



# Department of Statistics

**WARWICK**  
THE UNIVERSITY OF WARWICK

MORSE  
Mathematics & Statistics  
Data Science

UNDERGRADUATE PROGRAMMES

"We are committed to excellence in both teaching and research and are very proud of our students, who so successfully contribute to making critical decisions in an uncertain world."

Professor Mark Steel  
Head of Department

Warwick  
Statistics  
Welcome to Statistics



## Welcome to the Department of Statistics

There has never been a more exciting time to study statistics. The digital universe is expanding at a phenomenal rate whilst businesses, governments and scientists are collecting vast amounts of data. Statisticians turn data into intelligence to extract meaningful patterns, make predictions and validate hypotheses. By analysing information gathered everywhere from banks and supermarkets, to weather stations and genetic laboratories, they inform strategy, guide policy and support scientific breakthroughs.

The coming decades promise an increasingly prominent role for statistics. All fields of social, political and physical science, including economics, business, financial and actuarial science, biology, chemistry and physics depend upon correct statistical reasoning. Even engaging in politics and understanding day-to-day news items increasingly requires an understanding of the statistics involved.

Employment opportunities are both varied and plentiful and cover areas such as the applied sciences, commerce and industry, accountancy and finance, government, teaching and research, computing and information technology, and biology and medicine.

In all situations, statistical methods are needed to extract information

from existing data, to understand the underlying process that produced the data and to make predictions. These provide sound principles for complex problems arising in areas such as modern biology, market research, finance, engineering, medical and social research, psychology, linguistics and many others.

Studying Statistics at Warwick will provide you with an understanding of fundamental mathematics, probability and statistics and the ability to study advanced topics in depth. It will also equip you with the ability to apply mathematical theory to practical problems, as well as provide access to top academics and researchers in the field, enabling you to explore the wide range of career opportunities.

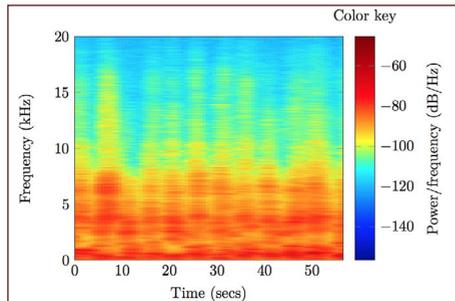
Researchers in Statistics at Warwick are developing and utilizing modern statistics, mathematics and computing to solve practical problems such as:

- ▶ Discovering which genes can discriminate between diseased and healthy patients
- ▶ Modelling and detecting asset price bubbles while they are happening and before they burst
- ▶ Modelling infectious diseases and identifying localized outbreaks
- ▶ Developing a fast algorithm through probabilistic modelling for compression of sound data
- ▶ Automatically diagnosing diseases with large-scale image data
- ▶ Utilizing crime data for crime prevention and optimal allocation of police resources
- ▶ Predicting the outcome of elections based on exit poll data
- ▶ Improved decision making in nuclear emergency response to take into account the uncertain dynamically changing environment

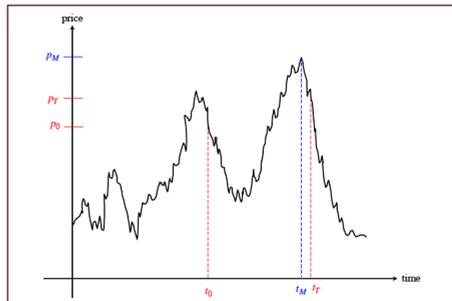
For more applied research projects see:

 [warwick.ac.uk/statistics/courses/researchtopics](http://warwick.ac.uk/statistics/courses/researchtopics)

The wide range of research interests means that for final-year dissertation projects, our students enjoy a rich choice of topics.



MMathStat dissertation on "The Signature of Sound" by Daniel Wilson-Nunn, now a PhD student at the Alan Turing Institute for Data Science.



MMORSE dissertation on "Behavioural Biases in Financial Decision Making" by Nikesh Lad, now a Statistician for the Ministry of Justice.

**2015 Queen's Anniversary Prize**  
for Higher and Further Education awarded to the Departments of Mathematics and Statistics for their research and its global impact



**1st**  
in the UK for research environment in Mathematical Sciences (achieving a maximal score of 100% at 4★)\*

**92%**  
of research in Mathematics and Statistics rated as internationally excellent or world leading\*

**3rd**  
in the UK for research in Mathematical Sciences\*

\*Based on the 2014 Research Excellence Framework

## The Department of Statistics

The Statistics Department was formed in 1972 and since then has expanded considerably and established an enviable international reputation in teaching and research. The excellence of the department research output directly impacts teaching: our lecturing staff are active researchers in a broad range of areas in probability and statistics, from statistical theory and probability to applications in biology, economics, finance, medicine and more.

