

Data scientist: job description

What does a data scientist do? Typical employers | Qualifications and training | Key skills

The role of a data scientist has evolved and expanded from that of a data analyst. As with an analyst, they organise and analyse data collected by an organisation, such as sales figures, logistics or market research etc. The difference is that a data scientist will use their strong business sense along with an ability to communicate findings to both business and IT leaders in a way that can influence how an organisation approaches a business challenge.

Data scientists may have different functions depending on which industry/sector they are involved in. For example, a data scientist working for Facebook might analyse the types of pages users 'like', and then use this information to decide what type of advertisements the user will see when using their Facebook account. They combine practical skills such as coding and maths with the ability to analyse statistics.

The main programming languages often used within analytics, data mining and data science are R, SAS, Python and SQL, while knowledge of Java, C/C++, Perl and Ruby may also be of a value to data scientists. The use of 'big data' (collecting or mining huge amounts of data and analysing it) by companies and governments has meant that data scientists are in demand worldwide.

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Typically a data scientist needs to:

- Use strong business acumen, as well as an ability to communicate findings, and mine vast amounts of data for useful insights
- Use these insights to influence how an organisation approaches business challenges
- Use a combined knowledge of computer science and applications, modelling, statistics, analytics and maths to solve problems
- Extract data from multiple sources
- Sift and analyse data from multiple angles, looking for trends that highlight problems or opportunities
- Communicate important information and insights to business and IT leaders
- Make recommendations to adapt existing business strategies

Typical employers of data scientists

- Universities and research institutions
- The government
- Manufacturers
- Banks
- Airlines
- Large retailers etc
- Big data companies such as Google and Facebook

- Marketing agencies and marketing departments at major companies

Data science is a relatively new area of work, but as a progression from data analytics the pay can be fairly high. Pay scale statistics suggest that data science pays £25,000–£50,000 for entry-level posts; however, this should be taken with a pinch of salt. Many will need to start out on a lower rung of the ladder. See our article on [how much you can earn in an IT job](#) for information on graduate salaries for jobs that might get you working in data science later on.

Qualifications and training required

There are routes into data science for both graduates and school leavers. A degree in statistics, maths, business administration or computer science is a viable option to pursue a career as a data scientist. School leavers can study a related topic at higher national diploma level or apply for an apprenticeship as a data analyst and progress from there. For example, the Office for National Statistics announced in August 2016 that it would be recruiting six data analyst apprentices to work at its data science centre in Newport.

To find out about school leaver routes (eg an apprenticeship or school leaver training programme) [see the IT section of TARGETcareers](#), our website aimed at school leavers. As demand for data analysts has risen, many are progressing from this role to fill the need for data scientists. In many graduate cases this is done by further study, such as an MA or PhD, to gain a competitive advantage. The Institute for Direct and Digital Marketing and the Chartered Institute of Marketing also offer professional qualifications and training in subjects related to data science.

Key skills for computer scientists

- Problem-solving skills

- Communication skills
- Teamwork skills
- Investigative skills
- Interest in statistics
- Interest in predicting trends and identifying patterns
- Innovative thinking
- Observation skills
- Critical thinking

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