



**HANDBOOK  
FOR THE UNDERGRADUATE COURSE IN  
MATHEMATICS AND PHILOSOPHY  
2014 – 2015**

**Joint Committee for Mathematics and Philosophy**

**UNIVERSITY OF OXFORD**

Handbook  
for the Undergraduate Course in  
Mathematics and Philosophy  
University of Oxford  
2014–2015

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# Introduction

## 1 Using this Handbook

This Handbook is issued to all undergraduates reading Mathematics & Philosophy and gives information, advice and guidance about the course. You will be provided each year with a new edition of the Mathematics & Philosophy Handbook. This contains up-to-date information for the current academic year for all years of the course.

This Handbook should be read in conjunction with two publications which together stipulate the content of the course. These are

- The *University of Oxford Examination Regulations* (commonly referred to as the Grey Book);
- The *Handbook for the Undergraduate Mathematics Courses*, including its *Supplements*, issued by the Mathematical Institute.

At the start of your course you will be issued in hard copy form the current Grey Book and Mathematics Course Handbook. In addition you will be provided with any necessary Supplements to the Mathematics Course Handbook, including those giving current syllabuses and synopses of lecture courses.

The Grey Book specifies the formal structure of all Oxford degree courses and the Regulations governing these. It specifies examination syllabuses in some subjects, including Philosophy. For other subjects, including Mathematics, examination syllabuses are published in the course handbook for that subject.

Since there is no Oxford degree for which Philosophy is the sole subject, there is no Philosophy Course Handbook separate from the Handbooks for the various joint degrees of which Philosophy is a component subject. The Grey Book itself is therefore the primary source for the regulations concerning Philosophy, and it contains detailed syllabuses of the philosophy subjects you will study in your course. You are referred also to Appendix B in Section VII of this Handbook, which provides supplementary information and guidance from the Faculty of Philosophy.

For the mathematics component of the course only an outline of the course structure is specified in the Grey Book. Instead, Synopses are issued annually for each year of the Mathematics courses. These constitute supplements to the Mathematics Handbook and contain the formal syllabuses for the courses as well as more detailed and informal descriptive material. In addition you will find in the Mathematics Course Handbook some general information of relevance to all undergraduates taking courses involving Mathematics.

For ease of reference, Appendix A (Section VII) of this Handbook lists the courses available in all four years of the Mathematics & Philosophy degree for the current academic year. This amalgamated list may also be useful to students planning their pathways through the successive stages of the course.

Note that the information about the Mathematics & Philosophy course given in this Handbook supplements rather than supplants the Examination Regulations, which you should consult in conjunction with the Handbook. This Handbook provides explanations of the Regulations in the Grey Book, but the Grey Book is always definitive. For further information on the formal documentation specifying the requirements for your degree course, please refer to II.2 below.

## 2 Accessing important sources of information

Virtually all the information you will need, including this Handbook, the Grey Book, and the Mathematics Course Handbook and Supplements can be accessed online. If you require hard copy course documentation in a format different from that in which it is normally issued please contact the Academic Administrator in the Mathematical Institute, [academic.administrator@maths.ox.ac.uk](mailto:academic.administrator@maths.ox.ac.uk).

**Philosophy Faculty website** [http://www.philosophy.ox.ac.uk/the\\_faculty](http://www.philosophy.ox.ac.uk/the_faculty)

**The Examination Regulations “Grey Book”** <http://www.admin.ox.ac.uk/examregs>. For Regulations for particular exams, go to the Contents page

<http://www.admin.ox.ac.uk/examregs/contents.shtml>, and click on the Regulation that you need.

**Mathematics Handbook and Supplements:**

<https://www.maths.ox.ac.uk/members/students/undergraduate-courses/teaching-and-learning/handbooks-synopses>

**Information about examinations on the Mathematical Institute website**

<http://www.maths.ox.ac.uk/members/students/undergraduate-courses/examinations-assessments>

**Philosophy WebLearn information on courses and examinations**

<https://weblearn.ox.ac.uk/portal/hierarchy/humdiv/philfac/undergradu>.

**Past exam papers**

<http://www.oxam.ox.ac.uk>.

(For further information see III.1.3 and also V.3.)

**Lecture lists:** the lists give the titles, times and places of lectures and are available online at

<https://www.maths.ox.ac.uk/members/students/lecture-lists> for Mathematics

<http://www.philosophy.ox.ac.uk/lectures> for Philosophy

(For more details see III.2.1.)

**General information for students provided by the University**

[http://www.ox.ac.uk/current\\_students](http://www.ox.ac.uk/current_students)

You will also receive guidance about your own college's regulations and requirements, probably in the form of a **college handbook**. You are advised to note carefully any sections dealing with academic matters, and may also find useful sections dealing with student welfare and support.

### 3 Email

You will be given a canonical Oxford University email address, which will include your college in the domain name. Important information about your course will be sent to this address. If you do not access it regularly, you must arrange for mail to it to be forwarded to an account that you do access regularly. You are asked to bear in mind that email lost in forwarding is your responsibility, should you choose to forward email sent to your University address to a system outside the University.

Any email concerning your course that you send to members of the administrative staff, in particular to those in the Academic Office in the Mathematical Institute, should come from your canonical University address.

### General

Please address queries about the Mathematics & Philosophy course to the Chairman of the Joint Committee for Mathematics and Philosophy, c/o the Academic Administrator of the Mathematical Institute, by email to [academic.administrator@maths.ox.ac.uk](mailto:academic.administrator@maths.ox.ac.uk), or by post to the Academic Administrator, Mathematical Institute, Andrew Wiles Building, Woodstock Road, Oxford OX2 6GG.

The Chairman for 2014–2015 is Dr Daniel Isaacson, Faculty of Philosophy.

## Part I

# The course: informal and formal descriptions

## 1 The Course in Mathematics and Philosophy

The University of Oxford provides two degrees in Mathematics & Philosophy:

- Bachelor of Arts (BA) in Mathematics and Philosophy (3-year course),
- Master of Mathematics and Philosophy (MMathPhil) (4-year course).

Candidates for both degrees follow the same path for the first three years and all receive a classification at the end of the third year. Those proceeding to the MMathPhil take a further examination (Part C) at the end of the fourth year, for which a separate classification is awarded, but the degree of MMathPhil is awarded for the whole four year course, and those who take the degree of MMathPhil do not receive the degree of BA in Mathematics and Philosophy, and a candidate who takes the degree of BA in Mathematics and Philosophy for the three year course cannot later take the degree of MMathPhil.

## 2 Nature of the Course: an informal view

The joint courses in Mathematics & Philosophy provide the opportunity to attain high levels of two quite different kinds of widely applicable skills. Mathematical knowledge and the ability to use it is a key element in tackling quantifiable problems and the most highly developed means of obtaining knowledge through purely abstract thinking, while philosophical training encourages the ability to analyse issues, often by questioning received assumptions, and to articulate that analysis clearly. Historically, there have been strong links between mathematics and philosophy. Philosophy of mathematics bridges the two subjects and has been of great importance to major philosophers (Plato, Aristotle, Kant, Frege, Russell, Wittgenstein) and to major mathematicians (Pythagoras, Bolzano, Cantor, Poincaré, Hilbert, Weyl, Brouwer). There are some (Descartes and Leibniz, notably) who are both major philosophers and major mathematicians. Logic, the systematic study of reasoning, is also the bridge between the two subjects. It has been a branch of philosophy since Aristotle and a branch of mathematics since the nineteenth century.

The Oxford degrees in Mathematics & Philosophy provide a strong background from which to pursue diverse careers or professional trainings on completion of the MMathPhil or the B.A. in Mathematics & Philosophy, including graduate study in either mathematics or philosophy.

## 3 Programme Specifications: a formal description of the course

Formal descriptions of degree programmes are set out in their Programme Specifications. These include statements of the educational aims and of the Programme outcomes, including Teaching, Learning and Assessment Strategies and set out ways by which students' intellectual and transferable skills are developed and fostered as they progress through the course. On-going review and development of the course takes place through the quality assurance mechanisms which exist at departmental, University and national levels.

The Programme Specification for the Mathematics & Philosophy degree programme can be found at

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

For Aims and Objectives for Philosophy in all undergraduate courses with Philosophy in Oxford University see Appendix B.2 (VII) of this Handbook.



## Part II

# Structure and outline of the course

## 1 Some background

### 1.1 The University: Divisions, Departments and Faculties, and Colleges

The University is a federation of departments and faculties, and at the same time a federation of colleges. The departments and faculties of the University are grouped into four Divisions: the Humanities Division, Mathematical, Physical & Life Sciences Division, Medical Sciences Division, and Social Sciences Division. Science subjects, including Mathematics, are generally organized as departments, and Humanities subjects, including Philosophy, are generally organized as Faculties (to explain the difference between a Faculty and a Department in Oxford is beyond the scope of this Handbook).

Teaching is provided both by the University (lectures) and by the colleges (tutorials). The colleges provide accommodation, meals, pastoral care, and an academic community within which undergraduates can thrive and develop.

The University organises examinations for each degree course and awards degrees on the basis of examination results in these Public Examinations.

The Mathematical Institute is responsible for courses in Mathematics as a single subject, and co-operates with the Department of Computer Science and the Department of Statistics to deliver joint courses in Mathematics & Computer Science and Mathematics & Statistics. The existence of a large single-subject course in Mathematics implies that, on the mathematics side, much of the content of the Mathematics Course Handbook is also applicable to Mathematics & Philosophy.

By contrast, Philosophy at undergraduate level at Oxford is always studied in conjunction with some other subject: besides that with Mathematics, there are joint courses with Modern Languages, Physics, and Theology (all studied by a small number of undergraduates). In addition, Philosophy forms a component in the degrees in Literae Humaniores (“Greats”, which combines Classics, Ancient History and Philosophy), PPE (Philosophy, Politics and Economics) and PPP (Philosophy, Physiology and Psychology).

The Mathematical Institute and the Faculty of Philosophy have international reputations for their research, and the University believes that there are many benefits to graduate and undergraduate teaching which stem from this research excellence. The academic staff with whom you interact during your course are not only employed to teach you, but also engage actively in research, with many staff recognised internationally as leaders in their field of specialisation. The impact of research on teaching may take many forms: tutors and lecturers including their own ideas from research in their teaching; the regular updating of curricula and reading lists, with options in the later stages of the course which reflect research developments; opportunities to meet members of the faculties and research students, through classes and through project or thesis work; access to research seminars; and, in certain subject areas, opportunities to develop research skills and research-based approaches to study through participation in research projects, principally in the long vacations. In general you will be encouraged to develop the ability to interpret and critically appraise information and the writings of others, and to build the sense that scientific knowledge is contestable and that its interpretation may be continually revisited.

### 1.2 Administration of the Mathematics & Philosophy course

A standing Joint Committee for Mathematics and Philosophy administers the course and makes regulations for it. The members of the committee are the three holders of University posts in Mathematical Logic and in Philosophy of Mathematics plus two representatives appointed by the Philosophy Faculty Board and two appointed by the Teaching Committee of the Mathematical Institute. An undergraduate representative reading Mathematics & Philosophy attends meetings. The Committee normally meets once a term, on Tuesday afternoon of fourth week. Matters for consideration by the Joint Committee should be addressed to the Chairman, Joint Committee for Mathematics and Philosophy, c/o the Academic Administrator, Mathematical Institute, Andrew Wiles Building, Woodstock Road Oxford OX2 6GG, or by email to [academic.administrator@maths.ox.ac.uk](mailto:academic.administrator@maths.ox.ac.uk).

## 2 Documentation specifying the course

The University of Oxford *Examination Regulations* (usually referred to as the ‘Grey Book’) is published annually at the start of each academic year (including in its title the year of its publication, i.e. the edition that governs the academic year 2014–2015 is entitled *Examination Regulations 2014*).

The entire Grey Book is available on-line at <http://www.admin.ox.ac.uk/examregs/> .

The Grey Book provides the source, and ultimate authority, concerning each Oxford degree course. It stipulates the formal structure of the courses and the Regulations which govern them. The Examination Regulations for Mathematics & Philosophy are on the web at

[http://www.admin.ox.ac.uk/examregs/10-29v\\_S\\_R\\_P\\_E\\_in\\_Mathematics\\_and\\_Philosophy.shtml](http://www.admin.ox.ac.uk/examregs/10-29v_S_R_P_E_in_Mathematics_and_Philosophy.shtml)  
for Prelims and

[http://www.admin.ox.ac.uk/examregs/11-30ad\\_S\\_R\\_H\\_S\\_OF\\_MATHEMATICS\\_AND\\_PHILOSOPHY.shtml](http://www.admin.ox.ac.uk/examregs/11-30ad_S_R_H_S_OF_MATHEMATICS_AND_PHILOSOPHY.shtml)  
for Finals

The Grey Book also stipulates the content (syllabuses) of Philosophy subjects for examination. These can be found at

[www.admin.ox.ac.uk/examregs/11-30ap\\_SPECIAL\\_REGULATIONS\\_FOR\\_PHILOSOPHY\\_IN\\_ALL\\_H\\_S\\_INCLUDING.shtml](http://www.admin.ox.ac.uk/examregs/11-30ap_SPECIAL_REGULATIONS_FOR_PHILOSOPHY_IN_ALL_H_S_INCLUDING.shtml)

A new edition of the Mathematics Course Handbook is issued in October each year to the first-year students. Updates, in the form of Supplements, are issued as necessary. The following Supplements to the Course Handbook are published each year: Syllabus and Synopses for

Preliminary Examination in Mathematics & Philosophy;

Mathematics & Philosophy Part A;

Mathematics & Philosophy Part B;

Mathematics & Philosophy Part C.