The Centre for Research in Statistical Methodology (CRISM), a multi-million pound government initiative based in the Department of Statistics, was established to strengthen and support the development of statistical methodology and multi-disciplinary collaboration across a wide range of applications.

The Department of Statistics, in collaboration with Mathematics and Computer Science, is also taking a leading role in the rising field of Data Science. Warwick is one of the five founding partners of the Alan Turing Institute, the UK's national institute for Data Science, and is also the only European partner in the New York Centre for Urban Science and Progress, which focuses on Data Science for cities. Furthermore, the creation of the Warwick Data Science Institute brings together researchers from Computer Science, Mathematics, Statistics and more and hosts seminars and workshops tackling important Data Science issues.

## What can I study?

Our undergraduate degree programmes attract well-qualified students from the UK and across the globe and produce graduates who are in great demand. We offer three distinctive, high-quality undergraduate degree programmes:

- ▶ **MORSE/MMORSE**  
(Mathematics, Operational Research, Statistics and Economics)
- ▶ **MathStat/MMathStat**  
(Mathematics and Statistics)
- ▶ **Data Science**  
(Mathematics, Statistics and Computer Science)

All of these courses involve substantial collaboration with other departments at Warwick (especially the Mathematics Institute, Department of Computer Science, Department of Economics and Warwick Business School).

All degrees are designed for mathematically able students; MathStat provides a thorough grounding in both theoretical and practical aspects of modern mathematics and statistics, while MORSE integrates the study of mathematics and statistics with their applications to economics, finance and management, and Data Science combines key elements of mathematics, statistics and computer science for modern large-scale data analysis.

Both MORSE and MathStat are available as either a three-year, single-honours BSc (MathStat, MORSE) or four-year integrated master's (MMathStat, MMORSE) programme. Data Science is a three-year, single-honours BSc degree course.

### Transfers

Transfers between all our degrees – Data Science, MathStat/MMathStat and MORSE/MMORSE – are usually straightforward for offer-holders. We therefore recommend applying to just one of our degrees. In some cases, transfers are even possible beyond the start of the first year, subject to appropriate choice of optional modules.

Changes between the three-year and four-year versions of the MORSE and the MathStat degrees are possible up to the beginning of the third year. Progression to the integrated master's is subject to academic performance, and a transfer from the third to fourth year versions may additionally require appropriate module choice.

Overseas students will need to make changes to their visa when changing their degree course and in some cases (e.g. changing from a three-year to a four-year course), apply for a new visa from their home country. For updates and details on the process and deadlines, consult:

Immigration Service:

 [warwick.ac.uk/study/international/immigration](http://warwick.ac.uk/study/international/immigration)

International Office:

 [warwick.ac.uk/study/international](http://warwick.ac.uk/study/international)

EU students study under the same conditions as home students. Warwick University has ensured that current uncertainty around the UK's EU membership will not affect tuition fees for new students starting in 2016, 2017 and 2018.

## How can I study?

### Course structure and flexibility

Core modules in your first two years build a solid foundation of essential knowledge and skills in mathematics and statistics, as well as computer science for Data Science students, and economics and operational research for MORSE students. You will also be offered the flexibility to choose some options. In the final years, you will have more flexibility to choose your modules with options available in statistics, mathematics, computer science, economics, operational research and more.

There are even opportunities for incorporating language and music courses throughout the entire course. In fact, many students opt to take more than the normal load of courses. Students may additionally choose to spend an 'intercalated' year in an approved industry, business or university between their last two years at Warwick.

### Learning and assessment

There are a variety of formats for learning including lectures and exercise classes for larger groups, and computer labs, supervisions and meetings with

personal tutors in smaller groups. Many of our students form study groups to discuss their work that meet in the work areas around the department or the library.

You will be assessed by a combination of closed and open-book examinations, continuous assessment and project work, depending on your module choices. Students in our four-year degrees devote a quarter of the final year to a research project supervised by one of our academic staff members. This includes giving a short oral presentation, presenting a poster and writing a dissertation. Data Science students undertake an individual project in the third year on a topic of interest, supervised by academic staff from Statistics or Computer Science. This includes a presentation and final report.

