

# Programme Description Document

## Draft Subject to Approval

|                         |  |
|-------------------------|--|
| Programme Title         | Data Science (UoSD) (2026-27)  |
| Award Title             | Master of Science (MSc)  |
| Awarding Body           | University of Southampton  |
| Teaching Institution    | University of Southampton  |
| Regulated by            | Office for Students  |
| Accreditation           | None   |
| Regulations             | The Regulations of the University can be found on the University's Governance Webpages:<br><a href="https://www.southampton.ac.uk/about/governance/regulations-policies">https://www.southampton.ac.uk/about/governance/regulations-policies</a> |
| Location of study       | Delhi Campus   |
| Length of the programme | 1 Years  |
| Tuition Fees            | Fees for students can be located on the programme information pages.<br><a href="https://www.southampton.ac.uk/in/courses">https://www.southampton.ac.uk/in/courses</a>  |

## Programme Overview

This programme prepares students to become data scientists. It gives them the opportunity to further their specialist knowledge in those subjects of Computer Science and Engineering that are crucial for mastering the vast and ever-so-complex information landscape that is characteristic to modern, digitally empowered organisations. This is typically linked to several core areas of expertise, from the ability to operate high-performance computing clusters and cloud-based infrastructures, to the know-how that is required to devise and apply sophisticated Big Data analytics techniques, and the creativity involved in designing powerful visualisations. The programme targets primarily students with a first degree in computing (or a closely related degree covering fundamental notions of programming or data analysis) and builds on successful pre-existing specialist master programmes at ECS.

The modules cover state-of-the-art techniques, technologies, and supporting tools, and expose students to their applications in meeting emerging business needs and ambitious societal problems. Application areas include: data journalism, open government, finances, and social media. The programme will offer a range of

options for students to choose from across these areas to allow them to build their own degree in a flexible way and to best match their strengths and interests.

In the first semester we start with a review of key topics in Data Science designed to resolve the inevitable variety of background knowledge. The course will introduce the core theoretical and technology components required to design and use a Data Science application, using open-source tools and openly accessible data sets. A second compulsory module in the first semester will cover machine learning, which is at the core of any attempt to analyse and reason about data. Finally, the Data Visualisation module will introduce the most common types of visualisation techniques and state-of-the-art technology used to build graphic elements into Data Science applications to present analytics results.

Together this set of three compulsory technical modules in the first semester will ensure that students will be familiar with methods, techniques and tools that cover the entire data management lifecycle, from the collection and manipulation of the data to its analysis and use. In the fourth compulsory module, which runs over both semesters, the focus is on preparing students for their project and enhancing their dissertation writing skills through a literature review and a project plan, as well as a peer-reviewed poster presentation.

In the second semester students can select four optional modules, allowing them to tailor the programme to suit their interests.

Finally, the summer research project enables students to demonstrate their mastery of specialist techniques and relevant methods of enquiry, and their ability to design and deliver advanced applications, systems and solutions to a tight deadline, including the production of a substantial dissertation.

## **Aims of the Programme**

The aims of the programme are to enable you to:

- 1) Develop original ideas and solve complex problems in new or unfamiliar environments, based on advanced knowledge of the principles and methodologies of data science
- 2) Integrate knowledge and handle complexity in this area of computer science and information engineering, formulating sound judgements with incomplete or limited data
- 3) Communicate your conclusions and the underpinning knowledge and rationale clearly and unambiguously to specialist and non-specialist audiences
- 4) Develop your independent learning skills as required for continued professional development

## **Programme Structure**

The tables below provide a list of the modules that make up your programme.

Each module is worth a specified number of credits: you can take a combination of core and compulsory modules enabling you to cover key subject knowledge. Some programmes have option modules which enable you to develop your own interests.

Your programme requires a certain number of credits. The number of option modules you can take depends on the number of core and compulsory modules and this is also influenced by the requirements of the regulatory requirements for professionally accredited programmes. Some programmes also have pre and co-requisites, and these are included in individual module information.