These Supplements describe courses available in a given academic year for, respectively, the first, second, third and fourth years of the mathematics component of the joint course, for examinations sat at the end of that year. Further, certain courses available as additional options are listed in Supplements to the Mathematics Course Handbook: Syllabus and Synopses for Parts A, B and C in Mathematics. All these documents are issued no later than the start of the Michaelmas Term of the year to which they apply.

Each Supplement contains general information applying in the academic year in question, and, for each course on offer, a syllabus (which has the status of Grey Book Regulations) and also a more detailed description of each course, its aims and objectives, learning outcomes and suggested reading.

All the Supplements can be found on the web at

<http://www.maths.ox.ac.uk/members/students/undergraduate-courses/teaching-and-learning/handbooks-synopses>

Subsequently in this Handbook these Supplements will usually be referred to in shorthand form: Mathematics & Philosophy Part B Supplement, for example. (Note that the Grey Book uses the term ‘Mathematics Course Handbook’ to mean the Handbook together with all its supplements.)

Information on the form of assessment used in University examinations in Mathematics & Philosophy is collected together in Section IV.4 below.

## 3 The framework of University examinations

(For further information on examinations in Mathematics & Philosophy see Section IV.)

The examinations for each undergraduate degree course in Oxford consist of a First Public Examination and a Final Honour School. The Final Honour School is often referred to simply as Finals, and may, as

for the Final Honour School of Mathematics & Philosophy, consist of Parts taken in different years. To enter for Finals you must have passed a First Public Examination, unless you already have a degree from another university and have been granted Senior Status. There is no University requirement that you take both First and Second Public Examinations in the same subject (but note II.6.2 below, Changing course).

The form and timing of the First Public Examination takes different forms for different courses. For example, it may consist of a Preliminary Examination (Prelims), on which candidates are awarded Distinction, Pass or Fail or of Honour Moderations (Mods) in which candidates are awarded first, second or third class honours, pass or fail, and may take place after two, three, or four terms.

## 4 Preliminary Examination in Mathematics & Philosophy

In Mathematics & Philosophy the First Public Examination consists of a five-paper Preliminary Examination sat at the end of the first year.

The course for the Preliminary Examination comprises five sections, corresponding to the five papers of the examination:

Section 1: Mathematics I

Section 2: Mathematics II

Section 3: Mathematics III(P)

Section 4: Elements of Deductive Logic

Section 5: Introduction to Philosophy

All five sections are compulsory. Sections 1 and 2 are each examined in a 2.5-hour paper, Section 3 in a 2-hour paper, and Sections 4 and 5 are each examined in a 3-hour paper.

Mathematics I, covering mainly Algebra, and Mathematics II, covering mainly Analysis, and Mathematics III(P) (Introductory Calculus, Probability) are the same or similar to corresponding papers for the Preliminary Examinations in Mathematics. Syllabi are set out in the Mathematics & Philosophy Prelims Supplement.

The programme of lectures in support of the Prelims course for the current year is set out in Section VII, Appendix A.

The first part of Section 4, Introduction to Logic, is designed for all those who are starting logic in all Schools including philosophy. The second part, Elements of Deductive Logic, is designed specifically for Prelims in Mathematics & Philosophy and in Physics & Philosophy and Computer Science & Philosophy, and the examination includes questions of a more mathematical nature.

Section 5, Introduction to Philosophy, covers

- (a) General Philosophy, a topic-based introduction to key topics in epistemology and metaphysics, and
- (b) Gottlob Frege's *Foundations of Arithmetic*.

Details of the syllabuses for Sections 4 and 5 can be found in the Grey Book

[http://www.admin.ox.ac.uk/examregs/10-29v\\_S\\_R\\_P\\_E\\_in\\_Mathematics\\_and\\_Philosophy.shtml](http://www.admin.ox.ac.uk/examregs/10-29v_S_R_P_E_in_Mathematics_and_Philosophy.shtml)

For the programme of supporting lectures for the current year see Appendix A, Section VII and for information on teaching arrangements, see III.4.1.1.

## 5 Finals in Mathematics & Philosophy

### 5.1 Overview

The examinations for the Final Honour School of Mathematics & Philosophy are divided into three parts:

- Part A, taken at the end of the second year;
- Part B, taken at the end of the third year;

and, for those taking the MMathPhil, also

- Part C, taken at the end of the fourth year.

In the Part A examination you are examined on the second-year Mathematics courses only. Although study of Philosophy continues during the second year of the course, no Philosophy subjects are examined in Part A. In Part B you are examined on all of your work in the second and third years except for the Mathematics courses already examined in Part A. Note III.4 below; this gives advice from the Joint Committee for Mathematics and Philosophy on scheduling your study for the compulsory B1 papers (Logic and Set Theory), examined within Part B.

In Parts A and B together, you will take roughly equal proportions of Mathematics and of Philosophy, with logic as a compulsory bridge subject. In Part B, as indicated below, there is some limited scope to choose to take a greater or lesser proportion of Mathematics and correspondingly a lesser or greater proportion of Philosophy. In Part C you may opt to take only Mathematics, only Philosophy, or to continue to study both.

### 5.2 Progression

At the end of Part A you will receive a USM for each of the papers you take, but will not be classified. After Part B you receive a classification on the basis of Parts A and B together (as explained in IV.5). There is no minimum standard to be achieved in Part A in order to be allowed to proceed to Part B.

If you leave after successfully completing Parts A and B you may supplicate for a B.A. in Mathematics & Philosophy with the classification obtained at the end of Part B.

Candidates must achieve upper second class honours or higher in Parts A and B together, that is, an average USM  $\geq 60$ , in order to be allowed to proceed to Part C.

The Part C examination covers the work done in the fourth year and is separately classified. A candidate achieving Honours in Part C, that is, achieving an average USM  $\geq 40$ , may supplicate for the degree MMathPhil. [Note that a successful candidate may supplicate for one degree only—either a B.A. or an MMathPhil. The MMathPhil is doubly classified but a candidate will not be awarded a B.A. degree and an MMathPhil degree.]

Any candidate who fails to obtain Honours in Part C, that is, who achieves an average USM  $< 40$ , may, so long as they have not taken the B.A., enter again for Part C on at most one subsequent occasion or may supplicate for the B.A. in Mathematics & Philosophy.

It could happen that, having embarked upon your fourth year, you are for whatever reason unable to complete the Part C course, or decide that you do not wish to do so. In these circumstances you are advised to discuss your situation with your college's Senior Tutor at the earliest opportunity.

The University's rules concerning withdrawal from, or failure to complete, an examination are summarised in Section 9 of the Proctors' and Assessor's Memorandum and set out in full in *Examination Regulations* 2014, Part 14; see p. 39.

### 5.3 Part A

In your second year you will study roughly one half of the syllabus for the Honour School of Mathematics.

There are two compulsory core papers *Algebra I: Linear Algebra* and *Metric Spaces and Complex Analysis*. The former is covered by 16 lectures, the latter by 32, both in Michaelmas Term. You then

choose from a menu of second-year Long and Short Options; see Appendix A (VII.A) or the Mathematics & Philosophy Part A Supplement.

You may also, if you have the support of your Mathematics tutor, apply to the Joint Committee for Mathematics and Philosophy for approval of other options from the list of those available in Mathematics Part A. For further details, see III.5.2.

## 5.4 Parts B and C

### 5.4.1 Mathematics in Parts B and C

The Mathematics subjects in Parts B and C are published in the Mathematics & Philosophy Part B and Mathematics & Philosophy Part C Supplements to the Mathematics Course Handbook.

Courses are designated as being at either H-level (Honours) or M-level (Masters). Most, but not all, of those listed for Part B are at H-level, a few (normally available only in alternate years) are at M-level and are common to both Parts B and C. All courses in Part C are at M-level.

Most single and double units in Mathematics will be assessed through written examination papers of  $1\frac{1}{2}$  hours for a single unit and three hours for a double unit, though some may be assessed in whole or in part by submitted coursework. The two units B1.1 Logic and B1.2 Set Theory are compulsory in Mathematics & Philosophy Part B.

### 5.4.2 Philosophy in Parts B and C

Subjects in Philosophy are specified in the Examination Regulations, in the section entitled Philosophy in all Honour Schools Including Philosophy,

[www.admin.ox.ac.uk/examregs/11-30ap\\_SPECIAL\\_REGULATIONS\\_FOR\\_PHILOSOPHY\\_IN\\_ALL\\_H\\_S\\_INCLUDING.shtml](http://www.admin.ox.ac.uk/examregs/11-30ap_SPECIAL_REGULATIONS_FOR_PHILOSOPHY_IN_ALL_H_S_INCLUDING.shtml).

For the FHS of Mathematics & Philosophy the subjects are drawn from 101–118, 120, 122, 124, 125, 127 and 199 (Thesis) and also, in Part C only, 180, the Rise of Modern Logic.

These subjects are listed, together with an informal description of each, prerequisites, and supporting reading, in Appendix B.1 (VII.B.1) of this Handbook.

(Subject 121: Advanced Philosophy of Physics, which requires substantial background in Physics, is available only in the Honour Schools of Physics, and Physics & Philosophy. The subjects numbered in the 130s, which require study of texts in ancient Greek, are available only in Greats.)

A 3-hour examination paper is set on each Philosophy subject other than a Thesis.

As indicated above, Philosophy subjects in both Part B and Part C are drawn from the same list. But in Part C a Philosophy subject is studied at greater depth than in Part B (that is, at M-level rather than at H-level). A *Philosophy unit* in Part C consists of a Philosophy subject together with an essay of up to 5,000 words. The same subject may not be offered in both Part B and Part C.

You are permitted to offer a Philosophy Thesis in each of Parts B and C provided the topics do not overlap. (The Examination Regulations require that no part of a Part C Thesis may include work submitted for the same or another degree.)

### 5.4.3 Part B

The following is reproduced from the *Examination Regulations* applicable to the 2015 examinations.

The examination for Part B shall consist of units in Mathematics and subjects in Philosophy. The schedule of units in *Mathematics* shall be published in a supplement to the Mathematics Course Handbook by the beginning of the Michaelmas Full Term in the academic year of the examination concerned. The schedule shall be in two parts: Schedule 1 (standard units) and Schedule 2 (additional units). In *Philosophy* the subjects shall be subjects 101–118, 120, 122, 124, 125, 127 and 199 from the list given in *Special Regulations for All Honour Schools Including Philosophy*. Each subject in Philosophy other than a Thesis shall be examined in one 3-hour paper. Each candidate shall offer

- (i) Four of *Mathematics* from Schedule 1, two units of which shall be B1.1 *Logic* and B1.2 *Set Theory*,

- (ii) three subjects in *Philosophy* from 101-118, 120, 122, 124, 125 and 127, of which two must be 122 and **either** 101 **or** 102, and
- (iii) **either** two further units in *Mathematics* drawn from Schedules 1 and 2 combined **or** one further subject in *Philosophy* from subjects 101-118, 120, 124, 125, 127 and 199: *Thesis*.

**Note that the Regulations do not allow candidates to offer from Schedule 1 only the compulsory papers B1.1 and B1.2 and offer options from Schedule 2. This means that the units listed under Schedule 2 are not available to those who wish to offer a total of four Philosophy subjects.**

The Schedules of subjects for examination in 2015 can be found in Appendix A (VII.A) and, with further details, in the Mathematics & Philosophy Part B Supplement.

For information on classification in Parts A and B together see the Examination and Marking Conventions IV.5.

#### 5.4.4 Part C

From October 2014 the number of Part C examined units in Mathematics & Philosophy has increased from six to eight, to bring the degree in line with similar changes to Part C Mathematics.

Candidates in Part C offer one of the following four options:

- (i) Eight units in Mathematics;
- (ii) Six units in Mathematics and one unit in Philosophy;
- (iii) Three units in Mathematics and two units in Philosophy;
- (iv) Three units in Philosophy,

from the lists of units for Mathematics and for Philosophy.

Taking as a ‘unit of examination’ the material examined in a three-hour exam or equivalent, options (i) and (iv) both have the weight of 4 units of examination, as follows: 8 Mathematics units are examined in  $8 \times 1\frac{1}{2}$  hours = 12 hours, which is the equivalent of 4 three-hour exams; three Philosophy units in Part C are examined in three three-hour exams and three 5000 word essays (the M-level element of Philosophy in Part C);  $3 \times 5000$  words = 15000 words, which is the word limit of a Philosophy thesis in Honour Schools with Philosophy where the thesis takes the place of a subject examined by a three-hour exam. The weight of option (ii) is 3 units of examination in Maths and  $1\frac{1}{3}$  units of examination in Philosophy, for a total of  $4\frac{1}{3}$  units of examination. The weight of option (iii) is  $1\frac{1}{2}$  units of examination in Maths and  $2\frac{2}{3}$  units of examination in Philosophy, for a total of  $4\frac{1}{6}$  units of examination. In these terms the weights of the mixed options (ii) and (iii) are slightly greater than the weights of the entirely Mathematics or entirely Philosophy options (i) and (iv). Candidates should be aware of these differences in choosing options (ii) or (iii), but the Joint Committee for Mathematics and Philosophy considers that they are not so great that they should discourage a candidate for whom one of these mixed options is appropriate to their interests from choosing that option.