Study advice:

 [warwick.ac.uk/statistics/courses/studying](http://warwick.ac.uk/statistics/courses/studying)

Study experience:

 [warwick.ac.uk/statistics/courses/studyingexperience](http://warwick.ac.uk/statistics/courses/studyingexperience)



### ▶ Georgia Craven (MORSE)

*"The best thing about MORSE is the flexibility to study what most interests you, with options in everything from pure mathematics to business and marketing. Although the course is challenging, I found that I was always given the support I needed from staff, mentors and fellow students, and there is a real sense of community among MORSE students, with many forming study groups and socialising together."*

## What is MORSE?

A Mathematics degree for those interested in pursuing a course which combines theory with modern applications in operational research, statistics, finance and economics.

MORSE is a single honours degree in mathematics and its practical application to business, finance, economics and other topics and is a flagship programme of the University of Warwick. MORSE contains a balance of mathematical theory and practical work in order to produce high quality graduates who are mathematically equipped to deal with the practical problems of the modern world.

### Is MORSE for you?

MORSE is designed for good mathematicians who are interested in pursuing sophisticated theory with relevance to modern applications in operational research, finance, economics. No previous knowledge of operational research, statistics, economics or computing is required, but applicants must have an interest in applying mathematical theory to real problems.

"I learned four different major subjects during my first year to widen my horizons and find what suited me best."

Alexandra Lin  
MORSE

### The composition of MORSE:

- ▶ **Mathematics:** provides the foundations for study in the application areas; includes linear algebra, analysis, geometry, differential equations and more.
- ▶ **Operational Research:** the application of mathematics to solve problems associated with decision making, e.g. resource allocation, forecasting, optimisation, marketing, system control and simulation.
- ▶ **Statistics:** mathematical theory of probability and of the analysis of data, the study of uncertainty; including forecasting, risk analysis, stochastic modelling in finance and other areas, actuarial mathematics, and decision and game theory.
- ▶ **Economics:** the development of mathematical models for the economy; macro- and micro- economic theory; econometric modelling; competition; and public finance.

Instead of pursuing the more traditional areas of applied mathematics, MORSE relates pure mathematics to the modern application areas described above.



Jack Carter (MMORSE)

"I feel that I have learnt many skills that are applicable to a wide variety of jobs. Despite the high workload, I have played football regularly in the Warwick intramural leagues and in my 4th year was the treasurer of Matchday society. Next year I will be beginning a PhD with the joint Oxford Warwick Statistics Program and MORSE is perfect preparation for this."

### Course structure

The curriculum is built on the principle that module choices get more and more flexible as you progress through the degree. On top of that, you may choose to study additional options from an even wider range of modules.

#### First year

The compulsory modules in the first year concentrate on the fundamental mathematical ideas. You also study basic material from economics and operational research.

#### Second year

In the second year, statistics, economics and operational research are developed further, and there is a wide range of optional modules. At the end of this year, you finalise your choice between the three-year and four-year versions (the latter requiring suitable academic

performance, such as upper second class, and appropriate module choice).

#### Final years

The third (final) year of MORSE has no compulsory modules, so you can specialise in your chosen area(s).

The third year of MMORSE includes compulsory modules on advanced probability, statistical modelling and financial mathematics, as well as additional compulsory modules depending upon the chosen stream of specialisation.

The fourth (final) year of MMORSE offers many modules in probability, statistics, economics, operational research and financial mathematics, and you also choose a masters-level dissertation topic from one of these areas.

#### MORSE course structure

1st	MA	ST	EC	IB	Opt+
2nd	ST	EC	IB	Opt	Opt+
3rd	Opt				Opt+

#### MMORSE course structure

1st	MA	ST	EC	IB	Opt+
2nd	ST	EC	IB	Opt	Opt+
3rd	ST	Opt			Opt+
4th	Dissertation	Opt			Opt+

MA = Mathematics, ST = Statistics, EC = Economics, IB = Warwick Business School, Opt = Optional modules from long lists of MA, ST, EC and IB modules and beyond.

### MORSE or MMORSE?

These two degree courses are nearly the same during the first two years, making it easy to reconsider your preference during your first two years at university. Differences become apparent in the final years with a supervised research project and specialisations in MMORSE.



