas, USA

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Context

- A very wide gap between demand and supply of
 - “Analytics” skilled and literate graduates with
 - “analytics smarts”
 - UK 30k new practitioners by 2018
 - USA 150k by 2018, plus 1.5M analytics aware staff
- Businesses and Universities need plans B and C
- Computer Science tends to be Technology Focused
- Multi Disciplinary skills and teams

Academic Context

- University of Derby
 - College of Engineering and Technology
 - Department of Computing and Maths
- BSc Programmes
 - Information Technology (some SAS based Analytics)
 - Computer Science
 - Networks and Security
 - Computer Forensics Investigation
 - Computer Games Programming
- Joint Honours Programmes
 - Informatics (Minor)
 - Analytics (Joint)

SAS Data Science Survey 2014

Skills required:



technical
proficiency



mathematical
talent



business
savvy



good
communicators

See http://www.sas.com/en_gb/offers/14q4/data-scientist-report.html

Approach to Analytics

- BSc IT
 - Now including SAS based Analytics in each year
- MSc Big Data Analytics (Jan 2015)
- Joint Honours
 - Multi-Disciplinary
 - BSc Analytics (50% of Programme) with
 - (e.g.) Geography, Maths, History, Accounting, Business Management, Media Studies or Sociology
 - Based on shared BSc IT modules

Subject Pairing with Analytics

Timetable Zones (Derby)			
ZONE 1	ZONE 2	ZONE 3	ZONE 4
Education Studies	American Studies	Architectural Design	Accounting
Film and TV Studies	Applied Criminology	English	Early Childhood Studies
Geography	Biology	Geology	Environmental Hazards
Marketing	Business Management	Human Resources Management	History
Mathematics	Creative Writing	Law	International Relations & Global Development
Psychology	Dance & Movement Studies	Popular Music Production	Professional Writing
	Media Studies	Third World Development	Property Development
	Zoology		Sociology
			Sports & Exercise Studies
			Theatre Studies

Analytics is Zone 3, can pair with Zones 1,2 and 4

JHS Analytics

- Year 1
 - Introduction to Computer Science (technical and study / employability Skills and PDP)
 - The IT Design Studio (with SAS Visual Analytics and SAS JMP)
 - Programming Principles (with base SAS and SAS Studio)
- Year 2
 - IT Services Management
 - Databases (includes SAS)
 - Data Management and Business Intelligence (with base SAS and SAS Studio)
- Year 3
 - Advanced Analytics (with advanced components of SAS)
 - Sustainable Information and Corporate Governance
 - Enterprise Systems

MSc Big Data Analytics

Module Code	Module Title	Credits	Status
7CS094	Studying at Masters Level & Research Methods	20	Core
7MAxxxx	Statistical Techniques	20	Core
7CS512	Business Analytics with SAS	20	Core
7CSxxxx	Processing Big Data	20	Core
7CSxxxx	Information Visualisation	20	Core
7CSxxxx	Analytics: Ethics, Trust and Governance	20	Core
7CSxxxx	Natural Language Processing	20	Option
7MAxxxx	Optimisation	20	Option
7CSxxxx	Comparative Analytics Tools	20	Option
7CS997	Independent Scholarship	60	Core

Self Assessment for PDP

- Personal Development Planning
 - Links academic activity to Industry required skills
- Use SFIA and the new NOSs
 - Frameworks for CPD and Job Specifications
- Links academic evidence to Skills claims
 - Benefits job applications
 - Develops confidence

Foundation to Programmes

- Common Theme - Employability, Skills and Evidence
- Skills For an Information Age
 - SFIA Foundation, E-skills UK and British Computer Society, etc
- E-Skills UK
 - National Occupational Standards for
 - Data Analysis
 - Data Management
 - Data Science
- Use many environments (IBM, SAS, R, Cloud-based etc.)

The Future

- New BSc programme
 - BSc Big Data Science (Sept 2015?)
- New MSc Programmes
 - Under consideration for development
 - Big Data - Data Science
 - Big Data – Data Systems Architecture
 - Big Data - Data Management and Governance
 - Etc.
- Strategic Alliances with Relevant experts