The approved units in Mathematics for Part C are listed in the Mathematics Part C Supplement to the Mathematics Course Handbook. In 2014–2015, the list includes three units in Mathematical Logic: Model Theory, Axiomatic Set Theory, and Gödel’s incompleteness Theorems. No unit in Mathematics may be offered in both Part B and Part C.

Part C Philosophy units may be chosen from the following, with the proviso that a candidate may not offer in Part C any subject previously offered in Part B:

- subjects 101–118, 120, 124, 125, 127 and 180 as specified in the Regulations for Philosophy in all Honour Schools including Philosophy,

- an M-level Philosophy Thesis, for which the word limit is 20,000 words.

Each unit except the Thesis is assessed by a 3-hour examination paper together with a submitted essay of up to 5,000 words. For information concerning the prescribed topics for these essays, see IV.4.4. For details of the requirements for a Thesis see the Grey Book and also III.2.2.

For information on classification in Part C see II.5.2 and the Examination and Marking Conventions IV.5.

## 6 Exit points

We hope, and expect, that you will enjoy studying Mathematics and Philosophy at Oxford and will successfully complete your degree. A very high proportion of those admitted to read Mathematics & Philosophy elect to stay for 4 years to complete the MMathPhil; of the remainder, almost all obtain the B.A. in Mathematics & Philosophy after 3 years. A very few students will opt to switch to another Oxford course or, exceptionally, to a course at another university.

### 6.1 Three years or four years

The choice of which degree you will take will be based on your interests and aptitudes, your performance in the first three years, and your career intentions. You will want to discuss your decision with your college tutors, who will be able to advise you on which course is more appropriate for you. To proceed to Part C you must obtain upper second class honours or higher in Parts A and B together.

By default, all students are registered for the MMathPhil. If you subsequently decide to take the B.A. option you must inform your college office who will in turn inform the central administration and the departments. You will be asked to confirm on your Part B Examination entry form whether or not you intend to stay for the fourth year. The decision you declare at this point is not immutable, but should be final if at all possible, and you are strongly advised to take a final decision before the start of your Part B examinations.

Please ensure that you have consulted your college tutor(s) before making your decision. It is critically important that your college knows your intentions as early as possible in order to plan for the following year. You are therefore requested to notify your college, either yourself or through your tutor, of your intentions, and to keep the college fully informed if these subsequently change.

It could happen that, having embarked upon your fourth year, you are for whatever reason unable to complete the Part C course, or decide that you do not wish to do so. In these circumstances you are advised to discuss your situation with your college's Senior Tutor at the earliest opportunity. Such candidates are, in these cases, permitted to supplicate for the B.A. in Mathematics & Philosophy. See also II.5.2 and IV.1.6.

### 6.2 Changing course

We very much hope, and in the great majority of cases can confidently expect, that you will do well in this course and will feel you are benefiting from your studies. At the same time, you should not feel that your original choice is irrevocable if it is not turning out as you had anticipated. In any degree course some who embark upon it may come to feel it is not the right course for them. Mathematics & Philosophy is no exception, and a few students doing the course change to another (also a few doing some other course change to Mathematics & Philosophy).

If you are feeling you should change, the first thing is to be patient for a while. You may be finding the course difficult, but all courses that are worth doing are difficult at times, and your tutors are there to help you with difficulties. Seek their advice, and discuss problems too with your contemporaries; you are not in competition with them, and you should get into the habit of helping and being helped. Nevertheless you may continue to feel that the course is not right for you.

If you are considering changing to another Oxford course from Maths and Philosophy, the three possibilities are to change to Mathematics, to some other course involving Philosophy, or to an entirely different

course. This last is the most radical and feasibility depends on particular interests, background and circumstances. The first two are more generally feasible. You will find it helpful to talk to fellow students studying the course or courses you might like to change to and to consult the University Prospectus and course documentation available on the web.

Normally your college will have admitted you to read for a specific undergraduate degree (consisting of the sequence of First Public Examination followed by Final Honour School). If you wish to explore the possibility of changing course, first talk to one of your current tutors or, if that is embarrassing, to the Senior Tutor or to someone else in your college with responsibility for academic welfare of students. After that, talk to tutors in the subject you wish to change to.

If you have already made a substantial start on this course then it is likely that your tutors will advise you to stay with it until you have completed your First Public Examination. By proceeding in this way you may be able to change course without losing a year, since you must pass a First Public Examination in some course or other before you can proceed to any Final Honour School and any First Public Examination counts as a qualification for any Final Honour School. (The only undergraduates eligible for exemption from the requirement to pass a First Public Examination before entering for an Honour School are those who have already obtained a degree at another university.)

### **Changing to Mathematics, or to another course joint with Mathematics**

If you are considering changing to single-subject Mathematics (or to Mathematics & Statistics) before Prelims, then you need to be aware that besides catching up on course work in applied mathematics that you will have missed you may also need to work through the Computational Mathematics course and submit the required Computational Mathematics projects (see the Mathematics Course Handbook for details).

To change to single-subject Mathematics after Prelims will involve studying over the summer some of the material examined in the two Applied Mathematics papers of Prelims in Mathematics. Your Maths tutors will advise you what to concentrate on.

### **Changing to another course joint with Philosophy**

Philosophy is studied at undergraduate level in Oxford only in combination with other subjects (there are six other combinations besides Mathematics & Philosophy; see II.1). You will need to look at these other combinations to decide which would be best for you in terms of your interests and background. The Undergraduate Prospectus, and the Handbooks for each of the courses available on the Philosophy website, will give you basic information.

### **Changing to another Oxford course: the formalities**

If you decide you do want to change course, there are three bodies that must approve: your college, the University, and those who are paying for you.

Permission from your college will be needed to change to another course. This is liable to be refused if the receiving tutors think you unsuited to their course, or don't have room.

The University is unlikely to be a problem. It accepts for any examination all candidates who are suitably qualified and supported by their colleges. However, a few departments, such as Psychology, do have quotas for acceptance on to the courses taught in them.

### **Moving to another university**

The most radical (and rare) change is to decide to study at another university, either because the course you realise you want to do isn't offered by Oxford, or because you feel that you will do better somewhere else. Before deciding to pursue such a step be sure to get lots of advice, both from tutors and from family and friends. If in the end it seems a good idea, you should be able to ask your college to support your application for a place at another university.



## Part III

# Teaching and learning

## 1 Tutors

Each student in Mathematics & Philosophy has a College Tutor in Mathematics and a College Tutor in Philosophy who oversees their academic progress in the two sides of the school. The College Tutors arrange college teaching (tutorials and classes), advise on general academic matters such as choice of options, oversee library provision of relevant texts in the college library, arrange college Collections, provide career advice (when requested) and references. Each undergraduate also has a designated Personal Tutor or Advisor (who may be one of their College Tutors) concerned with the student's personal welfare and to whom the student can turn for support and advice on non-academic matters.

It will probably be a rule of your college that you call on these in-college subject tutors at the beginning of term to arrange tuition, and at the end of term to arrange vacation study and next term's programme. In this case it is a very good idea to pay such calls, if necessary on your own initiative. You will also be required to attend a meeting at the end of term to discuss the reports from those who have taught you that term; arrangements vary from college to college. Your reports will also be available to you electronically, through the University's on-line system OxCORT.

**Please ensure that you know by when in week 0 your college expects you to be back in residence at the start of term, and do not miss pre-term meetings with tutors unless excused for some good cause.** You should try to ensure that by the Sunday of First Week of Full Term (when term officially starts) you know who your tutors for the term will be, have met or corresponded with them, and have been set work and assigned tutorial times by them.

Anybody to whom you go for tutorials or college classes counts as one of your tutors. For the Mathematics & Philosophy course you are bound to have at least two of them, and there are likely to be several more over the years. Some will be tutorial fellows or lecturers of your own college; some may be tutorial fellows or lecturers of other colleges, or research fellows, or graduate students. The overall responsibility for giving or arranging your tuition will lie with tutorial fellows or lecturers of your own college, probably one in each of Mathematics and Philosophy.

## 2 The framework of lectures, tutorials, and classes

You will be expected to attend lectures, and required to attend tutorials, and probably at various stages also classes, in both Mathematics and Philosophy. You will be required to do pre-assigned work, in the form of essays (in Philosophy) and problem sheets (in Mathematics), for most tutorials and classes. The way lectures support your learning varies on the two sides of the School. Broadly, tutorials are the primary medium of instruction in Philosophy whereas lectures form the backbone of mathematics teaching supported by tutorials and classes, with problem sheets provided by the lecturers available for most courses.

You are encouraged to provide feedback on the lectures, tutorials and classes you attend; see III.7.

### 2.1 Lectures

Each subject specified for examination in the Examination Regulations or in the Supplements to the Mathematics Course Handbook has, with a very few exceptions, lectures which cover the official syllabus specified for that subject. A Lecture List is produced each term for Mathematics and for Philosophy. These list the courses on which lectures are to be given that term, in the form of a timetable. The Mathematics list contains a section for the Mathematics & Philosophy course which lists for Prelims and each Part of Finals the lectures both in Mathematics and in Philosophy for subjects that are compulsory or particularly relevant for that examination. Synopses of Mathematics courses, amplifying the syllabuses, are given in the Supplements to the Mathematics Course Handbook.

The Philosophy Lecture List and Prospectus for each term is available at

<http://www.philosophy.ox.ac.uk/lectures>

and the Mathematics list at

<https://www.maths.ox.ac.uk/members/students/lecture-lists>

Obtain copies of both lecture lists from the web or from your main subject tutors when you meet before the beginning of term and take your copies to meetings with any other tutors you have for that term, so that each tutor can advise you on which lectures to attend.

### 2.1.1 Lectures in Philosophy

Lectures are vital for some Philosophy subjects, less so for others, and their role depends also on individual differences; get advice from your tutors and fellow students. Learn to take notes at lectures; they will be useful to you later, when you can fit them into a wider picture. Although in Oxford's system lecturers do not necessarily set or mark the University examinations, they are consulted by those who do, and the lecture prospectuses inform examiners as well as students about the content of lectures.

### 2.1.2 Lectures in Mathematics

You are likely to be advised that you should attend all lectures for the Mathematics courses you are taking.

Undergraduates are given a lot of advice at the start of their course on how to get the best out of mathematics lectures and on note-taking. Guidance is also given in the Mathematics Course Handbook:–

You are strongly recommended to read the notes *How do Undergraduates do Mathematics?* prepared by Charles Batty with the assistance of Nick Woodhouse, available from the Mathematical Institute.

You may also like to see what is said in another place; it is recommended that you visit Dr Körner's homepage at <http://www.dpmms.cam.ac.uk/~twk/> and read his advice on *How to listen to a Maths Lecture*.

## 3 Tutorials and classes

### 3.1 General

For the most part you will find that you are sharing tuition in Mathematics with those who are reading Mathematics, and tuition in Philosophy with those who are reading some other subject that involves philosophy (e.g. PPE). There are a few subjects that are special to this joint school, principally in the philosophy of mathematics, but usually you are not on your own. It is, however, desirable that your tutorials in Logic in Michaelmas Term of your first year are conducted at a more mathematically sophisticated level than would be the case if you were paired with a student from another joint School. There is a list of tutors willing to give such tutorials, possibly pairing you with an Mathematics & Philosophy student from another college, and your own college tutor should be aware of this. Get to know those who are reading the same subjects as you, and talk to them about your work (as well as other things). Undergraduates learn a great deal from one another.

What you have a right to expect is your tutor's attention (shared with one or sometimes two or more other tutees if the tutorial is for a pair or small group) and guidance throughout the hour agreed. Styles differ, depending on how many students are sharing the tutorial, the nature of the topic, and above all the habits and personality of your tutor. You must not expect uniformity, and you will gain most if you adapt to differences.

If you would like to receive tuition from a particular person in Oxford, ask the in-college tutor concerned; do not approach the person yourself, who cannot take you on without a request from your college. If you feel strongly that you are not getting on with one of your tutors, and that a change of tutor would be helpful, then say so to the tutor concerned, if that is not too embarrassing. Otherwise, approach one of the people in your college designated to help in such circumstances (Senior Tutor, Head of College, or one of those responsible for academic or personal welfare).

## 3.2 Tutorials in Philosophy

What you are expected to bring to a Philosophy tutorial is knowledge of the readings which have been set for it (or a variant on your own initiative if some items prove really inaccessible) and almost always also an essay in which you address some aspect of the topic covered by the readings.

Work on a tutorial essay in philosophy involves library searches, reading, thinking, and writing. It should occupy a minimum of three days. Read attentively and thoughtfully, skipping bits that obviously do not bear on your topic: one hour of that is worth many hours of ‘summarising’ paragraph by paragraph with the music on. As your reading progresses, think up a structure for your essay (but do not write an elaborate plan which you won’t have time to execute). Expect to have to worry out your thoughts, both during and after reading. Use essays to develop an argument, not as places to store information. You may assume that your tutor knows what is in the reading set, and is not interested in a simple re-hash of that. But he or she will be interested in your critical appraisal of what you have read, and any arguments of your own that bear upon the topic. At the same time, it is important that the relation of what you say in your essay to what you have read can be made explicit if discussion in tutorial turns on it, and for this reason, it is important to include page references to your readings for points you criticise or make use of.