Your learning will be led by the latest research, and modules can change periodically to reflect developments in the discipline.

If we have insufficient numbers of students interested in an option module, it may not be offered. If an option module will not be run, we will advise you as soon as possible and help you choose an alternative module.

The core and compulsory modules available on your programme are as follows:

## **Part I**

### Typical course content

The programme consists of eight taught modules, each worth 7.5 ECTS credit points (15 CATS) and an individual research project worth 30 ECTS credit points (60 CATS). Three compulsory modules cover data analysis and use. Another compulsory module prepares you for your individual research project. Four optional modules can be selected to tailor the programme to your strengths and interests.

### Programme details

The programme runs over three semesters. The first semester consists of three compulsory technical modules. The second semester consists of four optional modules. In the compulsory module Research Methods and Project Preparation, which runs over both semesters, you will undertake appropriate preparatory study for your research project and you will also examine ethical and legal issues around professional practice. All modules are at level 7 (Masters), with the exception of COMP3211 (level 6). Following the first two semesters of the taught component of the programme, the students will undertake a research project which will be assessed by a degree dissertation.

Most modules are shared with our Master of Engineering programmes in Computer Science and our specialist MSc programmes. It should be noted that it may not be possible to run some optional modules if the number of students registered on the module is very small. It should also be noted that optional module choice can be restricted by the University Timetable, which varies from year to year: some optional modules may clash with other optional or compulsory modules. Please be aware that many modules are shared between different cohorts; the class size depends on cohort size, which varies from year to year.

Examinations are held at the end of Semester 1 (January) and at the end of Semester 2 (May/June). Students who have successfully completed 30 ECTS (60 CATS) or 60 ECTS (120 CATS) at the level of the award may exit with a Postgraduate Certificate or Postgraduate Diploma, respectively.

The following describes the regular pattern of study of a full-time student, completing the programme within 12 calendar months:

#### Semester 1:

Three compulsory technical modules. Examinations are held in January.

#### Semester 2:

Four optional modules. Examinations are held in May/June.

Semester 1+2:

The Research Methods and Project Preparation module is compulsory.

Summer/Semester 3:

You will undertake a research project lasting 3 to 4 months, which is assessed by a 15,000 word dissertation.

The programme structure, including the compulsory and optional modules, is summarised below.

====

SEMESTER 1

COMP6234 - compulsory

COMP6235 - compulsory

COMP6246 - compulsory

----

SEMESTER 1 + 2:

ECSP6002 - compulsory

----

SEMESTER 2 - select four optional modules

----

SUMMER

ECSP6003 - core

====

### Part I Core

| Code     | Module Title                         | ECTS | Type |
|----------|--------------------------------------|------|------|
| ECSP6003 | MSc Project and Dissertation 2026-27 | 30   | Core |

### Part I Compulsory

| Code     | Module Title                                     | ECTS | Type       |
|----------|--|------|------------|
| COMP6246 | Machine Learning Technologies (MSc) 2026-27      | 7.5  | Compulsory |
| COMP6234 | Data Visualisation 2026-27                       | 7.5  | Compulsory |
| COMP6235 | Foundations of Data Science 2026-27              | 7.5  | Compulsory |
| ECSP6002 | Research Methods and Project Preparation 2026-27 | 7.5  | Compulsory |

### Part I Optional

Select four semester 2 modules (30 ECTS/60 CATS) from the following:

| Code     | Module Title                       | ECTS | Type     |
|----------|------------------------------------|------|----------|
| COMP6252 | Deep Learning Technologies 2026-27 | 7.5  | Optional |
| COMP6237 | Data Mining 2026-27                | 7.5  | Optional |

|          |   |     |          |
|----------|---|-----|----------|
| COMP6250 | Social Media and Network Science 2026-27  | 7.5 | Optional |
| COMP6253 | Natural Language Processing (MSc) 2026-27 | 7.5 | Optional |

## Learning and Teaching

Your overall workload consists of class contact hours, independent learning, and assessment activity, with each ECTS credit taken equivalent to 20 hours of student effort.

