GET READY TO STUDY IT: DATA ANALYTICS (EXTENDED CERTIFICATE)

If you are planning to study Extended Certificate in IT:Data Analytics with us in September, please review this document and complete the required activities. Please bring the completed activities with you at induction.

FAQ

What specification will I study?
OCR AAQ Extended Certificate in IT: Data Analytics (Specification at a glance)

How many lessons will I have a week?
You'll have 3 lessons a week, totalling 4hrs 30mins

Who can I contact if I have a question about this subject?
Alex Melhuish a.melhuish@barnsley.ac.uk

What subjects go well with Information Technology?
Economics, Business, Computing, Geography, Psychology

What grades should I have?
A GCSE point score of 5 and above, this will include a 5 or above in English Language and Maths.

WHAT WILL I STUDY?

The Cambridge Advanced National in IT:Data Analytics allows you to gain the knowledge and skills relevant for progression to undergraduate study in IT or data-related fields. You will cover the fundamentals of data analytics, Big Data, data modelling with spreadsheets, relational databases and data visualisation.

Year 1
In your first year of IT, you'll gain the essential knowledge needed for a future in data-driven careers. You'll explore the principles of data modelling using spreadsheets and develop the skills to plan, design, create, test, and evaluate a spreadsheet solution tailored to meet a specific client's needs. This hands-on approach ensures you're not just learning theory - you're building practical tools that solve real-world problems.

- Fundamentals of Data Analytics (Exam)
    - Understanding data
    - Managing data
    - How data can be accessed and managed across platforms
    - Legal considerations
    - Job roles, skills and attributes in data analytics

- Spreadsheet Data Modelling (NEA)
    - Principles of spreadsheet modelling
    - Planning the design of a spreadsheet model
    - Creating the spreadsheet model
    - Delivering the outcomes
    - Evaluation

Year 2
In your second year, you will explore the challenges of managing big data and examine the growing role of artificial intelligence and machine learning in data science. You will learn the principles of relational database design and gain the skills to plan, build, test, and evaluate a database solution that meets the needs of a specific client. Additionally, you will develop your understanding of data visualisation - learning how to design and create effective visual solutions that communicate insights clearly and meet client requirements.

- Big Data & Machine Learning (Exam)
    - The scope of managing big data
    - The Infrastructure challenges of big data
    - Big data, machine learning and artificial intelligence
    - Legal and ethical issues in data management
    - Environment and society

- Relational Database Design (NEA)
    - Relational database concepts 3
    - Plan relational database solutions
    - Create relational databases
    - Testing relational database solutions
    - Evaluate database solutions

- Data Visualisation (NEA)
    - The value and importance of data visualisation
    - Planning for data dashboards
    - Techniques for creating a data dashboard
    - Communicating information and interpreting data
    - Evaluating the effectiveness of visualisation solutions

Please note that year 2 NEA units are selected from a list of possible units and may change depending on the cohort.

HOW WILL I BE ASSESSED?

For this qualification, you will complete five units – three mandatory units and two optional units.

The following units are assessed through examinations which are set and marked by the exam board.

- Fundamentals of Data Analytics
- Big Data & Machine Learning

The units below are assessed through non-examined assessment (NEA) which is assessed by the teacher and moderated by the exam board.

- Spreadsheet Data Modelling
- Relational Database Design
- Data Visualisation

The qualification is graded Pass, Merit, Distinction and Distinction*

Unit	Unit title	Guided learning hours (GLH)	Assessment method	Year
F200	Fundamentals of Data Analytics	75	Exam	1
F201	Big Data & Machine Learning	70	Exam	2
F202	Spreadsheet Data Modelling	75	NEA	1
F203	Relational Database Design	70	NEA	2
F205	Data Visualisation	70	NEA	2

WHAT WILL I NEED?

To study the course you will need the following equipment for use at college:

- A calculator 5
- Pens and pencils
- Highlighters
- A ruler

You will also need a personal computer (desktop preferred) for use at home and access to the internet.

FIND OUT MORE

These activities are to help broaden your understanding of the subject in preparation for studying this subject at an advanced level.

Careers	• Data analyst • Data scientist • Database administrator • Information systems manager
YouTube	What Is Data Analytics? - An Introduction (Full Guide) A Day in the Life of a Data Analyst (2023) Introduction to Data Analysis with Excel: 2-Hour Training Tutorial

REQUIRED ACTIVITIES

It is important that all the required activities are completed in preparation for starting your course. Please bring these completed activities with you at induction.

Choosing your A Levels can be a challenge for some learners therefore if you are undecided around which subjects you are planning to study completing these activities will give yourself greater insight into the course to help ensure you have made the right choice.

Summer tasks – *you must complete the work below before starting college in September.*

Task 1

1a - Use the video link below, and two other sources of information, to find out about cloud storage. Record your sources of information in the table below the video. On lined paper, make handwritten notes on what you have learned.

