

Mathematical Institute

Overview of teaching for Early Career Researchers/Postdoctoral research associates

[This guidance does not apply to Hooke and Titchmarsh Research Fellows – see separate guidance.]

1.1. Introduction

Undertaking some teaching in a thriving academic department presents an excellent career development opportunity for postdoctoral Early Career Researchers. It is the policy of the Mathematical Institute to give all ECRs/PDRAs the opportunity to teach (where the conditions of the research funding allow this) and in some cases to require teaching if there is a departmental need. If you are asked to teach, the requirement will not exceed 3 hours per week for the 24 teaching weeks of the year (see 'Conversion table for teaching' below).

The main forms of teaching in which ECRs are regularly involved are classes for third and fourth year undergraduate students and MSc students, and dissertation/project supervision. Information about teaching opportunities is regularly circulated by email during the year, but your first contact may take place before you join the department, when we will contact you about class teaching (see further information below). Some forms of teaching are paid. Others are not, but are nonetheless important contributions to the department and provide valuable career development for you.

It is understood that many ECR colleagues will be joining the University of Oxford for the first time and that it will take you some time to familiarise yourself with the department's teaching arrangements once you arrive. This document is intended to provide an initial overview of the different types of teaching available so that you have some background on our teaching operations before you join the department. **Please do not hesitate to seek further advice, once you have digested the guidance, from the Head of Academic Administration (academic.administrator@maths.ox.ac.uk).**

Next steps

- An email circular asking for expressions of interest in teaching for the following academic year is sent out towards the end of each academic year.
- Additional opportunities may be circulated by email during the year.
- If you have any queries or would like any further advice please do not hesitate to contact Head of Academic Administration (academic.administrator@maths.ox.ac.uk)

1.2. Support and training for teaching

There are a number of people in the department who are responsible for supporting teaching and you are encouraged to contact them with any queries about teaching arrangements or practices, either before you start teaching or once you have begun to teach. These are the Director of Undergraduate Studies (Richard Earl), the Faculty Teaching Advisor (Vicky Neale), and the Head of Academic Administration (Charlotte Turner Smith). You are also welcome to contact the Advisor for Early Career Researchers (Philip Maini) about teaching or other matters. If you so wish, he will put you in touch with current ECRs in the department who can offer additional advice.

The department also runs training sessions at the start of and during the academic year which you are expected to attend. Details of the training sessions will be communicated to you via email and some are listed in the table in Section 8 below. Arrangements may change as a result of the Covid-19 pandemic. In addition to the training sessions, the department also has a number of online teaching resources which you are strongly encouraged to use:

<https://www.maths.ox.ac.uk/members/teaching-staff>.

The department is part of the Mathematical, Physical and Life Sciences Division, which also organises training relevant to teaching. Perhaps most relevant for ECRs is the *Developing Learning and Teaching* course, which leads to a nationally accredited qualification. Further information about that can be found here:

<https://www.mpls.ox.ac.uk/training/mpls-training/our-courses/mpls-learning-and-teaching-courses/mpls-developing-learning-and-teaching-programme>

Courses relevant to other forms of career development for ECRs can also be found at

<https://www.mpls.ox.ac.uk/training>

The academic year

Note that the academic year at Oxford is split into three terms known as Michaelmas (October-December), Hilary (January-March), and Trinity (April-June) terms. Teaching loads are often unevenly split between the three terms; there is a lot less departmental teaching in Trinity term.

2. Overview of courses

2.1. Undergraduate Courses

There are three and four year degrees in Mathematics (BA/MMath) and also in several joint courses: Mathematics and Statistics (BA/MMath), Mathematics and Computer Science (BA/MMathCompSci) and Mathematics and Philosophy (BA/ MMathPhil). There is also a fourth year Mathematics and Theoretical Physics course whereby students study for an MMathPhys. The degree structures and assessment methods across these courses have much in common.

The courses are delivered by a structured series of lectures supported by problem sheets and classes; and by tutorials. In their first and second years, students receive considerable individual direction; as the course progresses they are expected to achieve greater independence in their learning. The first year is usually referred to as 'Prelims'. The second year is 'Part A' (of 'Finals'), the third year 'Part B', and the fourth year (if taken) is 'Part C'. The units of each year are examined at the end of that year. The Part A and Part B units count towards the degree classification at the end of the third year; Part C units are separately classified at the end of the fourth year.

In every year there are lectures. In the first and second years these are supported by college-based tutorials (2-3 students) and classes (5-12 students), and in the third and fourth years, when students are specialising much more, by intercollegiate classes organised centrally by the Mathematical Institute. Lectures take place mainly in Michaelmas and Hilary terms with just first and second years having lectures in the first half of Trinity term. All written examinations take place at the end of Trinity term.