When not attending lectures, seminars and other timetabled sessions you will be expected to continue learning independently through self-study. Typically, this will involve reading journal articles and books, working on individual and group projects, undertaking research in the library, preparing coursework assignments and presentations, and for other types of assessments and examinations.

## How we'll assess you

Your programme provides you with opportunities to test your understanding of the subject informally before you complete the formal assessments that count towards your module mark. Each module normally contains at least one piece of practice or formative assessment for which you receive feedback.

Formative assessments are developmental, and any results do not count towards your module mark, but they are an important part of your learning.

Summative assessments usually take place at the end of each module, although some may have interim assessments throughout. Assessment methods might include written examinations and a range of coursework assessments such as essays, reports, portfolios, performance, presentations and projects for example. The marks from summative assessments count towards your module mark.

## Staff involved in delivering the different elements of the programme

You will be taught by an experienced teaching team whose expertise and knowledge are closely matched to the content of the modules on your programme. The team includes senior academics, professional practitioners with industry experience, demonstrators and technical officers.

Postgraduate research students who have undertaken appropriate training may also contribute to the teaching of seminars if their research specialism is directly related to the topic of the module and may also be involved in practical classes, project work and field trips. All contributions will be carried out under the supervision of the module leader.

## Fees

### What your fees pay for

Your tuition fees pay for the full cost of tuition and standard exams.

### Extra costs you may experience

Accommodation and living costs, such as travel and food, are not included in your tuition fees. There may also be extra costs for retake and professional exams.

Depending on the nature of your programme, you may be able to choose modules which may have additional costs, such as field studies, travel overseas or industrial placements which will change the overall cost of your programme. Details of these costs can be found in module information.

## The following programme-related costs are not included in your fees:

| Type        | Details   |
|-------------|---|
| Calculators | Where a calculator is required, all Casio Calculators are allowed but they must be Non-Programmable, Scientific models. More information is available in the Examination Regulations<br><a href="https://www.southampton.ac.uk/studentadmin/assessment/assessment-overview/exam-regulations.page">https://www.southampton.ac.uk/studentadmin/assessment/assessment-overview/exam-regulations.page</a> |
| Stationery  | You will be expected to provide your own day-to-day stationery items, e.g. pens, pencils, notebooks, etc. Any specialist stationery items that you may need will be specified in the relevant module profile.   |
| Textbooks   | Where a module specifies essential texts, the Library will identify the optimal option(s) to support the module via the programme Reading List. This may include e-books (ideally with unlimited concurrent usage) or a digitised chapter extract, supported by a limited number of print books (where available). You may prefer to buy your own copies for high demand titles.                      |
| Printing    | In most cases, written coursework such as essays and projects are submitted online. However it may be necessary to submit a hard copy of some projects, business projects and dissertations. The costs of printing a hard copy for submission of such work will be your responsibility. You will also have to cover the cost of photocopying.   |

## Bursaries, scholarships and other funding

We award scholarships and grants for academic excellence, or to students from underrepresented backgrounds.

## Academic support

The Student Hub is your first point of contact when it comes to seeking support. The team will answer your questions or concerns about your wellbeing, fees and funding, accommodation and visas. The team will help make sure you receive the support you need, guiding you to further support services where required.

One of the most important people you will meet while you are a student at University of Southampton Delhi is your Personal Academic Tutor, who will be allocated to you for your arrival at the University and who is normally a member of academic staff in your own or a closely related subject area. Your Personal Academic Tutor will offer one-to-one support and advice throughout your time at the University and will support you in your studies or with other issues you may have. You can find out more via our webpages:

<https://www.southampton.ac.uk/studentadmin/academic-support-guidance/personal-tutor.page>

## Disclaimer

As a research-led University, we undertake a continuous review of our programmes to ensure quality enhancement and to manage our resources. As a result, this programme may be revised during a student's period of registration; however, any revision will be balanced against the requirement that the student should receive the educational service expected. Please read our [Disclaimer](#) to see why, when and how changes may be made to a student's programme.