Data Scientist

Data scientists combine their IT, statistical and mathematical knowledge to help businesses make accurate decisions. They collect, extract and analyse large amounts of structured and unstructured raw data from a variety of sources to make predictions and identify trends based on their findings.

The Work

There are two kinds of data that you would work with:

- **structured (traditional sources):** easily sorted by computers, such as customer data like names and addresses or financial information in bank accounts
- **unstructured (new and emerging sources):** not easily sorted by computers, such as data from social media, emails or text files.

Data scientists are typically hired to work more with unstructured data.

You could be:

- gathering and sorting through large amounts of raw data from a variety of data sources, usually digital
- using keywords to pull out specific information from unstructured data sources, like Facebook pages
- using databases and statistical packages to deal with structured data
- identifying patterns and relationships in the data (data mining) – for example, the locations of phone calls, or the 'likes' on Facebook pages, to target advertising
- using programming languages like Python, Java or Perl for data mining
- examining specific information, such as metadata, or data related to internet searches before and after a significant event
- making predictions based on the data using machine learning (ML) models (artificial intelligence that gives a computer the ability to improve upon performing a repeated task)
- identifying future trends and developments in an industry (horizon scanning)
- building statistical models from the data and presenting this in a meaningful way to executives and stakeholders.

Pay

The figures below are only a guide. Actual pay rates may vary, depending on:

- where you work
- the size of the company or organisation you work for
- the demand for the job.

Starting salaries can be around £25,000 to £30,000 a year, rising to £40,000 a year and above with experience. Senior data scientists can earn up to £80,000 a year.

Data scientists on the Civil Service Fast Stream programme with the Government Statistical Service earn £28,000 a

year. This rises to between £45,000 and £55,000 a year.

Conditions

- You would be based in an office and working at a computer most of the time.
- Working hours are usually standard 9.00am to 5.00pm from Monday to Friday. However for project deadlines you would need to work overtime.
- You would work in a team with data architects, data engineers, analysts and others.

Getting In

- You need a degree in a mathematical or scientific discipline.
- Physics, Mathematics, Statistics, Finance, Economics, Business administration, Engineering or Computer Science are all relevant subjects.
- Entry to this type of degree course is typically 4-5 Highers, usually including Maths, with English at least to National 5.
- If you don't have a relevant degree, you can take a postgraduate course in a subject such as data science, business analytics, data science and analytics, or big data. Many universities in Scotland offer MSc courses in these subjects.
- Some employers ask for a postgraduate qualification.
- You could enter through the Civil Service Fast Stream programme with the Government Statistical Service. For entry you require a 2:1 Honours degree that includes formal statistical training.

Businesses increasingly rely on data analytics to improve decision making so opportunities for employment are excellent. You could work for a broad range of business types, although the leading employers are in retail, finance and e-commerce.

Jobs are widely advertised on the internet but there are specialist job sites such as Data Scientist Jobs.

What Does It Take

You need to have:

- strong business awareness
- excellent knowledge of specialist software and programming skills
- good analytical and problem solving skills
- good investigative skills
- the ability to work as part of a team
- excellent written and spoken communication skills, to explain your findings
- good attention to detail
- the motivation to work on your own.

Training

- You would train on the job with the specific type of organisation you work for. You will need to gain a good understanding of their products or services.

- Training might include courses on using programming languages such as Python or R, database tools such as SQL and object oriented languages like Java or C.
- You may take further relevant courses specialising in big data training through organisations such as the Operational Research Society or SAS Academy.

Getting On

- Once you gain more experience you will build on your technical and analytical skills.
- After a few years of experience you could get promoted to senior data scientist.
- A move to a senior role could involve managing staff and projects.
- You could move around different firms within different industries, since the skills that data scientists have are highly transferable.

Contacts

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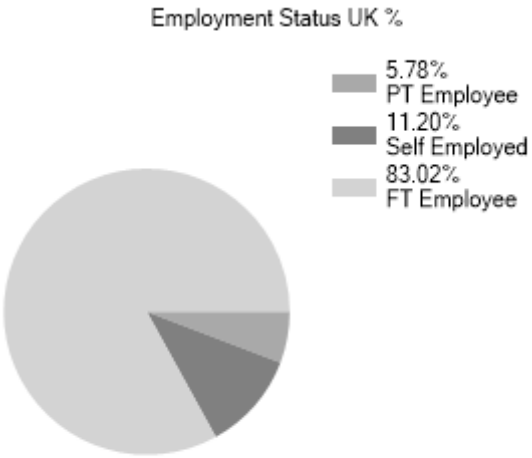
Statistics



Past Unemployment - Scotland

Date	Unemployed
Dec 2016	0.18%
Dec 2018	0.12%
Mar 2019	0.1%

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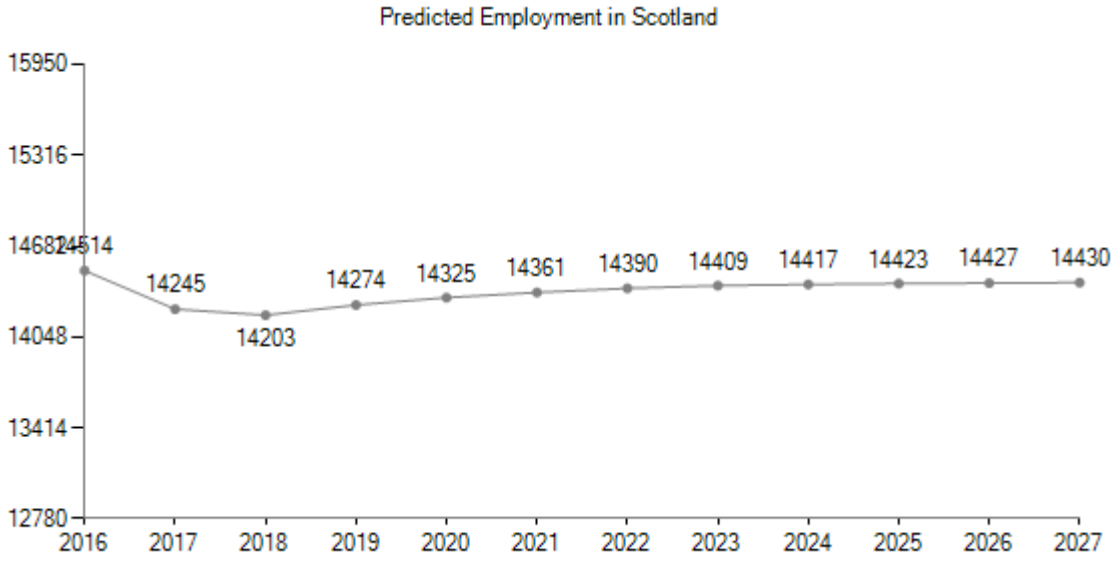

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