



## Course Information Sheet for entry in 2020-21

### Modern Statistics and Statistical Machine Learning (EPSRC Centre for Doctoral Training)

#### About the course

The Modern Statistics and Statistical Machine Learning CDT is a four-year DPhil research programme (or eight years if studying part-time). It will train the next generation of researchers in statistics and statistical machine learning, who will develop widely-applicable novel methodology and theory and create application-specific methods, leading to breakthroughs in real-world problems in government, medicine, industry and science.

This is the Oxford component of StatML, an EPSRC Centre for Doctoral Training (CDT) in Modern Statistics and Statistical Machine Learning, co-hosted by Imperial College London and the University of Oxford. The CDT will provide students with training in both cutting-edge research methodologies and the development of business and transferable skills – essential elements required by employers in industry and business.

Each student will undertake a significant, challenging and original research project, leading to the award of a DPhil. Given the breadth and depth of the research teams at Imperial College and at the University of Oxford, the proposed projects will range from theoretical to computational and applied aspects of statistics and machine learning, with a large number of projects involving strong methodological/theoretical developments together with a challenging real problem. A significant number of projects will be co-supervised with industry.

The students will pursue two mini-projects during their first year (specific timings may vary for part-time students), with the expectation that one of them will lead to their main research project. At the admissions stage students will choose a mini-project. These mini-projects are proposed by our supervisory pool and industrial partners. Students will be based at the home institution of their main supervisor of the first mini-project.

During their first three months (six months for part-time students) at the CDT students will work on their first mini-project, and during months four to six (seven to twelve months for part-time students) of their DPhil they will work on a second mini-project. For students whose studentship is funded or co-funded by an external partner, the second mini-project will be with the same external partner but will explore a different question. Each mini-project will be assessed on the basis of a report written by the student, by researchers from Imperial and Oxford.

The students will then begin their main DPhil project, which can be based on one of the two mini-projects. The final thesis is normally submitted for examination during the fourth year (or eighth year if studying part-time) and is followed by the viva examination.

Where appropriate for the research, student projects will be run jointly with the CDT's leading industrial partners, and you will have the chance to undertake a placement in data-intensive statistics with some of the strongest statistics groups in the USA, Europe and Asia.

Alongside their research projects students will engage with taught courses each lasting for two weeks. Core topics will be taught during their first year (specific timings may vary for part-time students) and are:

- Bayesian Modelling and Computation
- Statistical Machine Learning; and
- Modern Statistical Theory.

Students will also be required to take a number of optional courses throughout their four years, which could be made up of choices from the following list: Advanced Monte Carlo methods, Causality and Graphical models, Networks, Nonparametric Bayes, Modern Asymptotics, Optimisation, (Deep) learning Theory and Practice, Reinforcement learning and Multi-Armed Bandits, Applied statistics and Genetics/computational biology.

#### Supervision

The allocation of graduate supervision for this course is the responsibility of the Department of Statistics (Oxford) and/or the Department of Mathematics (Imperial). It is not always possible to accommodate the preferences of incoming graduate students to work with a particular member of staff. A supervisor may be found outside these departments.

Students are matched to their supervisor for the first mini-project at the start of the course. Within the first year of the course, the student will have the opportunity to work with an alternative supervisor for a second mini-project.

**Changes to courses**

The University will seek to deliver this course in accordance with the description set out above. However, there may be situations in which it is desirable or necessary for the University to make changes in course provision, either before or after registration. For further information, please see the University's Terms and Conditions.

**Expected length of course**

<b>Mode of study</b>	Full Time	Part Time
<b>Expected length</b>	4 years	8 years

## Costs

### Annual fees for entry in 2020-21

#### Full-time study

Fee status	Annual Course fees
Home/EU (including Islands)	£7,970
Overseas	£26,405

#### Part-time study

Fee status	Annual Course fees
Home/EU (including Islands)	£3,985
Overseas	£13,205

Course fees are payable each year, for the duration of your fee liability (your fee liability is the length of time for which you are required to pay course fees). For courses lasting longer than one year, please be aware that fees will usually increase annually. Information about how much fees and other costs may increase is set out in the University's Terms and Conditions.

Course fees cover your teaching as well as other academic services and facilities provided to support your studies. Unless specified in the additional cost information (below), course fees do not cover your accommodation, residential costs or other living costs. They also don't cover any additional costs and charges that are outlined in the additional cost information.

Graduate students who have reached the end of their standard period of fee liability may be required to pay a termly University and/or a college continuation charge.

The University continuation charge, per term for entry in 2020-21 is £508, please be aware that this will increase annually. For part-time students, the termly charge will be half of the termly rate payable by full-time students.

If a college continuation charge applies (not applicable for non-matriculated courses) it is likely to be in the region of £100 to £400 per term. Please contact your college for more details.

### Additional cost information

#### Full-time study

There are no compulsory elements of this course that entail additional costs beyond fees (or, after fee liability ends, continuation charges) and living costs. However, please note that, depending on your choice of research topic and the research required to complete it, you may incur additional expenses, such as travel expenses, research expenses, and field trips. You will need to meet these additional costs, although you may be able to apply for small grants from your department and/or college to help you cover some of these expenses.

#### Part-time study

There are no compulsory elements of this course that entail additional costs beyond fees (or, after fee liability ends, continuation charges) and living costs. However, please note that, depending on your choice of research topic and the research required to complete it, you may incur additional expenses, such as travel expenses, research expenses, and field trips. You will need to meet these additional costs, although you may be able to apply for small grants from your department and/or college to help you cover some of these expenses.

## Living costs

In addition to your course fees, you will need to ensure that you have adequate funds to support your living costs for the duration of your course.

If you are studying part-time your living costs may vary depending on your personal circumstances but you must still ensure that you will have sufficient funding to meet these costs for the duration of your course.

The likely living costs for 2020-21 are published below. These costs are based on a single, full-time graduate student, with no dependants, living in Oxford. We provide the cost per month so you can multiply up by the number of months you expect to live in Oxford.

	Likely living costs for 1 month		Likely living costs for 9 months		Likely living costs for 12 months	
	Lower range	Upper range	Lower range	Upper range	Lower range	Upper range
<b>Food</b>	£270	£385	£2,430	£3,465	£3,240	£4,620
<b>Accommodation</b>	£630	£760	£5,670	£6,840	£7,560	£9,120
<b>Personal items</b>	£130	£245	£1,170	£2,205	£1,560	£2,940
<b>Social activities</b>	£45	£110	£405	£990	£540	£1,320
<b>Study costs</b>	£40	£95	£360	£855	£480	£1,140
<b>Other</b>	£20	£55	£180	£495	£240	£660
<b>Total</b>	£1,135	£1,650	£10,215	£14,850	£13,620	£19,800

When planning your finances for any future years of study at Oxford beyond 2020-21, you should allow for an estimated increase in living expenses of 3% each year.

More information about how these figures have been calculated is available at [www.graduate.ox.ac.uk/livingcosts](http://www.graduate.ox.ac.uk/livingcosts).