Further information on the courses we offer and course materials can be found here: <https://courses.maths.ox.ac.uk/>

2.2. Taught Masters Courses

The department also offers five MSc courses, four of which share many or all of the Part C courses offered on our undergraduate programmes. Therefore the classes offered to support those undergraduate lecture courses may be attended by both students from Part C and students from the courses listed below:

MSc in Mathematical Modelling and Scientific Computing (MMSc)

MSc in Mathematics and the foundations of Computer Science (MFoCS)*

MSc in Mathematical Sciences (OMMS, also shared with Part C)*

MSc in Mathematical and Theoretical Physics (MTP also shared with MMathPhys)*

MSc in Mathematical and Computational Finance (MCF)

* offered jointly with Computer Science, Statistics and Physics respectively.

All of our MSc students are expected to write a dissertation as one of the course requirements. Further details on our taught masters' courses can be found here:

<https://www.maths.ox.ac.uk/members/students/postgraduate-courses>

3. Opportunities for teaching

3.1. Classes

These are departmental classes which run in Michaelmas and Hilary terms in support of the third and fourth year undergraduate lecture courses; students attend a set of classes for each lecture course they take. Problem sheets written by the course lecturer form the basis of the classes, which are taught by a class tutor (usually an ECR, faculty member or senior graduate students), with support (including marking the students' work) provided by a graduate Teaching Assistant (TA). ECRs may also act as a TA for Part C/MSc classes.

Further information about the class scheme can be found here:

<https://www.maths.ox.ac.uk/members/teaching-staff/class-scheme>. ECRs may also give departmental classes for one of our MSc programmes or Centres for Doctoral Training (CDTs). You will be notified of these opportunities at the same time as the undergraduate classes.

3.2. Consultation sessions

These are departmental revision sessions (consultation sessions) which run in Trinity term for third and fourth year undergraduate courses. These sessions run from weeks 2-4, consisting of 4 hours of revision. These sessions are held to assist students with revision; typically, each student will come to 1-3 consultation sessions for each course to ask for help understanding the content of the course (lecture notes, recommended reading, problem sheets and questions from past examinations).

Those tutors offering consultation sessions on a course are strongly encouraged to dedicate at least one session to running through a past paper. Note that model solutions to past papers can be found here: <https://www.maths.ox.ac.uk/members/teaching-staff/restricted/past-papers>. The other sessions can be used as drop-in sessions where students come with particular questions/problems they are struggling with. Tutors can request that students send these questions to them in advance of the session to allow time for them to prepare.

3.3. Dissertation supervision

There are several project options in the third and fourth years of the undergraduate degree, including Part B extended essays and Part C dissertations.

The dissertation is compulsory for students on the Oxford Masters in Mathematical Sciences (OMMS). The department produces a list of potential project topics and ECRs are encouraged to contribute topics to supervise the following year. Supervision takes place from late Michaelmas term through to the end of Hilary term; students typically receive 4-6 hours of supervision. For the OMMS/Part C dissertation, students may be supervised in groups of up to 5.

ECRs may also be asked to assist with the marking of these dissertations.

Further information can be found here:

<https://www.maths.ox.ac.uk/members/teaching-staff/information-supervisors-undergraduate-projects>.

3.4. MSc/project supervision

The other MSc programmes in the department include a compulsory dissertation and students work on these under the guidance of a supervisor in Trinity term and/or the summer vacation.

For each MSc course, the department produces a list of potential dissertation topics and ECRs are invited to put forward topics for inclusion. Further information can be found here:

<https://www.maths.ox.ac.uk/members/students/postgraduate-courses>, or contact the course administrator.

3.5. DPhil teaching and supervision

Some DPhil students are attached to Centres for Doctoral Training (CDTs). The first year of a CDT programme involves some taught coursework and research projects. ECRs may be asked to assist with these.

In addition more experienced ECRs can act as joint supervisor to DPhil (=PhD) students and the MPLS Division provides training for PhD supervision (see here for [further](#) information:

<https://www.mpls.ox.ac.uk/training/>). ECRs may also be asked to assist with the marking of MSc dissertations.

3.6. Undergraduate lectures

Undergraduate lectures are usually given by faculty members. However, there will occasionally be an opportunity for a suitably experienced ECR to deliver a Part C/OMMS course or graduate course. These courses normally consist of 16 one-hour lectures held in weeks 1-8 of either Michaelmas or Hilary term.

As the course lecturer you will be expected to set problem sheets and lead the class teaching team. You will also be expected to set and mark the assessment, which is usually held in Trinity term.

3.7. College teaching arranged by the department

Some ECRs may be asked to assist with college teaching for a member of departmental faculty. Such arrangements are made by the department and will require prior approval from the Head of Department.

4. Other teaching opportunities

If ECRs are keen to be involved in other teaching opportunities within the department as a career opportunity you may wish to consider participating in the following, after discussion with the Advisor for ECRs or the Head of Academic Administration. *Note that there is no payment for participation in the following:*

4.1. Taught Course Centre lectures

The department jointly runs the Taught Course Centre (TCC) with the Universities of Bath, Bristol, Imperial, and Warwick. The TCC offers a series of lectures to graduate students based at the listed universities.