You will learn a lot if you share and discuss ideas with your fellow students, and if you chance your arm in tutorials. Be enterprising, and be prepared to be wrong, for that is how one learns. (Remember that Oxford’s system is not one of continuous assessment; it is what you can do at the end that matters, and not the various mistakes that you will inevitably make on the way.) And bear in mind that tutorials are not designed as a substitute for lectures, or for accumulating information, but to develop the capacity to think on the spot and to articulate your thinking clearly in responding to issues raised about ideas in the essay you or a tutorial partner are presenting. This means that note-taking, if it occurs in a tutorial at all, should be incidental to the dialogue.

Producing essays for philosophy tutorials gives excellent training in writing, and particularly in writing to a deadline. You will need to equip yourself with a writer’s tools, most crucially a dictionary, such as the Concise Oxford Dictionary or the on-line Oxford English Dictionary (accessible on the Oxford University website), also a thesaurus, and a grammar such as Fowler’s *Modern English Usage*.

## 3.3 Tutorials and classes in Mathematics

Tutorials in mathematics will vary from college to college and subject to subject. You are likely to have between one and three other students with you. You will normally have been set a problem sheet to do in advance. In the tutorial you will discuss this work and will probably have an opportunity to ask about any difficulties you may have. In order to get the best out of a tutorial it is very important that you are well prepared. You should have done the work and handed it in if this is expected (even if you have not been able to solve every problem). It is also a good idea to make a note of anything you want to ask about.

Lectures for Mathematics Preliminary Examinations and Part A are supported by problem sheets compiled by the lecturers. These are available on the Mathematical Institute website, together with any supplementary material produced to accompany the lectures. Many college tutors use these problems for their tutorials and classes; others prefer to make up their own problem sheets.

For Mathematics in Parts B and C most students attend inter-collegiate classes rather than tutorials. Classes consist of between five and ten (or occasionally up to 12) students from a number of different colleges and are run by a tutor and a Teaching Assistant. For Parts B and C there are generally 4  $1\frac{1}{2}$  hour classes for each 16-hour lecture course. There may, however, be some variation in this, particularly for courses involving a practical component. Students are set the problem sheets provided on the web by the lecturer; work has to be submitted to the Teaching Assistant by a specific time for marking. The problems are then discussed in the class.

## 4 Scheduling your work

### 4.1 The first year

#### 4.1.1 Philosophy

As indicated in II.4, you will sit two three-hour examinations in Philosophy for Prelims at the end of Trinity Term, on Elements of Deductive Logic and on Introduction to Philosophy. The latter consists of two parts, General Philosophy, and Frege's *Foundations of Arithmetic*, and candidates are required to answer at least one question from each part of the paper.

#### Lectures

The Philosophy Faculty provides the following lectures relevant to the two Philosophy papers for Preliminary Examinations in Mathematics & Philosophy.

#### Elements of Deductive Logic

**Michaelmas Term:** 8 lectures on Introduction to Logic. These lectures are intended for all students in courses that include Philosophy who are taking Logic in their First Public Examination (most of which are Preliminary Examinations in which there is a single paper on Philosophy of which Logic is part of that paper, and Moderations in Physics & Philosophy, for which Elements of Deductive Logic is a whole paper).

**Hilary Term:** 8 lectures on Elements of Deductive Logic. These lectures are specifically to cover the parts of the syllabus and more mathematical approach specifically for Prelims candidates in Mathematics & Philosophy and in Physics & Philosophy.

#### Introduction to Philosophy

##### For General Philosophy

**Michaelmas Term:** 8 lectures. For all First Public Examinations with Philosophy.

**Hilary Term:** 8 lectures. For all First Public Examinations with Philosophy.

##### For Frege, Foundations of Arithmetic

**Trinity Term :** 8 lectures. For Preliminary Examinations in Mathematics & Philosophy.

#### Tutorials and classes

Tutorial and class teaching is the responsibility of colleges, and colleges differ as to when and how teaching for each subject is provided, though this variation is subject to the following general points.

Lectures for Frege, Foundations of Arithmetic are in Trinity Term because candidates need as background Elements of Deductive Logic. This means that tutorials on Frege, *Foundations of Arithmetic* should also be in Trinity Term. You should have between 5 and 8 tutorials on Frege in Trinity Term for which you write between 4 and 6 essays and have 1 or 2 revision tutorials. In Trinity Term you may also have some revision tutorials on Elements of Deductive Logic and on General Philosophy, but you should have all your substantive tutorials and classes for Elements of Deductive Logic and General Philosophy in Michaelmas and Hilary Terms, when the lectures are given. How these Philosophy tutorials and classes are divided between Michaelmas and Hilary Terms is subject to variation between colleges. Some colleges teach M&P students in Logic classes in MT with all Philosophy students in college. Some make separate provision for Logic teaching in MT for M&P and Physics & Philosophy students. In Hilary Term tutorials or classes for MP and PP on Logic and specific to the material and approaches to Elements of Deductive Logic for candidates in those two courses. Candidates generally have 8 tutorials for General Philosophy (exclusive of revision tutorials), distributed over Michaelmas and Hilary Terms or concentrated more in one of these two terms.

### 4.1.2 Mathematics

Lectures for the three Mathematics papers will be given as set out in Appendix A (VII.A). Details of the content of the courses can be found in the Mathematics & Philosophy Prelims Supplement.

The first year course is run as a joint venture with the Statistics Department. The official first year syllabus for the Preliminary Examination for 2014/15 is in a separate booklet which will be supplied together with this handbook at the induction session. Lecture synopses are included in this additional booklet. The lecture courses form a co-ordinated programme, ensuring full and careful coverage, avoiding unnecessary duplication to help you prepare for the examinations. Reading lists are given alongside the synopses.

## 4.2 The second and third years

Mathematics courses taken in the second year are examined at the end of that year whereas all examining of second and third year work in Philosophy, as well as work for B1 Logic and Set Theory, takes place at the end of the third year.

In Michaelmas Term of the second year you will have lectures on each of the Part A core courses on *Algebra I: Linear Algebra* and *Metric Spaces and Complex Analysis*.

Lectures for Part A Mathematics *Long Options* (16 lectures each) are given in Michaelmas and Hilary Terms and for *Short Options* (8 lecture each) in Trinity Term. The options available to Mathematics & Philosophy students in 2014–2015 are listed in Appendix A (VII.A), available in the Mathematics & Philosophy Part A Supplement.

### Papers B1.1 Logic and B1.2 Set Theory

Papers B1.1 Logic and B1.2 Set Theory, from the Honour School of Mathematics Part B, are compulsory for Mathematics & Philosophy students. The papers consist of Logic and Set Theory and play a central role in the course as a bridge between the two sides of the Joint School.

B1.2 Set theory in particular provides essential background for the compulsory paper on the Philosophy of Mathematics, which is normally studied in the first term of the third year. Papers B1.1 and B1.2 are examined in the third year but the Joint Committee for Mathematics and Philosophy **recommends** that B1.2 should be studied during the second term of the second year (by doing so students are able to draw on the background they have obtained from their study of Logic and of Frege's Foundations in their first year). Individual tutors and students may have reason also to arrange for B1.1 Logic to be taken in the second year, but this practice is not considered necessary by the Joint Committee in view of the study of Logic undertaken in the first year.

It will be for your tutor to decide, in consultation with you, when you should study B1.1 and B1.2, and what teaching you should receive. Inter-collegiate classes are provided for B1.1 and B1.2, as for other Part B units in Mathematics. **You may attend classes for each half either in your second year or in your third year but the Mathematical Institute will not permit you, except in exceptional circumstances and with the support of your tutor, to attend classes for either B1.1 or B1.2 in both your second year and your third year.** It is, of course, open to you to attend lectures in both years, and you might find it worthwhile to do so.

### Philosophy in Part B

You will continue with your study of Philosophy during your second year, though you will not sit University examinations on this until the end of your third year.

The preparation for the Philosophy subjects is covered by lectures throughout the year. Students will normally cover the material of each subject in eight tutorials, perhaps with later revision. As a general rule, on the more central and popular subjects (which include Early Modern Philosophy and Knowledge and Reality) there will always be at least 16 lectures so that undergraduates may choose according to their own interests; on the less central and less popular subjects there will always be at least 8 lectures and

often 16. You cannot guarantee that Philosophy tutorials can always be arranged to coincide with lectures in the same subject, and you must be prepared to attend lectures in advance of tutorials or the other way round.

It is obviously desirable that your work over your second and third years should be, as far as possible, distributed evenly. How best to achieve this will vary from one college to another, depending on the different teaching patterns favoured by a college's tutors, on students' choices of Mathematics options and Philosophy subjects, and on the timing of teaching for B1.

In total for Parts A and B together you will cover the equivalent of 8 3-hour papers (and in what immediately follows the term 'paper' is used as shorthand for 'equivalent of a 3-hour paper'). Each Philosophy subject counts as 1 paper; the Mathematics Part A Core counts as 2/3s of 2 papers and the Mathematics Part A Options as 2/3s of 1 paper (making Part A the equivalent of 2 papers in total); each half of B1 counts as 1/2 of a paper. Each paper is likely to be allocated 8 tutorials or class teaching equivalent to this. On this basis 2 papers can be covered each term.

It is reasonable to aim for the teaching for 7 of the 8 papers to be accommodated in year 2 and MT of year 3, excluding revision for topics examined in Part B. On the Philosophy side this would include 3 Philosophy subjects, including the compulsory component: one of subjects 101 and 102, and subject 122, with 101 or 102 studied first.

The Mathematics Part A Core will normally be covered in Michaelmas Term of the second year and, on the Philosophy side, one of subjects 101 and 102. This gives a weight of slightly more than 2 papers, but should be manageable; if it is thought too heavy a load, 4 Philosophy tutorials could be given in MT and 4 in HT.

If B1.1 Logic classes are attended in MT of the second year, then it is likely that at most 4 Philosophy tutorials should be fitted in in Michaelmas Term, and even this would give a rather heavy load. But it is clearly desirable that the study of Philosophy should continue throughout the second year.

Most Part A Mathematics Long and Short Options are lectured in Hilary and Trinity terms, respectively. However Probability (a Long Option) is lectured in Michaelmas Term and Integral Transforms (a Short Option) is lectured in Hilary Term. Should you be interested in taking these options you are advised to consult with your tutors; it may well be easiest to postpone tutorials for these options for a term. In Hilary Term of the second year there should be time for 8 tutorials in Philosophy.

In Trinity Term, students will need to complete their primary study of the Mathematics Short Options (if applicable) and to revise for the Mathematics Part A papers. Alongside this they should study one Philosophy subject not studied earlier in the year, and depending on how time was allocated in the two preceding terms, perhaps also complete the primary study of a subject begun earlier.

The Philosophy subject to be studied in Trinity Term could be Philosophy of Mathematics, since by then B1.2 Set Theory should have been covered, and core lectures on Philosophy of Mathematics can have been attended in MT of the second year. However, the Joint Committee cannot advise everyone to study Philosophy of Mathematics in tutorials in Trinity Term. This is because first-years must have their tutorials on Frege's *Foundations of Arithmetic* in Trinity Term, and it is the same tutors who teach these two subjects. With teaching resources in this area already stretched, it is not possible for a high percentage of second years to have tutorials on Philosophy of Mathematics in Trinity Term. Colleges which have a tutor or college lecturer who teaches Philosophy of Mathematics may be in a position to provide these tutorials in Trinity Term, but colleges that need to find Philosophy of Mathematics teaching outside college are advised not to assume that they will be able to secure this for Trinity Term. Accordingly, the usual term in which to have tutorials in Philosophy of Mathematics is MT of the third year, during which term candidates should also be attending the core lectures for this subject.

Thus possible timetabling schemes can be based on:

Mathematics Part A Core	MT year 2
Mathematics Part A Options	HT + TT year 2
B1.1 Logic	MT year 2 or MT year 3
B1.2 Set Theory	HT year 2
101 or 102	MT and/or HT year 2
122	TT year 2 or MT year 3
One other Philosophy subject	HT year 2 and/or TT year 2 or MT year 3

You can expect to have some support for your revision in the third year for subjects studied in the second year but not examined until the end of the third year.

### 4.3 The fourth year

There are no compulsory subjects in Part C, and you may choose to study entirely Mathematics (8 units), entirely Philosophy (3 subjects), or combinations of the two (6 units of Mathematics and one Philosophy subject, or 3 units of Mathematics and 2 Philosophy subjects). All primary study of your choice of options should be completed by the end of Hilary Term, and the last deadline for work submitted for examination is for Philosophy essays of up to 5000 words, the M-level component of the study of a Philosophy subject in Part C, which are due by noon on Friday of 1st week of Trinity Term. Philosophy Theses are due by noon on Friday of 0th week of Trinity Term; Mathematics Dissertations are due by noon on the Monday of the second week following the end of Hilary Term. It is clearly desirable to organise one's work in Part C so that the amount of work in Michaelmas Term is as near as possible equal to the amount in Hilary Term. If you're doing all Mathematics, this means aiming to do four subjects in each term. The Mathematical Institute facilitates such equal distribution by scheduling related subjects that are likely to be chosen together in different terms. Depending on when the exams of your chosen subjects are scheduled, you'll then have the first four to six weeks of Trinity Term for revision classes and individual study.