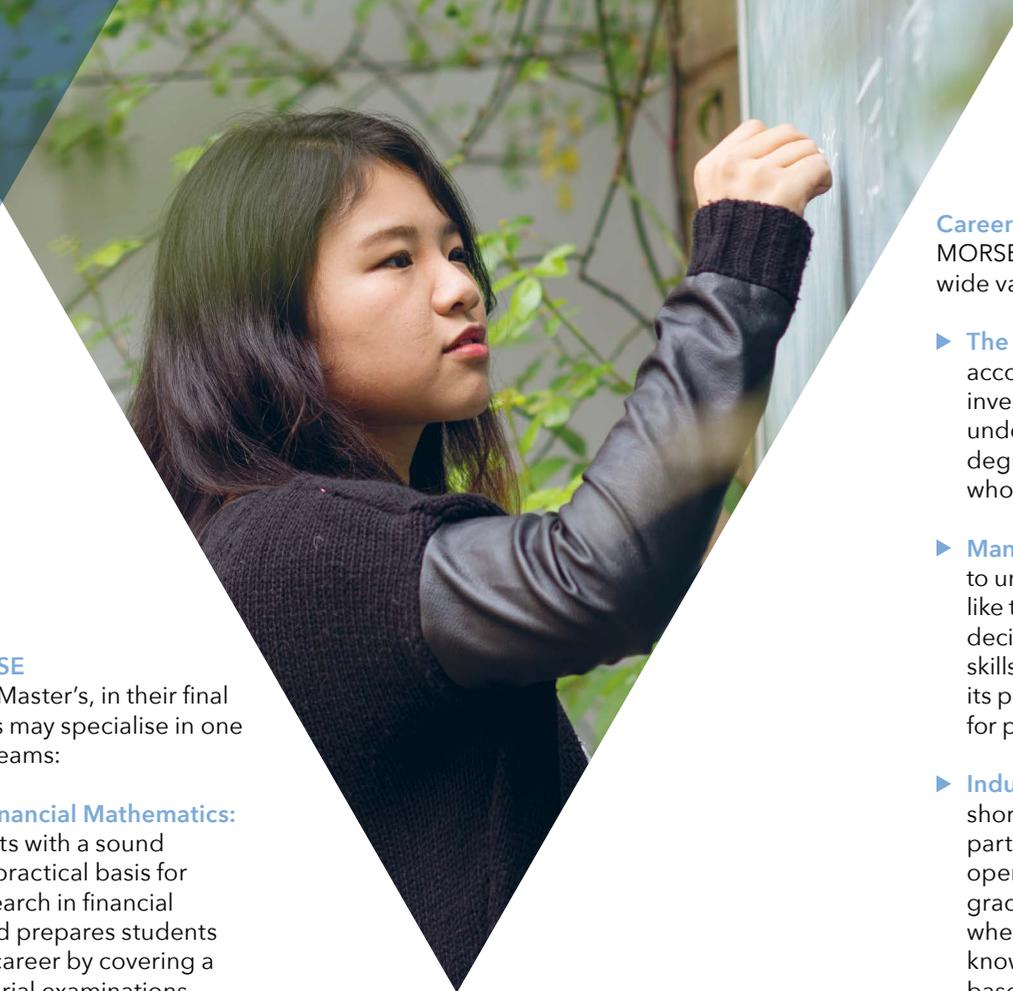
#### Prajay Avlani (MMORSE)

*"MMORSE will give you freedom to tailor the course as to how you want, so you can focus on areas of particular interest along with discovering new strengths. It is challenging but also intellectually stimulating and will open doors to a whole host of career related prospects. MMORSE has led me into a career as an actuary (backed with the all-important actuarial exemptions), and I will be forever grateful for the unforgettable experience and invaluable knowledge acquired over the years."*

### Streams of MMORSE

For the integrated Master's, in their final two years, students may specialise in one of four possible streams:

- 1. Actuarial and Financial Mathematics:** provides students with a sound theoretical and practical basis for careers and research in financial mathematics and prepares students for an actuarial career by covering a number of actuarial examinations.
- 2. Operational Research and Statistics:** prepares students for employment as management scientists, for research in OR and for progression to general managerial positions.
- 3. Econometrics and Mathematical Economics:** prepares students for careers in econometrics, economic consultancy and research in quantitative economics and finance.
- 4. Statistics with Mathematics:** prepares students for employment as statisticians and for research in statistics.



### Career opportunities

MORSE graduates can choose from a wide variety of careers, for example:

- ▶ **The Professions:** actuaries, cost accountants, chartered accountants, investment banking. MORSE is undoubtedly the most suitable degree at Warwick for those students who wish to become actuaries.
- ▶ **Management:** modern managers need to understand mathematical methods like those of operational research and decision theory, and communication skills are vital. The MORSE course, with its project work, is an excellent degree for prospective managers.
- ▶ **Industry:** industry is consistently short of well-qualified people, particularly experts in statistics and operational research. Many MORSE graduates take up such careers, where they can apply their specialist knowledge and also use their broad base of experience to communicate effectively with other specialists.
- ▶ **Teaching:** schools are still desperately short of mathematics teachers, and university careers are also possible after further study.
- ▶ **Research:** a significant number of our students go on to postgraduate degrees and research posts in industry, medical schools, government departments and elsewhere.

