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UNIVERSITY OF  
ABERDEEN

# Data Science

## BSc

[www.abdn.ac.uk/study/undergraduate/data-science](http://www.abdn.ac.uk/study/undergraduate/data-science)

# Discover the possibilities of big data and artificial intelligence (AI) with the BSc Data Science.

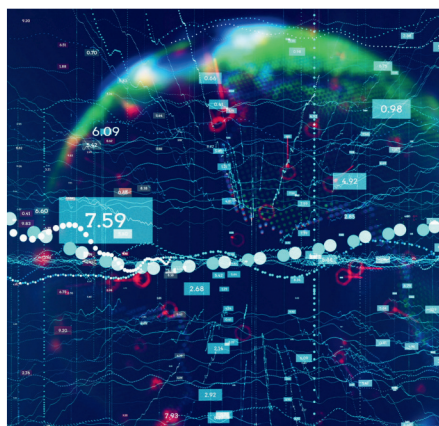
Are you excited by the rapid advancements in big data, predictive analytics, and AI technologies such as ChatGPT? Are you looking to study a subject that can unlock tremendous social and economic benefits and is highly sought after by employers?

Data scientists use technical analysis, design, and programming skills to tackle a wide variety of challenges, ranging from mitigating climate change and detecting diseases to optimising production processes and enhancing customer experiences.

In recent years, data science has experienced a revolution with advancements in big data, predictive analytics and AI technologies such as ChatGPT and Bard AI. While these developments have improved how organisations automate processes, forecast trends, and engage with customers, the growing volume and complexity of data available presents new challenges to how we can leverage its true power.

To overcome this challenge, organisations look to data scientists who have the advanced data analysis and modelling skills to extract meaningful insights from data.

The Data Science degree programme is designed to address this challenge. You will learn essential data analysis and modelling skills, including programming, statistics, software engineering, data curation, and more.



The topics you study will also provide you with advanced knowledge and techniques applicable to artificial intelligence, machine learning, deep learning, distributed systems and cybersecurity.

Throughout the programme, you will have opportunities to further enhance your employability by engaging with the legal and ethical standards relating to data while also learning how to effectively communicate data-driven ideas and solutions.



## What You Will Study

### Year 1

- Programming
- Calculus
- Algebra
- Object-oriented Programming
- Understanding Data
- Plus 30 credits of from optional courses including, Combinatorics, Mathematics and Computations Through Programming Matlab, Experience, Knowledge and Reality, or Set Theory

### Year 2

- Linear Algebra
- Databases and Data Management
- Software Programming
- Probability
- Algorithms and Data Structures
- Plus 45 credits from optional courses including Understanding the Physical World, Web Development, Human - Computer Interaction, Ethics of Artificial Intelligence, or Understanding Statistics

### Year 3

- Principles of Software Engineering
- Artificial Intelligence
- Software Engineering and Professional Practice
- Enterprise Computing and Business
- Plus 60 credits from optional courses including Differential Equations, Operating Systems, Distributed Systems and Security, or Optimisation Theory

### Year 4

- Single Honours Data Science Project
- Research Methods
- Introduction to Machine Learning and Data Mining
- Modelling Theory
- Plus 45 credits from optional courses including Data Engineering, Natural Language Processing, Languages and Computability, Security, Operating Systems, Topological Data Analysis, Statistical Analysis of Biological Data, Financial Mathematics, Applied Marine Biology - Fisheries and Aquaculture, Environmental Analysis, Computer Vision, Reinforcement Learning, Bayesian Statistics, Geospatial Data Analysis, Marketing Analytics, Social Network Analysis

We will endeavour to make all course options available; however, these may be subject to timetabling and other constraints. Please refer to our website for further information.

## Data Science Careers

According to the World Economic Forum's Future of Jobs Report 2023, the employment of data analysts and scientists, big data specialists, AI machine learning specialists and cybersecurity professionals is expected to grow on average by 30% by 2027.

Graduates of this programme will be well placed to pursue careers such as:

- Business Intelligence Analyst
- Data Analyst
- Data Engineer
- Data Architect
- Data Scientist
- Database Administrator
- Machine Learning Scientist



## Student Societies

There are a number of student societies at the University of Aberdeen related to data science, including:

- Artificial Intelligence Society
- Computing Society
- Maths Society
- Physics and Astronomy Society

Societies provide a fun and relaxed forum for students to share their interest and expertise through workshops, guest talks, team challenges and social events. Find out more at [www.ausa.org.uk/societies/](http://www.ausa.org.uk/societies/)

## Extra-curricular Activities

The Aberdeen Software Factory is a student-run software house, which is supervised by staff, that enables students to gain experience working on larger software projects for external clients.

The programme enables students to enhance their software skills with real-world projects while also gaining a commercial perspective of software development, which is something that can benefit you when setting up your own software house in the future, or provide you with experience when applying for jobs in the future.

The School of Natural and Computing Sciences also runs an Industrial Seminar series, where relevant speakers from industry are invited to give talks to our students.

Other activities, including TechMeetUps, including talks from local SMEs, Code the City and other hackathons, conferences and competitions allow our students to develop their professional skills.

## Contact Us

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If you would like more general information on studying at the University of Aberdeen, visit [abdn.ac.uk/study](http://abdn.ac.uk/study), email: [study@abdn.ac.uk](mailto:study@abdn.ac.uk) or call +44 (0)1224 272090.

Every effort has been made to ensure the accuracy of the information contained within this guide but it is subject to alteration without notice. The University reserves the right to make variations to the contents or methods of delivery of programmes and courses, to discontinue programmes and courses and to merge or combine programmes and courses. The University is constantly developing new programmes and courses, so please visit our website for the latest information.

January 2024

