

PROGRAMME SPECIFICATION

Name of Programme:		MSc for IT and Business Data Analysis	
Final award (BSc, MA etc):		MSc	
Awarding institution/body:	University of Buckingham & International Business School (separate degrees)	Teaching institution:	International Business School
School of Study:	School of Business	Parent Department: (the department responsible for the administration of the programme)	Collaborations
Length of the programme:	3 semesters	Method of study:	Full-time
Framework for Higher Education Qualifications (FHEQ) Level	FHEQ Level 7	Relevant subject benchmark statement (SBS)	Master's Degrees in Business and Management (2023) Master's Degrees in Computing (2022)
Professional body accreditation (if applicable):	N/A		
Criteria for admission to the programme:	<ul style="list-style-type: none"> - Minimum bachelor's degree with min. one semester of mathematics, statistics, or computing/IT; - Non-native speakers: IELTS: 6.5 or equivalent 	Cohort(s) to which this programme specification is applicable: (e.g., from 2012 intake onwards)	From February 2024
UCAS Code	N/A		

Summary of Programme

The IBS MSc in IT for Business (Data Analytics) is a three-semester, so called “Type 1” graduate programme designed for career development, ideal for those who possess a bachelor level qualification in any field.

The programme’s goal is to (re-)train young professionals, who will be able to occupy junior and mid-level data analyst positions, thanks to their ability to import, inspect, clean, transform, validate, model, or interpret collections of data with regard to the business goals of the company as well as to their ability to use different algorithms and IT tools as demanded by the situation and the current data. Those graduating from the programme can prepare reports in the form of visualizations such as graphs, charts, and dashboards. The programme is therefore a conversion programme aimed at those seeking career advancement or career change and one that will train data professionals with strong business foundations.

The first semester of the programme focuses on delivering solid foundations in business as well as laying the fundamentals in using Python and scripting languages for relational and non-relational database-management systems in data analysis and data science. The semester further aims to develop students skills in statistics and probability, essential skills in the data analyst toolkit. The second semester of the programme builds heavily on the previous part both regarding the business skills and knowledge and the data analysis skills and knowledge (machine learning and business intelligence through Tableau). Finally, in the third semester, complete a major real-life project work. Throughout the programme the focus will be on putting their knowledge and skills into context, by applying their freshly acquired data analysis skills to real life business analysis issues.

Educational Aims of the Programme

The specific aims of the programme are the following:

After completing this programme students will be able to:

- utilize advanced data analysis tools and methodologies to effectively manipulate, interpret, and derive insights from datasets of various complexities;
- employ critical thinking skills to dissect and resolve intricate business challenges by integrating their expertise in data analytics with principles of business and management;
- assist managerial decision-making processes through extracting salient information and actionable insights from various datasets, thereby contributing to informed strategic choices;
- collaborate effectively with multidisciplinary teams, recognizing the importance of teamwork and leveraging collective expertise to address complex data analytics challenges within business contexts;
- communicate complex ideas effectively using contemporary productivity software applications and facilitate seamless engagement with stakeholders across diverse domains.

Programme Outcomes

Knowledge and understanding of:

On successful completion of the programme, students are expected to gain knowledge and understanding of:

1. the tools used to transform large amounts of raw data into relevant and helpful business information;
2. the methods of artificial intelligence, machine learning, statistics and databases used to extract content from a dataset;
3. the techniques and existing systems used for structuring data elements and showing relationships between them, as well as methods for interpreting the data structures and relationships;
4. the process of revealing data issues using quality indicators, measures and metrics in order to plan data cleansing and data enrichment strategies according to data quality criteria;
5. the techniques and methods used for eliciting and extracting information from unstructured or semi-structured digital documents and sources;
6. standardized computer languages for retrieval of information from a database and of documents containing the needed information;
7. the visual representation and interaction techniques, such as histograms, scatter plots, surface plots, tree maps and parallel coordinate plots, that can be used to present abstract numerical and non-numerical data, in order to reinforce the human understanding of this information;
8. core business principles, enabling graduates to effectively align data analytics strategies with organizational goals.



Teaching/Learning Strategy

Explain the teaching and learning methods and strategies used to help students achieve each part of the knowledge and understanding

- The flipped classroom methodology will be widely used during the programme. This concept enables a problem-based approach in class, whereby students will have the opportunity to work on real-life scenarios and case studies, practice problem solving and critical peer-review skills, along with teamwork and collaboration skills and techniques. This includes various workshops, simulations, presentations and group assignments, along with computer lab sessions and, in certain cases, field visits and guest lectures.
- Students will be required to watch online presentations, read texts, professional and academic journal articles, work through case studies provided by the Seminar Leaders, engage in online discussion with their peers through various channels (including Moodle and the various online collaboration tools, like the ones offered by Google). The content will be designed to be engaging and enable a practice-based learning experience.



Assessment Strategy:

Explain the strategies used to assess the achievement of each part of the knowledge and understanding

- Continuous assessment,
- Individual and group assignments,
- Individual and group presentations,
- Examinations,
- Business Data Analytics Project.