"Our degrees not only provide a strong mathematical foundation but also have an application focus that enables students to solve real life problems."

Dr Elke Thönnies  
Principal Teaching Fellow

The University's Careers Advisory Service classifies MORSE students as being in high demand, particularly for the careers mentioned above.

## What is Mathematics & Statistics?

A Mathematics course for those interested in quantitative modelling and analysis of random structures and events. It possesses considerable flexibility and allows the student to specialize in areas such as advanced statistics, probability, biostatistics, computational statistics, and actuarial and financial mathematics.

These days all large organisations, industries, businesses, government departments and other services use mathematical and statistical methods extensively. Consequently the demand for mathematical statisticians has expanded so rapidly in recent years that there is a severe shortage of well-qualified people. Our graduates are well trained in both the theory and practice of statistics, enabling them to embark on research in statistics and probability and providing them with a wide variety of career options.

### Is MathStat for you?

MathStat is designed for mathematically able students who have an interest in solving mathematical problems involving risk and uncertainty inspired by modern sciences, technology, survey sampling, business, medicine, industry, government and many more areas. No previous knowledge of statistics or computing is required.



#### Margaret Fregene (MMathStat)

*"Once you immerse and dedicate yourself into your studies and work hard, you'll really begin to enjoy the learning experience and become excited by the prospect of selecting from the wide range of optional modules the department has to offer. The vast career opportunities the degree has to offer from consultancy, actuary, investment banking to statistical research will make completing all those difficult and time-consuming assignments worth it."*

### Course structure

The curriculum is built on the principle that module choices get more and more flexible as you progress through the degree. On top of that, you may choose to study additional options from an even wider range of modules.

#### First year

The compulsory modules in the first year introduce the mathematical ideas underlying statistics and applied mathematics. There is a wide range of additional options from mathematics and beyond.

#### Second year

In the second year, statistics and mathematics are developed further, and again there are many optional modules. At the end of this year, you finalise your choice between the three-year and four-year versions (the latter requiring suitable

academic performance, such as upper second class).

#### Final years

The third (final) year of MathStat has no compulsory modules, though you must take at least four statistics modules.

The third year of MMathStat includes compulsory modules on advanced probability and statistical modelling and many optional modules. Overall you must take at least five statistics modules and at least two mathematics modules.

The fourth (final) year of MMathStat offers many options in statistics, mathematics and beyond, and you also choose a masters-level dissertation topic from a wide selection of areas in statistics.

#### MathStat course structure

1st	MA	ST	Opt	Opt+
2nd	MA	ST	Opt	Opt+
3rd	ST	Opt	Opt+	Opt+

#### MMathStat course structure

1st	MA	ST	Opt	Opt+
2nd	MA	ST	Opt	Opt+
3rd	MA	ST	Opt	Opt+
4th	Dissertation	Opt	Opt+	Opt+

MA = Mathematics, ST = Statistics, Opt = Optional modules from long lists of MA and ST modules and beyond.

#### MathStat or MMathStat?

These two degree courses are nearly the same during the first two years, making it easy to reconsider your preference during your first two years at university. Differences become apparent in the final years with the MMathStat degree

offering a supervised research project and the possibility to specialize in areas such as advanced statistics, biostatistics, computational statistics, actuarial and financial mathematics, and probability.

### Career opportunities

MathStat graduates can choose from a wide variety of careers, for example:

- ▶ **Industry:** industry is consistently short of well-qualified people, particularly in areas like statistics. Mathematics & Statistics provides an excellent grounding for work in this area.
- ▶ **Research:** a significant number of our students go on to postgraduate degrees and research posts in industry, medical schools, government departments and elsewhere.
- ▶ **Teaching:** schools are still desperately short of mathematics teachers, and university careers are also possible after further study.
- ▶ **The Professions:** actuaries, cost accountants, chartered accountants. MathStat graduates may obtain exemptions from some of the examinations for each of these professions.
- ▶ **Management:** modern managers need to understand mathematical methods like those of statistics and decision theory, and communication skills are vital. The use of project work in MathStat allows students to develop these skills.

The University's Careers Advisory Service classifies MathStat students as being in high demand, particularly for the careers mentioned above.