### 4.4 Study during vacations

Oxford University's official terms occupy less than half the year, and to master their courses students need to study during vacations as well as throughout each term. At the same time it is recognised that students need to use some of their vacation time for breaks from study and also, for many students, to earn money to support themselves during their course. Undergraduates in Oxford are said to 'read' for a degree and Mathematics & Philosophy has a strong reading component, especially on the Philosophy side. During term you will mostly move quickly from one article or chapter to another, picking out just what you need for your impending tutorial essay. Vacations are the time for more reflective attention to complete books and, in mathematics, for consolidating your new skills by working through key ideas and techniques on your own.

## 5 Choosing options

### 5.1 In Prelims

All subjects in the five papers in Prelims are compulsory. There is a choice of emphasis in the Introduction to Philosophy paper between the two parts of the paper, General Philosophy and Frege's Foundations of Arithmetic, in that you may choose to answer one question on General Philosophy and three questions on Frege, or the other way round, or to answer two questions from both sections.

### 5.2 In Part A

Besides the options in Pure Mathematics approved for Part A for Mathematics & Philosophy and listed in the M&P Part A Supplement, you may also, if you have the support of your Mathematics tutor, apply to the Joint Committee for Mathematics and Philosophy for approval of one or more other options available for Mathematics Part A and listed in the Mathematics Part A Supplement.

Given that this option, which is in applied mathematics, presumes facility with some or other results and techniques covered in Maths Prelims or the core syllabus of Mathematics Part A not taken by Mathematics & Philosophy candidates, such applications tend to be uncommon and require some further work of the undergraduate.

### 5.3 In Parts B and C: general

In general, when choosing options, go for what interests you provided that your tutors think that your choices are suitable for you. But it's also a good idea to pay attention to what effect a given choice might have on future choices. For example, Early Modern Philosophy (101) is normally prerequisite to Philosophy of Kant (112). In the case of Philosophy options it is also worth bearing in mind that for two Philosophy subjects, one of which you will study in Part B and the other in Part C, and neither prerequisite to the other, it will be sensible to leave the one that interests you more deeply to Part C.

The Part C courses in logic and set theory are natural choices for MMathPhil students; your compulsory work for Part B will have prepared you well for all of these. Otherwise prerequisites are a particular issue in Mathematics, where many later courses draw on earlier ones. The lecture synopses will describe recommended 'background courses'. Many Mathematics courses in Part B and Part C depend to a greater or lesser extent on courses not included in the Mathematics & Philosophy course, and this is likely to constrain your choices. In general, almost all courses in Pure Mathematics in Part B and Part C will be feasible choices, provided you made appropriate choices in Part A or in Parts A and B, respectively. So it's a good idea to look ahead. Suppose you plan to do the MMathPhil and you think you might like to offer a Mathematics unit on Functional Analysis in Part C. Then you will need to have taken B4 Analysis in Part B, and for that, knowledge of the Part A option in Topology is highly desirable.

It should be noted that you may choose a course even though you have not done the background courses, but the lecturers and examiners will lecture and examine on the hypothesis that you have the background. If you wish to take a course and you have not taken the recommended background courses then you should consult one of your college tutors who can advise you on appropriate background reading.

### 5.4 Additional Mathematics options in Part B for which approval must be sought

Subjects in Schedules 1 and 2, as given in the Mathematics & Philosophy Part B Supplement and in Appendix A (VII.A) are automatically available for Part B. You may, if you have the support of your Mathematics tutor and providing that you are taking more than two mathematics units in Part B, apply to the Joint Committee for Mathematics and Philosophy for approval of one or more other options from the list of Mathematical Institute units and double-units given in the Mathematics Part B Supplement to the Mathematics Course Handbook.

Applications for special approval must be made through the candidate's college and sent to the Chairman of the Joint Committee for Mathematics and Philosophy, c/o Academic Administrator, Mathematical Institute, to arrive by **Friday of Week 5 of Michaelmas Term**. Be sure to consult your college tutors if you are considering asking for approval to offer one of these additional options.

Given that each of these additional options, which are all in applied mathematics, presume facility with some or other results and techniques covered in first or second year Mathematics courses not taken by Mathematics & Philosophy candidates, such applications will be exceptional. You should also be aware that there may be a clash of lectures for specially approved options and for those listed in Schedules 1 and 2 and for lectures in Philosophy; see the section in the Mathematics Part B Supplement on lecture clashes.

### 5.5 Registering for Mathematics courses in Parts B and C

Students taking Part B and Part C will be asked to register on-line for the departmentally-organised classes on Mathematics courses. Registration is required by the end of **week 10 of Trinity Term** in the academic year preceding the examination. Details of the procedure are given in the Mathematics & Philosophy Part B Supplement. You will need to nominate an alternative choice if you register for any



course which has a quota. This applies to both History of Mathematics, Mathematical Education, and the Undergraduate Ambassadors' Scheme. A selection process for the latter takes place at the start of Michaelmas Term. The procedure is described in the Mathematics & Philosophy Part B Supplement.

**Note that you are not permitted, except in exceptional circumstances, to attend classes for the same Part B course in both your second year and your third year.**

## 6 Representation and communication

An undergraduate reading Mathematics & Philosophy serves as a representative on the Joint Committee for Mathematics and Philosophy, which administers the course.

The Mathematical Institute and the Philosophy Faculty each have a joint consultative committee with undergraduates. Both these committees have as members at least one undergraduate reading Mathematics & Philosophy. A member of the Joint Standing Committee for Mathematics and Philosophy serves as a member of the Mathematics JCCU.

There is also a Mathematics Undergraduate Representative Committee (MURC), which describes itself as “the line of communication between the body of undergraduates studying maths (and joint schools) at Oxford University and the Powers That Be. We also provide information for incoming maths students and a number of resources for current undergraduates”. It has twice-termly meetings, runs a bookstall and maintains a website.

For information on the Mathematics JCCU and on MURC see <https://www.maths.ox.ac.uk/members/students/undergraduate-courses/undergraduate-representation>.

For information on the Philosophy UJCC see [http://www.philosophy.ox.ac.uk/undergraduate/ujc\\_committee](http://www.philosophy.ox.ac.uk/undergraduate/ujc_committee).

The Joint Committee for Mathematics and Philosophy organises two events each year for all students reading Mathematics and Philosophy, a drinks reception in first week of Michaelmas Term, and a tea party in the first week of Trinity Term. These are opportunities for those reading Mathematics & Philosophy to meet each other and to talk with members of JCMP, and the Trinity Term tea party includes a general discussion between undergraduates and members of JCMP on issues concerning the course and the way it is taught. You are strongly encouraged to attend these events: we hope to see you there and to hear at first-hand your views on your course.

These systems of student representation require students willing to serve as representatives, and the Joint Committee for Mathematics and Philosophy is grateful to all those who serve in these capacities. The other students reading Mathematics & Philosophy are encouraged to communicate any concerns they may have about the course through their student representatives, but they are also very welcome to communicate directly with the Joint Committee for Mathematics and Philosophy, by writing to the Chair, Dr Daniel Isaacson, [daniel.isaacson@philosophy.ox.ac.uk](mailto:daniel.isaacson@philosophy.ox.ac.uk), or to the Academic Administrator of the Mathematical Institute, [academic.administrator@maths.ox.ac.uk](mailto:academic.administrator@maths.ox.ac.uk).

We greatly hope you find your course rewarding, but we also very much welcome finding out from students on the course how it might be improved.

There is also undergraduate representation at Department, Faculty, and Divisional Board Meetings (though of course not necessarily by an undergraduate reading Mathematics & Philosophy). The Oxford University Student Union (OUSU) also provides student representation and feedback; their website is at <http://ousu.org/>.

## 7 Feedback

You will be asked to give feedback on lectures and class teaching to the faculty that has provided it, and on tutorial teaching to your college. The feedback which you provide to lecturers and tutors is valued and taken seriously. It has an important contribution to make to maintaining the quality of the education students receive at Oxford. The two faculties and the various colleges differ in the exact questions asked to elicit your assessment of lectures and tutorials, but in general they will ask your views on the amount and quality of teaching, reading materials, timeliness of comments on essays and tutorial performance, and feedback

on your progress on the course. Colleges also arrange for you to hear or read reports written by your tutors and to make comments on them, and also for you to submit your own self-assessment of your progress to date and your academic goals.

Lecture questionnaire forms will be provided for you to comment on each set of lectures. They will be handed out by the lecturer around the middle or towards the end of the set of lectures, and further copies will be available from department or faculty offices. Completed forms may either be left for the lecturer at the end of the lecture or sent to the departmental office. The questionnaires you fill in are anonymous. For further details of the procedures for soliciting feedback in Mathematics, see the Mathematics Course Handbook; for the Maths Institute lectures feedback form for lectures, see [https://www.maths.ox.ac.uk/system/files/legacy/3135/Lecture\\_Questionnaire.pdf](https://www.maths.ox.ac.uk/system/files/legacy/3135/Lecture_Questionnaire.pdf), and for classes <https://www.maths.ox.ac.uk/system/files/legacy/3135/Class%20questionnaire.pdf>. For the Philosophy Faculty lectures questionnaire see [http://www.philosophy.ox.ac.uk/lectures/undergraduate\\_questionnaire](http://www.philosophy.ox.ac.uk/lectures/undergraduate_questionnaire)

The results of the questionnaires are seen by the Directors of Undergraduate Studies for Mathematics and for Philosophy. They are responsible for ensuring that problems with the delivery of particular courses identified through the questionnaire returns are discussed with the lecturers concerned, and addressed.

## 8 Learning from discussing your work with fellow students

Students may learn as much from talking and working together as from their teachers. College tutorials and classes are not just for a tutor to teach students, but for students to interact with each other in the learning process, and this process can and should continue outside tutorials and classes. The number of students reading Mathematics & Philosophy in a given year is relatively small (in comparison with the number reading straight Maths, or PPE, say), and you might be the only Maths & Phil student in your college in that year. But the material in the course is almost always studied by students reading Mathematics, or students reading other joint Philosophy courses, and college tutorials and classes will bring you into contact with them. In the rare cases where a subject is particular to Mathematics & Philosophy, for example Frege's *Foundations of Arithmetic* in Prelims, there will be centrally organized classes, as also Elements of Deductive Logic, shared just with Physics & Philosophy and Computer Science & Philosophy. You have the opportunity also to get to know fellow students studying your subjects through the lectures you attend. Also, as mentioned above under "Representation and communication", the Joint Committee for Mathematics and Philosophy organises a drinks party at the beginning of Michaelmas Term and a tea party at the beginning of Trinity Term to bring all undergraduates reading Mathematics and Philosophy together.

## 9 Language classes (third and fourth years)

The Mathematical Institute gives its third and fourth year undergraduates access to language classes in French and German. A student's performance in these classes will not contribute to their degree classification. However, a certificate will be issued upon successful completion of the course. Students reading Mathematics have priority in registering for these classes, but if there are vacancies, places are offered to those reading for joint schools, and Mathematics & Philosophy students are invited to apply. For further details of the classes see the Mathematics Part B or Part C Synopses.

## Part IV

# Assessment and examinations

## 1 Taking University examinations

General information, not specific to subject, is given on the University website at <http://www.ox.ac.uk/students/exams/>.

Links are provided from this url to information on all aspects of University examinations.

### 1.1 College Collections

As well as a medium of instruction, the tutorial is a personally tailored form of continuous assessment, and both you and your tutor will have a very good idea of how you are getting on. Most colleges will require you to sit college examinations, called “Collections”, from time to time and normally before the start of term.

Collections are usually set on work done for a set of tutorials or college classes in the preceding term. Thus you can expect them throughout your course on the Philosophy side and in the first two years in Mathematics. They are ‘internal’ examinations to help you and your tutors assess your progress; they are not to be confused with the University’s public examinations you sit each year. The objectives of Collections are to test your comprehension of work already covered and to give you practice in writing timed papers. Make sure at the end of each term that you know the times and subjects of the next term’s Collections.

### 1.2 Preparing for examinations

#### Philosophy

When planning your examination strategy it is important to bear in mind the nature of the examinations. Past exam papers for a given subject are a good guide to the sorts of questions that will be asked (so long as the syllabus has not changed), but the questions are set specially for each exam so that candidates must prepare a reasonably wide range of material to be prepared to answer whatever comes up. In Philosophy there is almost never a “correct” answer to a question, but there are clear criteria as to whether an essay is answering the question asked, and examiners penalise answers which do not specifically address the question set. Reproducing your tutorial essay on the topic of the question rather than answering that particular question will result in a low mark, even if the essay is quite good as an answer to a different question. The examiners in Philosophy are looking for your own ideas and convictions, and you mustn’t be shy of presenting them as your own: whether you are conscious of inheriting them from somebody else doesn’t matter. When you have selected a question, work out what it means and decide what you think is the answer to it. Then, putting pen to paper, state the answer and defend it; or, if you think there is no answer, explain why not. Do not present more background to the question than is required for answering that question. Don’t write too much: going beyond a concise statement and defence of your answer risks irrelevance. Good examinees emerge from the examination room with most of their knowledge undisplayed. The number of questions that must or may be answered will be specified in each paper, and there are penalties for answers to too few questions.