Programme Outcomes

Cognitive (thinking) skills:

On successful completion of the programme, students should be able to:

1. critically assess the opportunities to use ICT tools to apply mathematical, algorithmic or other data manipulation processes in order to create information;
2. analyse data gathered from sources such as market data, scientific papers, customer requirements and questionnaires which are current and up-to-date in order to assess development and innovation through methodical analysis and critical assessment;
3. exhibit an innovative, out-of-the-box approach and creativity in dealing with multi-stakeholder and/or data-based projects.



Teaching/Learning Strategy:

Explain the teaching and learning methods and strategies used to help students achieve each part of the cognitive skills

- Problem-based approach in interactive seminars, where students are constantly engaged and challenged to bring their own ideas, viewpoints and concepts to the table;
- Peer-review opportunities will regularly be a part of seminars.



Assessment Strategy:

Explain the strategies used to assess the achievement of each part of the cognitive skills

- Continuous assessment,
- Individual and group assignments,
- Individual and group presentations,
- Examinations,
- Business Data Analytics Project.

Programme Outcomes

Practical skills (subject specific):

On successful completion of the programme, students should be able to:

1. Analyse big data. Collect and evaluate numerical data in large quantities, especially for the purpose of identifying patterns between the data.
2. Apply statistical analysis techniques. Use models (descriptive or inferential statistics) and techniques (data mining or machine learning) for statistical analysis and ICT tools to analyze data, uncover correlations and forecast trends.
3. Handle data samples. Collect and select a set of data from a population by a statistical or other defined procedure.
4. Manage data. Administer all types of data resources through their lifecycle by performing data profiling, parsing, standardization, identity resolution, cleansing, enhancement and auditing. Ensure the data is fit for purpose, using specialized ICT tools to fulfill the data quality criteria.
5. Normalise data. Reduce data to their accurate core form (normal forms) in order to achieve such results as minimization of dependency, elimination of redundancy, increase of consistency.
6. Report analysis results. Produce research documents or give presentations to report the results of a conducted research and analysis project, indicating the analysis procedures and methods which led to the results, as well as potential interpretations of the results.



Teaching/Learning Strategy:

Explain the teaching and learning methods and strategies used to help students achieve each part of the practical/transferable skills

- Process approach to skills development. The programme takes a process approach to skills development, whereby students need to tackle small tasks in order to incrementally build the skills, with ample opportunity for formative feedback from peers and the Seminar Leaders.
- Computer lab sessions focusing on the critical use of software applications. The modules centred around statistical and data management skills all feature computer lab sessions (delivered on site either in a computer lab or using the bring your own device, BYOD, setup), which enables students to become acquainted with some of the most widespread software applications used by data analysts in the field.
- Computer lab sessions and guided learning focusing on specific scripting and query languages. Students will receive extensive instruction in the scripting language Python and, optionally, in R through individual and collaborative coding exercises. Moreover, students will become acquainted with query languages used to query both relational (SQL) and non-relational (e.g., XQuery) database management systems. Students will also complete online coding tasks to receive immediate feedback on their code snippets.



Assessment Strategy:

Explain the strategies used to assess the achievement of each part of the practical/transferable skills

- Continuous assessment,
- Individual and group assignments,
- Individual and group presentations,
- Examinations,
- Business Data Analytics Project.

Programme Outcomes

Programme Outcomes

Transferable skills (generic):

On successful completion of the programme, students should be able to:

1. Independent learning and lifelong learning skills. Demonstrate strong individual reading and learning skills for advanced academic study and lifelong learning;
2. Quantitative and numerical skills. Perform standard and some advanced mathematical and statistical tasks relevant to various professional contexts;
3. Problem-solving skills. Recognise, analyse and solve problems, make decisions in complex situations and unpredictable contexts;
4. Entrepreneurship skills. Demonstrate an ability to design and validate business concepts and communicate results effectively to a wide variety of audiences;
5. Collaborative skills: Demonstrate an ability to work together with peers in online and offline scenarios, using collaborative tools if and when appropriate;
6. Project management skills: Demonstrate an ability to work within a lean/agile framework.



Teaching/Learning Strategy:

Explain the teaching and learning methods and strategies used to help students achieve each part of the practical/transferable skills

- Problem-solving skills are curated through various interactive assignments and simulations. Students are expected to take active part in the seminars and discussion and also complement their learning experience with guided learning, reading, and case study analysis.
- Entrepreneurial skills will be developed through mentoring, workshops and opportunities to participate at various events where students can showcase their talent and concepts.
- Students will regularly engage in projects that require teamwork and a collaborative approach: ranging from group assignments, group presentations, and role play, students will be expected to take part in the guided activities in-class.



Assessment Strategy:

Explain the strategies used to assess the achievement of each part of the practical/transferable skills

- Continuous assessment,
- Individual and group assignments,
- Individual and group presentations,
- Examinations,
- Business Data Analytics Project.

External Reference Points

The following reference points were used in designing the programme:

- [Framework for Higher Education Qualifications](#)
- Relevant [Subject Benchmark Statement\(s\)](#)

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each course unit/module can be found in the departmental or programme handbook. The accuracy of the information contained in this document is reviewed annually by the University of Buckingham and may be checked by the Quality Assurance Agency.