Provided Source	What Is Cloud Storage & How Does It Work? Pros & Cons You Need to Know - YouTube https://www.youtube.com/watch?v=zo2fRdePLhs
Additional Source 1	
Additional Source 2	

1b - Insert clear photos of your handwritten notes into the box

1c - A new company is developing a range of new products. The company wants to develop an infographic to promote the new products on their website.

The new company is considering storing their data on a cloud storage system. Analyse the possible impacts on the new company of using a public cloud.

Task 2

In a chain of pizza restaurants, each restaurant uses a spreadsheet to keep track of their daily and weekly pizza sales.

This is part of the spreadsheet for one of the restaurants.

Pizza sizes	Prices	Number of pizzas sold		
		Sat	Sun	Total
Small	£9.00	40	20	60
Large	£14.00	90	10	100
Total		130	30	160

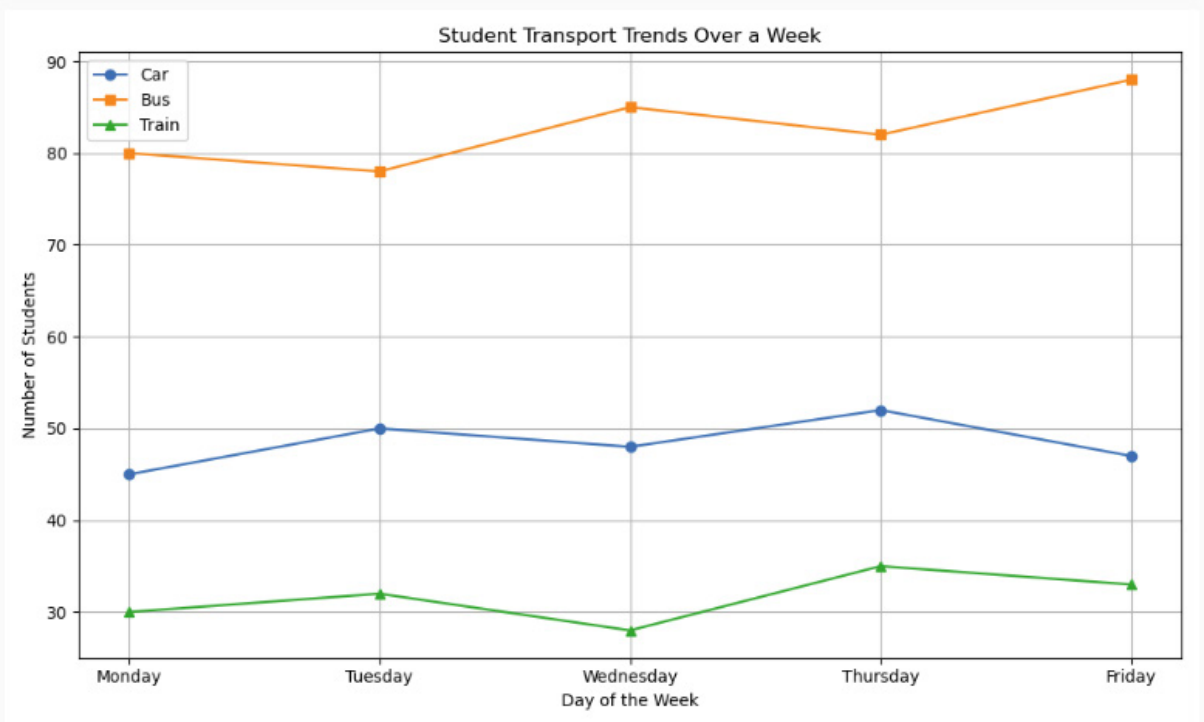
2a - Identify three different pieces of knowledge the restaurant can get from the information in the spreadsheet

1	
2	
3	

2b - Suggest, with explanation, two different ways the pizza chain might use the data to benefit the company

1	
2	

Task 3



Using the data about transport trends above, answer the following questions:

3a - On which day was bus usage the highest? What might explain this?

3b - How does car usage vary throughout the week? Identify any patterns.

3c - Which transport method shows the most consistent usage across the week?

3d - If train usage increased by 5 students each day next week, how would the trend line change?

3e - What conclusions can you draw about student preferences based on this data?

3f - Calculate the average number of students using each transport method over the week. Which method has the highest average, and what does this tell you?

3g - Compare and contrast the trends in bus and train usage over the week. What might these patterns suggest about student behaviour or external factors influencing transport choices?

3h - Predict how the transport trends might change if a new tram service is introduced midweek. Which existing method is most likely to be affected and why?

3i - Evaluate the reliability of this data for making decisions about future transport planning at the college. What additional data might be needed to improve accuracy?

3j - Critique the use of a line chart for this data. Would another type of chart be more effective? Justify your answer with reference to the data.