Video conferencing is used so that audiences in all participating universities can participate in the lectures. TCC courses are assessed by mini project which you will be expected to set and mark. Courses must be approved in advance by the TCC Director. All queries should be sent via academic.administrator@maths.ox.ac.uk.

4.2. Graduate lectures

ECRs may wish to offer a graduate lecture course. The arrangements for these are more flexible than the undergraduate lectures and there is no assessment. Those wishing to give a graduate lecture course should send a proposal to the Director of Graduate Studies c/o academic.administrator@maths.ox.ac.uk.

4.3. Summer project supervision

The department is keen to provide opportunities for undergraduate students to obtain experience of mathematical research by undertaking summer research projects in the department under the supervision of a member of faculty or ECR.

Projects are usually 4–10 weeks in duration and the department can provide some funding to support students undertaking these projects. Further information is circulated to members of the department by email or in the weekly departmental bulletin.

Supervising a summer project should be considered as a career development opportunity and will not be remunerated.

5. Any other teaching outside the department (including teaching for colleges)

Note that if you wish to undertake any teaching outside the department (including teaching for colleges), you must seek the prior approval of the Head of Department, in line with university policy¹. This includes any proposed teaching for colleges, which might include small-group tutorials for first-year or second-year undergraduates, or tutorials for visiting students. If you are unsure about whether you need to seek approval, ask the Head of Academic Administration.

¹ <https://www.admin.ox.ac.uk/personnel/staffinfo/academic/approvaltoholdoutsideappointments/>

6. How to register your interest in departmental calls for teaching

If you have a start date at the beginning of the academic year, you should receive an email over the summer which asks you to register your interest for class teaching. If you do not receive this email by the end of July, please contact academic.administrator@maths.ox.ac.uk. Calls for other types of teaching will be circulated once you have arrived in Oxford.

When completing the form, you should offer more classes than you would like to give, as you will not necessarily be offered your first choice. Note that there is less teaching in Trinity term.

Please try to respond promptly to the request for information as the Academic Administration team will have a significant volume of teaching resources to process.

As noted in the Calendar of Teaching Arrangements below, calls for other types of teaching will be issued later in the academic year.

7. Conversion table for teaching (ECRs)

For ECRs/PDRAs the table below gives guidance on how different forms of teaching/supervision will typically be paid. Please bear in mind that the Mathematical Institute is a large and complex department, so while the table below provides guidelines, it will not cover all possibilities. For further guidance, please discuss with the Head of Academic Administration in the first instance.

Note that a set of classes is usually four classes of 90 minutes each, the last of which might take place at the start of the following term.

Type of teaching	Payment rates 2019-20*
Class tutor	£17.85 per hour. For each one hour of class teaching the tutor will also be paid for 1.5 hours of preparation at the same hourly rate.
Class Teaching Assistant (including marking)	£16.30 an hour (for attendance at classes) and £8.15 per student per 1.5 hour class (or pro-rata for classes of different durations). The piece-rate marking payment <i>includes</i> preparation/marketing time which is estimated to be 30mins per student for a 1.5 hour class.
Consultation sessions	£178.50 for a set of 4 one hour consultation sessions
Undergraduate, MSc and CDT lectures	Details regarding payment for giving a lecture course will be discussed on an individual case-by-case basis.
Dissertation supervision and marking (Part C/OMMS and MSc programmes)	Supervision payments depend on the number of students supervised per project. For further details contact academic.administrator@maths.ox.ac.uk

College tutor	Details regarding payment for giving college tutorials at the request of the department will be discussed on an individual basis.
DPhil co-supervision**	Career development opportunity – not remunerated.
TCC and Graduate lectures**	Career development opportunity – not remunerated.
Summer projects**	Career development opportunity – not remunerated.

* Rates are adjusted annually in line with University inflation adjustments

** Note that these are seen to be a career opportunity and therefore there is no payment for these teaching opportunities.

ECRs may also be asked to undertake other duties, such as dissertation marking or exam script checking, by agreement.

8. Calendar of Teaching Arrangements (excluding lectures*)

Summer vacation (Mid-July)	Request for class tutors and teaching assistants (TAs) circulated
Michaelmas term (October-December)	Classes run Week 1: Training session for new class tutors Week 4-5: Call issued for topics for summer research projects
Hilary term (January – March)	Classes run and supervision of undergraduate, OMMS and MTP projects/dissertations takes place. Week 1: Training session for new class tutors Weeks 6-8: Consultation sessions are arranged
Trinity term (April – June)	Consultation sessions run and supervision of MSc dissertations takes place. Week 4: Seminar on undergraduate project supervision Week 5-6: Call issued for Part C/OMMS dissertation topics for the following academic year

* Note that lectures are normally given by faculty.