For an in depth look at the different areas where statisticians work including actuarial mathematics, forensics, the environment, medicine, pharmaceuticals, the government, market research, sports, teaching and consultancy, check the Royal Statistical Society website:

[statslife.org.uk/careers/types-of-job](http://statslife.org.uk/careers/types-of-job)

with additional information on how to get started:

[statslife.org.uk/careers/your-career-stage/career-stage-16-19](http://statslife.org.uk/careers/your-career-stage/career-stage-16-19)

### What is Data Science?

In every facet of modern life, from online shopping and social networks to scientific research and finance, we collect immensely detailed information. Data science is concerned with turning this data into intelligence through the application of cutting-edge techniques in statistics and computer science.

The BSc in Data Science is a single honours degree, emphasizing a mathematical approach to the analysis of data. It is the first course of its kind in the UK and is administered through the Statistics Department, which has a long track record of running the successful interdisciplinary MORSE degree. Students follow a carefully designed curriculum from Computer Science, Mathematics and Statistics.

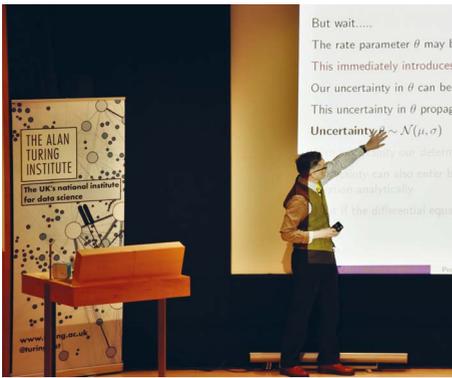
Global demand for combined statistical and computing expertise outstrips supply, with evidence-based predictions of a major shortage in this area for at least the next ten years. The Data Science degree is an interdisciplinary response to this demand, and our

graduates have the precise combination of knowledge and skills to forge careers in this critical area.

#### Is Data Science for you?

Data Science is designed for able mathematicians with an interest in pursuing sophisticated theory and methods relevant to modern applications requiring large-scale data analysis. It prepares you for cutting-edge data handling and analysis for the information challenges of tomorrow.

No previous knowledge of statistics or computer science is required, but applicants must have an interest in applying mathematics to solve modern challenges.



## The Alan Turing Institute

In 2014, the creation of the Alan Turing Institute, the UK's national institute for Data Science, was announced with the UK government pledging an initial investment of £42m.

In 2015, Warwick was named as one of the five founding partners of the Institute. A number of academic staff members from Warwick's Departments of Mathematics, Statistics and Computer Science serve as faculty fellows.

### Data science in practice

Data science involves turning large scale data into value through the use of modern mathematics, statistics and computer science to address practical questions such as:

- ▶ **E-commerce:** how can new items (e.g., songs on a site selling music) be recommended to a customer by combining information on the customer's past behaviour (e.g., music purchased, songs previewed, news articles read); the behaviour of other customers; and the characteristics of the items involved (e.g., music genre, artist, etc.)?
- ▶ **Disaster management:** how can emergency response to major disasters be delivered more effectively and efficiently based on satellite imagery data combined with large, unstructured text data from online sources?
- ▶ **Health care:** how can information from diverse data sources (e.g. genetics, imaging, clinical, behaviour, demographic, socio-economic) be extracted to improve patient outcomes and health services, decrease costs and accelerate discovery?
- ▶ **Sports:** how can health management and outcomes in sports and fitness be improved by utilizing the diverse and complex data collected from multiple sources (e.g. motion trackers, questionnaires, images and videos)?

"It has been a pleasure to see the first Data Science cohorts develop the unique combination of skills that are covered in the core programme, and individually specialise through their choices of optional modules."

Dr Anthony Lee  
BSc Data Science  
Course Director



### Enis Nazif (Data Science)

"In some ways, choosing to study Data Science was a bit of a gamble, since we were the first cohort to be given the opportunity. However, on reflection, when looking back at it after two years, I can honestly say it is one of the best decisions I have made. Despite the very specific sounding name, the course involves an interesting mix of statistics and computer science - two subjects that complement each other very well - and provides a solid foundation for a wide range of careers ranging from software engineering to finance. Similar to the other degrees offered by the Statistics Department, there is a great deal of flexibility offered in module selection, allowing you to keep your options open at first, but specialise as you gradually discover the areas in which you are most interested."

### Course structure

The curriculum is built on the principle that module choices get more and more flexible as you progress through the degree. On top of that, you may choose to study additional options from an even wider range of modules.

#### First year

The compulsory modules in the first year build a strong, general mathematical foundation. You will also be introduced to programming, data structures, probability and exploratory data analysis.