#### Mathematics

Your tutor will advise you about revision and practice. As well as any consolidation work done after the end of term, it is usual to spend much of Trinity Term revising work for that year’s examination. In subjects which have been taught in previous years, past examination papers are a good guide to the sort of examination question that you might be set. Please note that the syllabus for the examination may have changed, and is certainly not determined by what appeared in past papers. Your tutor will be able to give you advice on how relevant particular past papers are.

In Mathematics the criterion for a correct answer to a question is clear (examiners work hard in setting questions to make this so), though there are almost always a number of different ways to give a correct solution, some more efficient or elegant than others, and there is scope for wide variation in clarity of exposition.

## General

Make sure that, well in advance of the examinations, you brief yourself thoroughly as to the format and rubrics of the papers you will be taking; see IV.4.

You may find it useful to your preparation for University examinations to know the following practical details concerning these examinations. You will be provided with booklets of A4 paper in which to write your answers; these are of lined paper for Philosophy papers and of unlined paper for Mathematics papers. You must write in ink, rather than pencil, though you may use pencil for any graphs and diagrams.

### 1.3 Accessing materials related to examinations

You will find useful material on the Mathematical Institute website concerning examinations under

<http://www.maths.ox.ac.uk/members/students/undergraduate-courses/examinations-assessments>.

This information includes Examiners' Notices to Candidates for the various examinations for the present and/or preceding year, and Examiners' reports for 2000 onwards. These reports contain numerical data on examination results as well as comments from the Examiners on the examination overall and on candidates' performance on individual papers.

You will also find, at

<http://www.maths.ox.ac.uk/members/students/undergraduate-courses/examinations-assessments/past-papers>,

recent past papers for Mathematics, including those for Mathematics & Philosophy. Finals papers in Philosophy are accessible on the Philosophy website at <http://www.philosophy.ox.ac.uk/undergraduate>. Recent past Oxford University examination papers for all undergraduate degrees can be downloaded from the University's OXAM website <http://www.oxam.ox.ac.uk>.

To access past papers from outside the Oxford domain you will need to use the University's VPN service giving remote access; see V.3.2 below.

### 1.4 Entering for University Examinations

**It is your responsibility to enter for University examinations.**

For details of the procedure see <http://www.ox.ac.uk/students/academic/exams/entry>

### 1.5 Timing of University examinations

The starting dates of examinations for Prelims, and Parts A, B and C of the FHS, don't usually vary much from one year to the next. You can expect the examinations to be scheduled as follows:

**Preliminary Examinations:** Mathematics papers in week 9 of Trinity Term; Philosophy papers are usually sat earlier.

**Part A:** weeks 8 and 9 of Trinity Term.

**Part B:** generally spread over weeks 5–8 of Trinity Term, starting with Philosophy papers and with the first Mathematics paper no earlier than the end of week 6.

**Part C:** generally in weeks 5 and 6 of Trinity Term, with Mathematics papers in week 6.

Examination timetables are published on the web at

<http://www.ox.ac.uk/students/academic/exams/timetables>

some weeks ahead of the examination start date. No candidate will normally be expected to sit papers on the morning and afternoon of the same day. A personal timetable, showing your own papers and the dates, times and locations at which they will take place, will be sent to you at your college approximately five weeks before the written papers begin.

## 1.6 Procedures for University examinations

Practical information on the conduct of examinations is given at

<http://www.ox.ac.uk/students/academic/exams/guidance>

Before the examinations you will also receive at least one *Notice to Candidates* from the examiners which will let you know the details of the examination procedure in relation to your particular examination, and also the date by which the examiners hope to publish the results. For general information on access to results via Student Self Service you are referred to the url above.

Together with your personal timetable you will receive notification of a randomly allocated *candidate number* which you will use to identify your scripts, instead of your name and college.

Please write your examination papers LEGIBLY. If an examiner has to struggle to decipher your writing, especially in a Philosophy paper, the flow of what you are saying is lost and the examiner wastes time when time is at an extreme premium (having to mark well over a hundred scripts in just a few weeks while carrying on with other duties). University regulations authorise examiners to require that illegible scripts be typed, but this is a very cumbersome procedure for all concerned, used only as a last resort. The cost of invigilating the typing of illegible scripts is borne by the candidate.

**Your attention is drawn to the information concerning University examinations contained in the Proctors' and Assessor's Memorandum,**

<http://www.admin.ox.ac.uk/proctors/info/pam/index.html>

Section 9, Examinations. Please note in particular the subsections dealing with late submission of entries and late alteration of options; special examination needs; special circumstances (including illness and medical certificates); complaints. You should also be aware of the University's rules concerning withdrawal from, or failure to complete, an examination. These are summarised in Section 9 of the Proctors' and Assessor's Memorandum and set out in full in *Examination Regulations 2013*, Part 14; see p. 39; for the consequences of failure to submit coursework see IV.2.4 below.

It must be stressed that to preserve the independence of the Examiners, candidates are not allowed to make contact directly about matters relating to the content or marking of papers. Any communication must be via the Senior Tutor of the candidate's college, who will, if he or she deems the matter of importance, contact the Proctors. The Proctors in turn communicate with the Chairman of Examiners.

## 1.7 University Standardised Marks

The marks for each individual examination paper or assessment you sit will be reported as University Standardised Marks (USMs). The object of the USMs is to allow direct comparison between the results of examinations in different subjects. Raw marks are turned into USMs by recalibration, sometimes necessary to ensure that all papers are fairly and equally rewarded. The correspondence between the USM ranges and classes in a classified examination is according to the following rules:

- 70-100: First Class
- 60-69: Upper Second Class
- 50-59: Lower Second Class
- 40-49: Third Class
- 30-39: Pass
- 0-29: Fail

These marks reflect the qualitative descriptors given in appendix C.

## 2 Assessed coursework

You may be interested in offering options examined wholly or in part by submitted coursework:

**in Part B:** Thesis (subject 199) in Philosophy, BO1.1 History of Mathematics, BN1.2 Undergraduate Ambassadors' Scheme, BEE Mathematical Extended Essay and BOE "Other Mathematical" Extended Essay (for the constraints on choices regarding these see II.5.4.3 and the Mathematics & Philosophy Part B Supplement);

**in Part C:** Mathematics Dissertation (double or single-unit) and Philosophy M-level Thesis.

Also, if you offer a Philosophy unit in Part C other than a Thesis you will be assessed on a submitted essay as well as a written paper; see IV.4.4.

### 2.1 Extended Essays and Dissertations in Mathematics

Those interested in offering an extended essay at Part B or dissertation at Part C should consult the Project Guidance Notes <https://www.maths.ox.ac.uk/members/students/undergraduate-courses/teaching-and-learning/projects>

For full information on the project options, including submission deadlines, please consult the Mathematics & Philosophy Part B and Part C Supplements.

### 2.2 Theses in Philosophy

Candidates may offer a Philosophy thesis in Part B and/or Part C. A thesis in Part B is subject 199 in the list of Philosophy subjects given in the Examination Regulations.

A thesis in Part C is governed by the Special Regulations for the Honour School of Mathematics and Philosophy, in the Examination Regulations. You are advised to read these Regulations carefully.

**The deadline for seeking approval of your proposed topic for a Philosophy Thesis for Part B or Part C is Friday of Week 4 of the Michaelmas Term preceding the examination.**

The application for approval of topic is submitted to the Director of Undergraduate Studies, c/o the Undergraduate Studies Administrator, Faculty of Philosophy, Radcliffe Humanities, and should consist of your proposed title and an explanation of the subject in about 100 words and a letter of approval from your tutor. But you can seek approval earlier and it's a good idea to do so before you put in a lot of work. Begin thinking about a thesis topic during the Easter Vacation of the preceding year, and have a talk with a tutor during that Trinity Term. If the tutor thinks that the subject is manageable, get some initial suggestions for reading and follow them up. Remember that tutors can only advise: the decision to offer a thesis is your own, and so is the choice of topic. So of course is the work; what makes a thesis worthwhile is that it is your own independent production. Don't worry if the outline of your topic in an early application is not in the end very closely adhered to: the point of it is to make clear the general subject of the thesis and to show that you have some idea how to go about tackling it. If later you wish to alter the title of your thesis, that should not be a difficulty, but you must apply in the same way for permission to do so. (This is so that the Chairman of Examiners knows what to expect.)

The Regulations state that you may discuss with your tutor the field of study, the sources available, and the method of presentation. Before you start work, go over the plan of the whole thesis very carefully with your tutor. The plan must be yours, but the tutor can help you make sure that the plan is clear, coherent and feasible. Get more advice on reading. But bear in mind that much of your reading will be discovered by yourself, so arrange to be in Oxford, or near a large library, for some weeks of the vacation.

Don't let your topic expand or your reading range too widely; 20,000 words is the length of two articles, not a book. Your tutor may also read and comment on drafts, subject to the constraint that the amount of assistance the tutor may give is equivalent to the teaching of a normal paper, so tutorial sessions can be used for trying out drafts of parts of the thesis. However, you have to write the finished version on your own: make sure you allow plenty of time: almost certainly more will be needed than you first expected. You must not exceed the limit of 15,000 words for a Part B Philosophy Thesis, 20,000 words for a Part C

Philosophy Thesis, excluding bibliography. That will probably, to your surprise, become a problem; but the exercise of pruning is a valuable one, encouraging clarity and precision which you should be aiming for in any case.

Some general advice: (i) explain in your introduction just what you are going to do, and in what follows present the argument, step by step, in as sharp a focus as you can achieve: (ii) it is much better to be candid about difficulties than to sweep them aside or fudge issues, and you should show that you appreciate the force of counter-arguments; (iii) bad grammar and bad spelling diminish clarity and detract from an overall impression of competence.

Your bibliography should list all works to which you refer, plus any others you have used that are relevant to the final version. The style for references can be modelled on any recent philosophy book or periodical. The rules for format and submission are in the Examination Regulations.

If for any reason you expect to submit your thesis late, consult your Senior Tutor in good time. The Proctors may grant permission (in which case payment of a fine for late-presentation may be required). If permission is refused the thesis may be rejected or it may be accepted but penalised by reducing its mark by up to one class. (See also IV.2.4 below).

## 2.3 Important deadlines

As noted elsewhere in this Handbook, you need to take action if you wish to request a ‘non-standard’ option or to obtain approval to be examined on a nominated piece of coursework (essay, dissertation, or thesis). The table below collects together the deadlines for such requests, and to whom they should be sent. In each case the term specified is that in the academic year in which the examination is to be taken.

	application deadline	application to	via	Ref.
Part B Extended Essay	Frid. week 0, MT	Chairman, Projects Committee	Deputy Academic Administrator, Math. Inst.	III.2.1
Part B Philosophy Thesis topic	Frid. week 4, MT	Director of Undergraduate Studies, Phil. Faculty	Undergraduate Studies Administrator, Phil. Faculty	III.2.2
Part B additional Schedule 2 option	Frid. week 5, MT	Chairman, JCMP	Academic Administrator, Math. Inst.	III.5.4
Part C Philosophy Thesis topic	Frid. week 4, MT	Director of Undergraduate Studies, Phil. Faculty	Undergraduate Studies Administrator, Phil. Faculty	III.2.2
Part C: Special essay topic on a Philosophy subject	Frid. week 6, HT	Director of Undergraduate Studies, Phil. Faculty	Undergraduate Studies Administrator, Phil. Faculty	IV.4.4
Part C Mathematics Dissertation	Frid. week 0, MT	Chairman, Projects Committee	Deputy Academic Administrator, Math. Inst.	III.2.1

For submission deadlines for assessed coursework see the Examination Regulations.

## 2.4 Penalties for late submission of assessed work or failure to submit

The Examination Regulations stipulate specific dates for submission of the required pieces of coursework to the Examiners. This includes, in Mathematics, History of Mathematics coursework, Undergraduate Ambassadors’ Scheme coursework, Extended essays and Dissertations and, in Philosophy, Theses and submitted Essays in Part C.

Rules governing late submission and any consequent penalties are set out in the ‘Late Submission of Work’ subsection of the ‘Regulations for the Conduct of University Examinations’ section of the Examination Regulations 2014, p. 46, available at

[http://www.admin.ox.ac.uk/examregs/08-16\\_Part\\_16\\_Marking\\_and\\_assessment.shtml](http://www.admin.ox.ac.uk/examregs/08-16_Part_16_Marking_and_assessment.shtml).

Late submission of coursework will normally result in the following penalties:

- With permission from the Proctors under clause (2) of para 16.8, page 45, no penalty.
- With permission from the Proctors under clauses (3) + (4) of para. 16.8, a penalty of a reduction in the mark for the coursework in question of at least 5 USMs (or at least 5% of the maximum mark available for the piece of work); the exact penalty to be set by the Examiners with due consideration to the advice given in the document ‘Academic Penalties for Late Submission of a Thesis or Other Exercise: Proctors’ Notes for Guidance’, dated 1/11/06.
- Where the candidate is not permitted by the Proctors to remain in the examination he or she will be deemed to have failed the examination as a whole.
- Where no work is submitted or it is proffered so late that it would be impractical to accept it for assessment the Proctors may, under their general authority, and after (i) making due enquiries into the circumstances and (ii) consultation with the Chairman of the Examiners, permit the candidate to remain in the examination. In this case the Examiners will award a mark of zero for the piece of coursework in question.

