



CAREER GUIDE

Data Scientist

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INTRODUCING THE DATA SCIENTIST

The good news for data scientists – whether those dipping their toes in the water by enrolling in a course, or more seasoned practitioners – is that they are in increasing demand as our world becomes ever more data-driven.

So, when did being a data scientist become as in vogue as a hipster start-up founder? In short, it was when computing power exploded – giving access to vast quantities of data along with its collection, processing and analysis. There's a joke that statisticians got fed up with no one being able to pronounce their job title, and that's why they rebranded themselves as data scientists.

The early 2000s saw the foundations of the profession being laid: new journals founded, research departments formed, articles debated. In 2010, the Economist published a special report, announcing that: "... a new kind of professional has emerged, the data scientist, who combines the skills of software programmer, statistician and storyteller/artist to extract the nuggets of gold hidden under mountains of data."

As we journeyed through the 2010s, each year brought an exponential rise in both the number of data scientist positions offered, and the breadth, complexity and computing ability needed to gather those 'nuggets of gold'.



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| | | |
|------|------|------|
| 7.62 | 51.1 | 90.6 |
| 8.54 | 60.5 | 92.1 |
| 10.6 | 77.3 | 93.1 |
| 23.7 | 80.9 | 95 |
| 34.1 | 86.4 | |
| 45.2 | 89.9 | |

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RESPONSIBILITIES

So what does the day-to-day life of a data scientist look like? You could find yourself using data to build algorithms; designing experiments to manage and report on data within an organisation or for external use; or considering the effectiveness of data sources and data-gathering techniques to help improve data collection methods. You could also be using machine learning tools in AI applications, or looking for clues to patterns of activity, based on population data that could help public bodies make decisions about where to allocate service funding.

Data scientists are often future-scopers, building models to develop predictions about the future based on past data. The more skilled or respected a data scientist is, the more freedom they'll have to pursue their own ideas and experiment to find interesting patterns and trends in the data that managers may not have considered.

Later on in your career you may get involved in establishing new systems and processes, and looking for opportunities to improve the flow of data, as well as working in a more client facing context.



QUALIFICATIONS

There's no denying that data scientists need a strong educational background to set the foundations for building breadth and depth of knowledge once in the job.

While higher education is not a necessity for a role within big data, degrees in the following degree subjects may give you a head start: computer science, data science, engineering, mathematics, operational research, physics and statistics. And there are various Masters degrees available offering additional specialisation, which will give you an edge when applying for jobs.

Continuing professional development is absolutely essential though. And so even after qualifying with an undergraduate or postgraduate degree, data scientists need to keep up-to-date with the latest trends and technologies. Online courses are a good way to do this alongside full-time work.

SKILLS

Along with an undergraduate degree **you'll need to learn programming languages such as R, Python, C or Java and have strong database design and coding skills.** Continuously building your statistical literacy and programming skills and creating your own project portfolio, showing you have hands-on data wrangling, storytelling, analysis and database skills are ways you can develop your career to shoot for the prestigious jobs.

Those with an artistic bent will shine in data visualisation, reporting and storytelling, and will be able to stand out from the crowd by developing their skills in this area through online courses, personal projects and looking out for opportunities at work.

Other key skills and knowledge areas include:

- Machine learning techniques
- Risk analysis
- Statistical analysis
- Effective communication
- Software engineering
- Data mining, cleaning and munging
- Research
- Big data platforms
- Cloud tools
- Data warehousing and structures

Experts recommend balancing time spent learning theory, with practical application, to speed up learning and maintain motivation. This type of approach helps to embed the learning, so you can see how the concepts you've learnt, are applied in the real world. Finding hands-on projects to practise the theory early on is important, as is learning to live with only partial knowledge. This is the kind of learning where you need to keep moving forward and fill in the gaps as you go. This way you learn how each piece fits into the big picture.





CAREER PROSPECTS

Because of the huge number of companies and organisations that are expanding their data analysis teams, particularly with regards to personal data, there is a wider range of specialist data roles available, using a greater variety of increasingly sophisticated technology. There is also a broader spectrum of data used in data science today, and the industries and applications in which data science is involved, have expanded as well.

Areas where there is a particular concentration of data scientists include: finance, academia, scientific research, health, retail, information technology, government and ecommerce. Your opportunities will depend on your location, skills, and capacity to keep up-to-date with the latest technical developments. There is lots of competition for the good jobs as the number of people training in data increases.

In-demand data scientists usually specialise in a particular industry or develop expert skills in areas such as artificial intelligence, machine learning, research, or database management. Developing an area of expertise is a great way to increase your earning prospects and develop job satisfaction by working in an area that is meaningful to you.

RELATED JOBS

Business analyst, systems analyst and data analyst careers are other good options to consider if you have an analytical mindset. There are also many roles within cloud computing with a strong data science crossover.



SALARY

As with any discussion of salary ranges, it will vary significantly depending on geography, sector and a whole host of other factors. When choosing your role, consider also how much training exposure you'll be getting and who you can learn from. Working with good people can pay dividends both in terms of technical proficiency and your feelings towards the profession you've invested in. So, try and take the long view.

Based on positions advertised on their website, CV Library quotes UK graduate data scientist salaries as starting from £18,000 to around £25,000 a year. After a few years, experienced, high-level data scientists or contractors can expect a salary of £60,000 and above. And it's worth honing those Hadoop and SQL skills, as specialists in those areas can command the highest salaries, with some reaching £100,000.

Prospects gives salaries for junior data scientists starting at around £25,000 to £30,000, rising to £40,000 depending on experience, again with lead and chief data scientists earning upwards of £60,000, and a £100,000+ salary for the top earners.

Payscale has found a range of £25,000 to £60,000 for data scientists, with an average £34,972 salary.

Data science is a rewarding, popular and fashionable choice that can also be well paid. But there's a reason that practitioners are paid well: there are no shortcuts to expertise, and a complex blend of mathematical, computer programming, communication and people skills are needed to perform well. There's also the personal responsibility that comes with handling large datasets.

Good luck with this amazing career choice, and happy learning!

Check our online data science courses you can start today: <https://www.ilxgroup.com/uk/individual/training/data-science>



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London
+44 (0) 1270 611 600

Melbourne
+61 1300 459 459
contactus@ilxgroup.com

New York
+1 844 670 9260
[f](#) [t](#) [v](#) [g+](#) [in](#)

Dubai
+971 (0) 50 5566 082
www.ilxgroup.com

Auckland
+64 9 363 9777