#### Second year

In the second year, statistical topics are explored in considerable depth, and

students are exposed to algorithms, databases and software engineering. There are a number of optional modules, such as artificial intelligence and linear statistical modelling.

#### Third year

The only compulsory module is the Data Science Project, which allows you to showcase the skills you have developed. The remainder of the year consists of optional, advanced modules from both statistics and computer science, such as machine learning and Bayesian forecasting.

### Data Science course structure

1st	MA	ST	CS	IB	Opt+
2nd	ST	CS	Opt		Opt+
3rd	Dissertation	Opt			Opt+

MA = Mathematics, ST = Statistics, CS = Computer Science, IB = Warwick Business School, Opt = Optional modules from long lists of MA, ST and CS modules and beyond.



“Data Scientists are the magicians of the Big Data era.”

New York Times  
2013

### Career opportunities

Data scientists are in high demand and career opportunities are plentiful. Our graduates will be well prepared to embark on a wide variety of careers, for example:

- ▶ **Industry:** industry is consistently short of people equipped to take on the deep analyses of data. Data Science graduates will be well placed to help fill this gap. Opportunities exist with companies in areas such as
  - ▶ Information technology,
  - ▶ Manufacturing,
  - ▶ Pharmaceuticals,
  - ▶ Finance,
  - ▶ Telecoms,
  - ▶ Market research,
 and a growing number of other areas.
- ▶ **Research:** many students from the Departments of Statistics and Computer Science go on to postgraduate degrees and research posts in Mathematics, Statistics, Computer Science, Engineering,

Econometrics and Physics, as well as in medical schools and government departments. In addition, an increasing number of postgraduate degrees and research posts are available in Data Science, Machine Learning and Bioinformatics, and our graduates are particularly well suited for these opportunities.

- ▶ **Teaching:** schools are desperately short of mathematics teachers, and university careers are also possible after further study.
- ▶ **Management/Professional roles:** modern managers need to understand mathematical methods such as statistics and decision theory. Familiarity with computing is important too, and communication skills are vital. Project work enables Data Science students to develop these skills. Data Science graduates may also obtain exemptions for some actuarial or accountancy exams.

### Internships and careers

The emphasis in all our courses is on mathematically based learning that is of very direct relevance to the demands of the real world. This helps explain why our graduates are so highly sought-after. The range of destinations is wide and varied.

Alumni experiences and careers:

 [warwick.ac.uk/statistics/courses/alumni](http://warwick.ac.uk/statistics/courses/alumni)

Graduates in demand:

 [warwick.ac.uk/statistics/courses/warwick-graduates-in-demand](http://warwick.ac.uk/statistics/courses/warwick-graduates-in-demand)

Many of our students do at least one internship, often the summer after the second year. A decent number receive a job offer as a result, long before graduating. An internship is also an excellent opportunity to test whether your career goals really match your hopes and expectations. If this is not the case, you still have one or more years to optimise your module choices in view of different career goals. The Careers Service is very supportive in helping to find promising opportunities and preparing for interviews.

Careers Service:

 [warwick.ac.uk/services/careers](http://warwick.ac.uk/services/careers)

### ▲ Warwick ranked 3rd

in the High Fliers report “The Graduate Market” in 2015 and 2016.

### ▲ 75-100% of Warwick Statistics graduates are in professional jobs or post-graduate study within six months of graduation

Unistats: [unistats.direct.gov.uk](http://unistats.direct.gov.uk)

### ▲ Typical salaries achieved by Warwick Statistics graduates are substantially above average

Unistats: [unistats.direct.gov.uk](http://unistats.direct.gov.uk)



#### Francesca James (MORSE)

“After applying for internships in my second year and being very successful in the application, I realised that MORSE is definitely a degree worth having, especially if you plan to enter the world of finance. All the employers know about MORSE and have a good idea of how prestigious it is. This not only was a relief, but it boosted my confidence in interviews. Knowing that I was the type of candidate they were looking for made the whole process a lot easier, and I found an internship straight away, receiving multiple offers from well-established firms.”

## Thinking about applying?

Application is made through the Universities and Colleges Admissions Service (UCAS)

 [warwick.ac.uk/study/undergraduate/apply](http://warwick.ac.uk/study/undergraduate/apply)

### UCAS codes:

- ▶ **MORSE: GNL0**
- ▶ **MMORSE: G0L0**
- ▶ **MathStat: GG13**
- ▶ **MMathStat: GGC3**
- ▶ **Data Science: 7G73**

Application should be made to only one of these courses. You can only get an offer for one of our courses, and it is straightforward for an offer-holder to transfer between courses. If in doubt between the three-year and four-year versions of a course, apply for the four-year integrated master's because it is possible to transfer to the BSc until the end of the second year.