### 3 Plagiarism

The University and its Departments and Faculties employ a series of sophisticated software applications to detect **plagiarism** in submitted examination work, both in terms of copying and collusion. It regularly monitors on-line essay banks, essay-writing services, and other potential sources of material. It reserves the right to check samples of submitted essays for plagiarism. Although the University strongly encourages the use of electronic resources by students in their academic work, any attempt to draw on third-party material without proper attribution may well attract severe disciplinary sanctions.

The University Code on plagiarism is reproduced in VI.2.

### 4 Format of papers (2015 examinations)

For marking and classification conventions see Section IV.5, Examination Conventions.

#### 4.1 Preliminary Examination

All candidates take five papers, *viz.*

Mathematics I

Mathematics II

Mathematics III(P)

Elements of Deductive Logic

Introduction to Philosophy

Mathematics I and II have seven questions and candidates should attempt at most five questions; Mathematics III(P) has six questions and candidates should attempt at most 4 questions. Each question is marked out of 20 marks and is divided into two or three parts. The marks for each part will be given on the examination paper.

There is a 3-hour paper on each of Elements of Deductive Logic and Introduction to Philosophy. Candidates must submit answers to four questions in each paper.

The examination paper on Introduction to Philosophy consists of two parts (a) General Philosophy, and (b) Frege: studied in conjunction with Frege, *Foundations of Arithmetic*. All candidates in Mathematics & Philosophy must answer at least one question on General Philosophy and at least one question on Frege and four questions in total. The General Philosophy part of the examination is as in other First Public Examinations with Philosophy.



## 4.2 Final Honour School: Part A

In Part A each candidate shall be required to offer four written papers in Mathematics from the schedule of papers for Part A (given below). These must include A1(C/P) and A2, and also two of A3, A4, A5, A8, ASO, making a total of 7.5 hours assessment.

At the end of the Part A examination a candidate will be awarded a ‘University Standardised Mark’ (USM) for each Mathematics paper in Part A. The four USMs will be carried forward into the classification awarded at the end of the third year. In the calculation of any averages used to arrive at the final classification, the USMs for A2 will have twice the weight of the USMs from the other three papers.

### The Schedule of Papers

**Paper A1(C/P) - Algebra 1** This paper will contain 3 questions set on the Core material in Algebra 1 (Linear Algebra) for Part A of the FHS of Mathematics. The paper will be of  $1\frac{1}{2}$  hours duration. Candidates may submit answers to as many questions as they wish, of which the best 2 will count. Each question is out of 25 marks.

**Paper A2 - Metric Spaces and Complex Analysis** This paper will contain 6 questions set on the Core material in Metric Spaces and Complex Analysis for Part A of the FHS of Mathematics. The paper will be of 3 hours duration. Each question is out of 25 marks. Candidates may submit answers to as many questions as they wish, of which the best 4 will count.

**Papers A3, A4, A5 and A8** These papers will contain questions on the Long Option subjects (as listed in the Supplement to the Mathematics Course Handbook, Syllabus and Synopses for Part A in Mathematics and Philosophy 2014-2015 for examination in 2015). Each paper will be of  $1\frac{1}{2}$  hours duration. In each paper there will be 3 questions. Candidates may submit answers to as many questions as they wish, of which the best 2 will count.

**Paper ASO** This paper will contain one question on each of the eight Short Options (as listed in the Supplement to the Mathematics Course Handbook, Syllabus and Synopses for Part A in Mathematics and Philosophy 2014-2015 for examination in 2015). The paper will be of  $1\frac{1}{2}$  hours’ duration. Candidates may submit answers to as many questions as they wish, of which the best 2 will count.

## 4.3 Final Honour School: Part B

The form of assessment for single and double units in Mathematics is indicated in the Supplement to the Mathematics Course Handbook, Syllabus and Synopses for the Honour School of Mathematics & Philosophy Part B 2014–2015, for examination in 2015 and likewise, for any additional options approved under Schedule 2, Syllabus and Synopses for the Honour School of Mathematics Part B. Except for options BO1.1: History of Mathematics and BN1.2: Undergraduate Ambassadors’ Scheme, BEE Mathematical Extended Essay and BOE Other Mathematical Extended Essay, assessment is by a 3-hour paper for a double unit and a  $1\frac{1}{2}$ -hour paper for a single unit. There are three questions in each single unit. For a double unit paper the rubric states “candidates may submit answers to as many questions as they wish: the best two from each section will count”. For a single unit paper the rubric states “candidates may submit answers to as many questions as they wish: the best two will count”.

## 4.4 Final Honour School: Part C

Candidates offer a total of eight units in Mathematics and/or Philosophy.

The form of assessment for Mathematics units and double units is set out in the Syllabus and Synopses for Part C of the Honour School of Mathematics 2014–2015 for examination in 2015. In the case of assessment wholly by written examination each double unit paper will be of 3 hours’ duration and each paper on a single of  $1\frac{1}{2}$  hours’ duration. There are three questions in each single unit. For a 3-hour paper the rubric states “candidates may submit answers to as many questions as they wish: the best two from

each section will count". For a  $1\frac{1}{2}$ -hour paper the rubric states "candidates may submit answers to as many questions as they wish: the best two will count".

Each Philosophy unit, other than a Thesis, is examined in a 3-hour paper together with a submitted essay of not more than 5,000 words.

Part C essays for each permitted Philosophy subject consist of the questions set for that subject in the most recent previous examination set for that subject in examinations for Honour Schools including Philosophy, with the following exceptions:

- The commentary or "gobbets" question on Plato: Republic (subject 115)
- The commentary or "gobbets" question on Aristotle: Nicomachean Ethics (subject 116);

(these questions consist of passages for comment from the set text and so are not suitable as essay topics). Past examination papers can be downloaded from <http://www.oxam.ox.ac.uk> (see V.3.2 below). Normally the most recent paper will be that set in the previous academic year. But note that in any given year examinations may not be set on every subject. This explains why topics are taken from the most recent paper rather than from the previous year's paper.

You may apply for approval of essay topics not prescribed by writing to the Director of the Undergraduate Studies, Philosophy Faculty, c/o the Undergraduate Studies Administrator, Faculty of Philosophy, Radcliffe Observatory Quarter, giving the title you propose, together with an explanation of the subject and enclosing a letter from your tutor attesting to the suitability of this topic for you. Any such application must be received no later than Friday of the sixth week of the Hilary Term preceding the Part C examination for which the essay is to be submitted. Late applications will not be considered. Any such application shall be accepted or rejected within two weeks of its being received.

## 5 Examination Conventions for Marking and Classification

You will be sent the examination conventions as part of the Notices to candidates prior to the examinations. They will also be posted online at <http://www.maths.ox.ac.uk/members/students/undergraduate-courses/examinations-assessments/examination-conventions>.

## 6 Prizes

### In Mathematics

The following University prizes are available. They are awarded by the Examiners and no application is required.

- Two Gibbs Prizes are available for overall performance of Mathematics and Philosophy candidates, one for performance in the Preliminary Examination in Mathematics and Philosophy; one for performance in the Honour School of Mathematics and Philosophy Part A.
- Two Gibbs Prizes are available for performance in Mathematics papers for candidates in the Honour School of Mathematics and Philosophy: one of the prizes is available for performance in Part B; one of the prizes is available for performance in Part C.
- Two IBM prizes of £250 each, are available for performance in Mathematics papers for candidates in Preliminary Examinations.

### In Philosophy

- Two Gibbs Prizes, one for Part B and one for Part C, are available for performance in Philosophy.

- The Henry Wilde Prize, value £500, may be awarded each year for an outstanding performance in Philosophy in any of the Honour Schools involving Philosophy.

The Examiners in Part B will nominate a candidate in that examination whose performance in the Philosophy papers in Part B gives them a reasonable chance of winning the prize. The prize is open to all candidates in Part B, whether or not they plan to go on to Part C.

- The Elizabeth Anscombe Thesis Prize, value £100, is awarded to the best FHS Thesis across all FHS's involving Philosophy.

The above prizes are awarded on the nomination of the Examiners and no application is required.

In addition there is a Philosophy prize for which suitably qualified students may apply.

- Candidates who have passed Part B are eligible to enter for the John Locke Prize in Mental Philosophy, worth £500, since they satisfy the requirement to have passed all the examinations requisite to the Degree of Bachelor of Arts of the University, provided that they may not take the examination later than the tenth term from that in which they completed the said examinations. This prize is awarded on the basis of two three-hour examinations which are set during Michaelmas Term. Intending candidates must submit an application form, which may be obtained, along with further details of the Prize, from the Graduate Studies Administrator of the Philosophy Faculty, Radcliffe Observatory Quarter, early in Michaelmas Term.

## Part V

# Resources and facilities

## 1 Departmental facilities

### The Mathematical Institute

The mezzanine teaching floor of the Mathematical Institute, Andrew Wiles Building, contains three lecture theatres (L1–L3), three smaller lecture rooms (L4–L6) and six classrooms (C1–C6).

The area also contains an undergraduate study room with desk space for about 40 people, along with sockets for personal laptop use. There is wifi throughout the building. The departmental desktops in the room are currently for the sole use of first year students without laptops to work on the Computational Mathematics projects.

The mezzanine area also hosts a café with seating and tables for 100; serving drinks, snacks and meals at competitive prices.

Also found on the mezzanine is the work hand-in area for third/fourth year intercollegiate classes.

### The Faculty of Philosophy

The Faculty of Philosophy, in the Radcliffe Humanities building at the Radcliffe Observatory Quarter in Woodstock Road, is open from 9.30 to 17.25, Monday to Friday (16.25 outside of weeks 0–9). The Faculty operates an access control system and you will need your University Card to gain entry. The administrative offices, found on the first floor, are generally closed between 13.00 and 14.00. The Faculty is closed for about ten days at Christmas and Easter, and for five weeks from the beginning of August to early September. The Philosophy and Theology Faculties Library is found on the same site. All enquiries should be directed to the Secretarial Assistant. A few members of the Philosophy Faculty have offices in this building, though most are housed in their colleges. The philosophy website at <http://www.philosophy.ox.ac.uk> contains further useful information.

## 2 Libraries

The library provision in Oxford University is very good but can seem rather complex. Mathematics & Philosophy students will need to use a variety of libraries during their time in Oxford. Your local college library will have a good selection of books which can be borrowed. Each library is equipped with computers for searching databases and catalogues, and for checking email and printing. A more extensive range of books will be available from the relevant University libraries. Brief information about each of these libraries is listed below. Looking up the web page, picking up a paper guide or asking library staff can provide you with further information about specific services or the rules and regulations of each library.

**Admission:** The University Card, which is distributed by your College, will be required to enter and/or to borrow books or order items from closed stacks. The best policy is to always carry your University Card with you. (If you lose your University Card, request a replacement as soon as possible from your College Secretary.)

**Induction:** There are induction sessions for all Mathematics & Philosophy students during 0th week. You will be taught how to use SOLO, a search and discovery tool for the Oxford Libraries' huge collections of resources, OLIS, the Oxford University library catalogue, and OxLIP, the local interface to a large selection of subject databases and internet resources. These sessions take place in the Faculty of Philosophy Lecture Room. You will receive further instructions from your College about the timing of these sessions.

**Finding books:** Begin by checking SOLO for items featured on your reading lists. Ask library staff for assistance if you cannot find the books you need. You can recommend new book purchases via the library's website.

**Finding journal articles:** First look for the title of the journal you need using SOLO. If you do not know the issue or the page number of the article, ask library staff who can help you search for the item in one of the many subject databases available from OxLIP+, e.g. Philosopher's Index. Many journals are now available electronically through OU e-Journals for reading or printing. Feel free to ask library staff for further information and assistance!

**Borrowing from a library or reading in the library:** Once you have found the books or journal articles you wish to read you may be able to borrow the item from a lending library or you can read a reference copy in a Bodleian Library Reading Room (see individual libraries’ websites for details). In addition your college library will often have lending copies of items on reading lists.

**IT: Printing, copying, and scanning:** The PCAS system in operation across the Bodleian Libraries Group offers a range of services (see the link from the Bodleian Libraries website), paid for using an online account topped up by a debit/credit card.

**Opening hours:** These vary between libraries and are longer during term-time than in vacations; see individual libraries’ websites for details.

<b>Library</b>	<b>Main subjects covered</b>	<b>Web address</b>
BOD Philosophy Reading Room	Philosophy	<a href="http://www.bodleian.ox.ac.uk/bodley">www.bodleian.ox.ac.uk/bodley</a>
Philosophy Faculty Library	Philosophy	<a href="http://www.bodleian.ox.ac.uk/philosophy">www.bodleian.ox.ac.uk/philosophy</a>
Radcliffe Science Library	Science and Medicine	<a href="http://www.bodleian.ox.ac.uk/science">www.bodleian.ox.ac.uk/science</a>

*We hope you will enjoy using Oxford’s libraries.*

*Please respect other library users and take care of library books and facilities.*

## 2.1 Copyright law

The copying of books and journals and the use of self-service photocopiers are subject to the provisions of the Copyright License issued to the University of Oxford by the Copyright Licensing Agency for the copying (from paper on to paper) of:

- up to 5% or one complete chapter (whichever is the greater) from a book;
- up to 5% or one whole article (whichever is the greater) from a single issue of a journal;
- up to 5% or one paper (whichever is the greater) from a set of conference proceedings.