Overseas students need to make their final course choice already on their visa application, and any future transfers will require the student to make changes to their visa or in some cases, apply for a new visa.

For more information on course transfers see page 6.

### Entry requirements

Admission criteria are similar for all our courses and require a top grade in A-level Mathematics or an equivalent qualification with experience of Further Mathematics or similar qualifications being an advantage.

### Typical conditional offer:

A-level: A\* (in Mathematics) +  
A (in Further Mathematics) + A  
IB: 38 (including 7 in Higher Level  
Mathematics)

Up-to-date information on the full range of offers can be found at:

 [warwick.ac.uk/statistics/courses/offer](http://warwick.ac.uk/statistics/courses/offer)

An AEA and/or STEP paper in Mathematics is an excellent way to prepare for Mathematics at university. Your results on these papers can only boost your performance and are the most important factors that may help if you miss the offer. To encourage you to take one of these examinations, we offer an entrance prize for outstanding achievement in any of the STEP papers. For full details see:

 [warwick.ac.uk/stats/courses/entrance-prizes](http://warwick.ac.uk/stats/courses/entrance-prizes)

For the UCAS Personal Statement, emphasis on your mathematical interests and achievements is likely to count positively, as these are key qualities found in our most successful students. Interest in probability and statistics is also relevant.



### Visits

University Open Days are held through the year.

 [warwick.ac.uk/study/undergraduate/visits/opendays](http://warwick.ac.uk/study/undergraduate/visits/opendays)

Applicants who have received an offer are encouraged to attend our Offer-Holder Visit Days.

 [warwick.ac.uk/statistics/courses/offerholders](http://warwick.ac.uk/statistics/courses/offerholders)

These events provide an opportunity to meet staff, current and prospective students, visit campus, and learn more about our degrees and studying at Warwick.

Check out

 [studentblogs.warwick.ac.uk](http://studentblogs.warwick.ac.uk)  
to find out more about student life.

### Enquiries

If you would like a detailed course guide for any of our degrees or for any enquires, please email:

[statistics@warwick.ac.uk](mailto:statistics@warwick.ac.uk)

or write to:

Department of Statistics,  
The University of Warwick,  
Coventry, CV4 7AL



## Mathematical Sciences at Warwick

Since its formation in 1965, Warwick has developed into one of the strongest universities for mathematical sciences, including mathematics and statistics, in the country. In recognition of this achievement, the Departments of Mathematics and Statistics were awarded the Queen's Anniversary Prize for Higher and Further Education in 2015 for their research and its global impact.

All five departments contributing to the degrees offered by the Statistics Department have consistently been awarded the highest grade in external assessments of their research work.

The Mathematics Institute has a worldwide reputation with interests in many areas of pure and applied mathematics. Warwick has a large Business School on the campus, and its members contribute to the operational research and finance teaching. The Economics Department is widely regarded as one of the top economics departments in Europe. The Department of Computer Science is one of the oldest and most established computer science departments in the UK and is a leader in computing research.

In addition to the MORSE, MathStat and Data Science courses, a full comprehensive range of other mathematical degrees is offered to students, including:

By the Mathematics Department:

- ▶ Mathematics (Pure)
- ▶ Mathematics & Business Studies
- ▶ Mathematics & Economics
- ▶ Mathematics & Philosophy

By the Computer Science Department:

- ▶ Discrete Mathematics

By the Physics Department:

- ▶ Mathematics & Physics

## About the University

Warwick is a world-leading university that is consistently ranked in the top 10 of all UK university league tables.

Granted a charter in the 1960s, Warwick quickly established itself as a dynamic university and has become known for its high-quality teaching and research. The Government's Teaching Quality Assessment has rated as excellent both the Mathematics and Statistics Departments.

We want students to enjoy life at Warwick. The beautifully landscaped campus acts as a backdrop for its excellent student accommodation and provides a lively and vibrant base for more than 23,000 students.

The Warwick Arts Centre is the focus for student and community entertainment, housing a concert hall, theatres, cinema, art gallery and a bookshop, and the University also provides on-campus facilities for many sports and activities. A wide range of shops, restaurants and banks are on-hand to add to the quality of student life.

Find out more about campus life:

 [warwick.ac.uk/study/undergraduate/campuslife](http://warwick.ac.uk/study/undergraduate/campuslife)





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For further information contact:

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 [warwick.ac.uk/statistics](http://warwick.ac.uk/statistics)

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