## 3 IT

### 3.1 IT Services

The Oxford University Computing Services (OUCS) are at 13 Banbury Road. For information on the services available visit <http://info.ox.ac.uk/oucs>.

### 3.2 Access to the University network from outside the Oxford domain (VPN) and wireless access (OWL)

Many Oxford University services can only be accessed from within the University network. These include online access to journals available on OxLIP and past examination papers. Access to restricted resources from outside the campus network is provided via the OUCS Virtual Private Network (VPN) Service. A VPN connection provides your computer with ‘virtual’ connection to the University network—this allows you to access the University’s restricted site remotely. For information on how to use VPN on your own computer, and to install the necessary software, go to <http://www.oucs.ox.ac.uk/network/vpn/> Alternatively, see the Mathematical Institute’s IT Notices page// <https://www.maths.ox.ac.uk/members/it/faqs/undergrads> .

Various colleges and departments, including the Faculty of Philosophy, provide broadband wireless access to the University network via the Oxford Wireless LAN (OWL) or “Bodleian-Libraries” (the Libraries’ wireless service). For information on how to use OWL on your laptop in places where OWL is provided, go to <http://www.oucs.ox.ac.uk/network/wireless/> For information on wireless in library reading rooms, see [http://www.bodleian.ox.ac.uk/sers/support\\_ouls/wireless2](http://www.bodleian.ox.ac.uk/sers/support_ouls/wireless2).

## 4 The Language Centre

The *Language Centre* provides resources and services for members of the University who need foreign languages for their study, research or for personal interest, and also to improve English language skills.

Language courses in 10 languages, the Language Library (consisting of over 13,000 textbooks with accompanying audio-visual material in over 180 languages) and its study area (computer-based learning resources and audio/video study rooms) are available to junior members of the University pursuing a course. Those in possession of a University Card must present it when they register at the Centre. You can find more information at <http://www.lang.ox.ac.uk/>

There may be an opportunity for Mathematics and joint schools students who have studied some French, German or Spanish to take a course in the third or fourth year. This will not count towards your degree class but you will receive a certificate upon passing the course.

## 5 University lectures

University **lectures** in all subjects are open to all students. A consolidated **lecture list** is available on the University website at:

<http://www.ox.ac.uk/students/academic/lectures/>.

Seminars and colloquia given in the Mathematical Institute, often by mathematicians of international repute, are announced on the departmental notice boards; although usually aimed at faculty and research students, all interested in the subject are welcome to attend.

## 6 Careers

Careers guidance is provided by the *Careers Service*, and at a personal level by college tutors. Careers advisers carry out guidance interviews with students, discussing with them their skills and aspirations. The Careers Service also provides training in writing applications, interview techniques and analysis of transferable skills. In addition the Careers Service provides information about occupations and employers and advertises work experience opportunities.

Members of the Faculty who have taught you are usually willing to provide support and references. For those interested in a mathematically-based career, the Careers Service provides a link-person, who has expertise in areas where mathematicians (including students of Mathematics & Philosophy) are often in demand, for example, in finance careers. College tutors are regularly updated on Careers Service activities.

In addition to its general programme, the Careers Service runs an annual 'Jobs for Mathematicians' half-day, in collaboration with the Mathematical Institute. At this event there are talks from alumni currently working in jobs suitable for mathematicians. The event also helps students consider their transferable skills. You can find more information at <http://www.careers.ox.ac.uk>. The Mathematics Undergraduate Representation Committee (MURC) has set up an emailing list for careers and studentship information. If you wish to receive such information you should sign up. You can do this by sending a blank message to [murc-jobs-join@maths.ox.ac.uk](mailto:murc-jobs-join@maths.ox.ac.uk). The system will confirm your request and once that is completed you will be registered to receive careers information.

A significant proportion of students continue on to further study after completing their undergraduate degree. A talk on postgraduate study is included in the annual 'Jobs for Mathematicians' event and further information about postgraduate study opportunities at the Mathematical Institute can be found at <https://www.maths.ox.ac.uk/study-here/postgraduate-study>. Your college tutors will also be able to provide guidance and support.

If you are considering graduate work in philosophy, and in particular if you are considering taking Oxford's flagship 2-year taught graduate course in philosophy, the BPhil, then your attention is drawn to II.??, concerning the financial implications of choices you might wish to make.

## 7 Student support and Welfare

### 7.1 College support

Your college tutors in Mathematics and in Philosophy will provide you with support and guidance on your academic work.

You will almost certainly also be assigned a Personal Tutor or Advisor (who may be one of your College Tutors) concerned with your personal welfare and to whom you can turn for support and advice on non-academic matters.

In addition, in your college there will be a number of other people to whom students may turn for advice and support: for instance Senior Tutor, Dean, Junior Dean, Chaplain, College Counsellor, College Doctor and Nurse.

You can expect that the JCR (or equivalent student body) in your college will provide support for undergraduates from within its ranks. The JCR will elect one or two Welfare Officers, who will usually be second or third year students who will be happy to help, advise, or just listen. Other JCR Officers, such as a Women's Officer, may also be helpful in some cases.

[Note that the way welfare provision is organised varies in its details from one college to another (so that, for example, a college without a Chaplain is likely to appoint in lieu a person providing pastoral support). Your College Handbook, or other college documentation or college website, will contain information on student support.]

### 7.2 Other sources of support

**Nightline:** This is a confidential anonymous listening service run by and for Oxford students, and open 8pm–8am in term-time. You can phone them (Tel. (2)70270) or visit their offices at 16 Wellington Square. See <http://users.ox.ac.uk/~nightln/> for more information.

**University Student Counselling Service:** The University has a professionally-staffed confidential Student Counselling Service for assistance with personal, emotional, social, and academic problems. The service is available free to all matriculated undergraduate members of the University and contact details can be found at <http://www.admin.ox.ac.uk/shw/counserv.shtml> .

For further assistance on welfare provision and related matters consult the Proctors' and Assessor's Memorandum <http://www.admin.ox.ac.uk/proctors/info/pam/index.html>

and

[http://www.ox.ac.uk/current\\_students/equality\\_health\\_welfare/index.html](http://www.ox.ac.uk/current_students/equality_health_welfare/index.html),

where links are given to information on health and welfare issues, financial matters, student support services, and more.

### 7.3 Provision for special needs

The University operates a Code of Practice to provide equality of opportunity for those with special needs/disabilities. The University and the colleges are committed to making arrangements to enable students with disabilities to participate as fully as possible in student life. The University's Equality and Diversity Unit is responsible for considering the issues facing disabled staff and students of the University, improving access to University buildings for people with impaired mobility, and providing support to disabled staff and students. Detailed information about provision and sources of assistance, including the University's Disability Statement and the Access Guide for People with Disabilities which gives details about the accessibility of most University buildings, can be accessed at <http://www.admin.ox.ac.uk/eop/> Further information and advice is available from the University Disabilities Advisory Service by email to [disability@admin.ox.ac.uk](mailto:disability@admin.ox.ac.uk) or by telephoning 01865 (2)80459.

Local information on access resources can be found from the following sources.

#### **Philosophy**

See the Philosophy Faculty website at <http://www.philosophy.ox.ac.uk> . The Disability Co-ordinator for the Philosophy Faculty is Dr Hilla Wait. Observations or complaints concerning disablement issues

should be addressed via college or departmental disability contacts—details can be obtained from the University Disability Office or from websites.

### **Mathematics**

See the Mathematical Institute Departmental Disability Statement reproduced in VII.D.1.

For details of provision and sources of information for students with disabilities, see the University's Code of Practice on equal opportunities given in VI.5 and the Mathematical Institute Departmental Disability Statement in VII.D.1.

## **8 Contact points (for 2014–2015)**

### **Mathematical Institute**

**Director of Undergraduate Studies** Dr Richard Earl (tel: (6)15202)  
email: [director-ugrad-studies@maths.ox.ac.uk](mailto:director-ugrad-studies@maths.ox.ac.uk)

**Academic Administrator** Mrs Charlotte Turner-Smith (tel: (6)15203)  
email: [academic.administrator@maths.ox.ac.uk](mailto:academic.administrator@maths.ox.ac.uk)

**Deputy Academic Administrator** Mrs Helen Lowe (tel: (6)15204)  
email: [loweh@maths.ox.ac.uk](mailto:loweh@maths.ox.ac.uk)

**Academic Assistant** Miss Nia Roderick (tel: (6)15205)  
email: [roderick@maths.ox.ac.uk](mailto:roderick@maths.ox.ac.uk)

**Chair of the Mathematics Projects Committee** Dr Richard Earl (tel:( 6)15202)  
email: [earl@maths.ox.ac.uk](mailto:earl@maths.ox.ac.uk)

### **Faculty of Philosophy**

**Director of Undergraduate Studies** Dr David Wallace (MT14) (tel: (2)77713)  
email: [david.wallace@philosophy.ox.ac.uk](mailto:david.wallace@philosophy.ox.ac.uk)  
Prof Gonzalo Rodriguez-Pereyra (HT15, TT 15) (tel: (2)76577)  
email: [gonzalo.rodriguez-pereyra@philosophy.ox.ac.uk](mailto:gonzalo.rodriguez-pereyra@philosophy.ox.ac.uk)

**Undergraduate Studies Administrator** Mr James Knight (tel: (2)76925)  
email: [james.knight@philosophy.ox.ac.uk](mailto:james.knight@philosophy.ox.ac.uk)

**Secretarial Assistant** Ms Sally Baume (tel: (2)76926)  
email: [sally.baume@philosophy.ox.ac.uk](mailto:sally.baume@philosophy.ox.ac.uk)

### **MURC**

#### **General**

webpage: <http://people.maths.ox.ac.uk/~murc/>

**President** David Abed, New College  
email: [david.abed@new.ox.ac.uk](mailto:david.abed@new.ox.ac.uk)

### **Invariants**

#### **General**

webpage: <http://www.invariants.org.uk>

**President** Oliver Verran, Brasenose College  
email: [president@invariants.org.uk](mailto:president@invariants.org.uk)



## General

**Careers Service Enquiries** (tel: (2)74646)

email: [reception@careers.ox.ac.uk](mailto:reception@careers.ox.ac.uk)

**Website** <http://www.careers.ox.ac.uk/>

**Disabilities Office** (tel: (2)80459)

email: [disability@admin.ox.ac.uk](mailto:disability@admin.ox.ac.uk)

**Counselling Service** (tel: (2)70300)

email: [counselling@admin.ox.ac.uk](mailto:counselling@admin.ox.ac.uk)

**Proctors' Office** (tel: (2)70090)

email: [proctors.office@proctors.ox.ac.uk](mailto:proctors.office@proctors.ox.ac.uk)

**Equal Opportunities Officer** (tel: (2)89825)

email: [equal.opportunities@admin.ox.ac.uk](mailto:equal.opportunities@admin.ox.ac.uk)

**Accessible Resources Acquisition and Creation Unit** (tel: (2)83862)

email: [aracu@bodleian.ox.ac.uk](mailto:aracu@bodleian.ox.ac.uk)

**Oxford University Student Union, Vice President (Welfare)** (tel: (2)88452)

email: [welfare@ousu.ox.ac.uk](mailto:welfare@ousu.ox.ac.uk)

## 9 Useful 'Web' addresses

Mathematical Institute

<http://www.maths.ox.ac.uk/>

Faculty of Philosophy

<http://www.philosophy.ox.ac.uk/>

Department of Statistics

<http://www.stats.ox.ac.uk/>

Department of Computer Science

<http://www.cs.ox.ac.uk//>

Lecture timetables

<http://www.maths.ox.ac.uk/members/students/lecture-lists>

Information about remote access to the University restricted pages (VPN service)

<http://www.maths.ox.ac.uk/members/it/faqs/undergrads>

Archive of past exam papers 2000–2014

<http://www.oxam.ox.ac.uk/>

Unofficial archive of past exam papers 1991–2014

<https://www.maths.ox.ac.uk/members/students/undergraduate-courses/examinations-assessments/past-papers>

Examiners' reports 2000-2014

<https://www.maths.ox.ac.uk/members/students/undergraduate-courses/examinations-assessments/examiners-reports>

*How do Undergraduates do Mathematics?* Notes by Charles Batty

<http://www0.maths.ox.ac.uk/files/study-guide/index.shtml>

Information on the *Joint Consultative Committee for Undergraduates*

<https://www.maths.ox.ac.uk/members/students/undergraduate-courses/undergraduate-representation/jccu>

*Joint Committee for Mathematics and Philosophy* Minutes

<https://www.maths.ox.ac.uk/members/governance/committees/jcmp>

## Part VI

# University Policies and Other Important Documents

An A to Z of University regulations, codes of conduct and policies is at <http://www.ox.ac.uk/students/academic/regulations/a-z>. Particular attention is drawn to the following University and Departmental policies.

## 1 Essential Information for Students

The Proctors and Assessor have produced a booklet called **Essential Information for Students** which you will be given by your college. It is also available at <http://www.admin.ox.ac.uk/proctors/info/>. This contains general information about health and welfare matters; the Student Union; residence; sport and recreation; intellectual property; safety and security. It is a source of information about the University's academic support services including the University Language Centre and Careers Services. The booklet also gives the University's formal, statutory rules and requirements in relation to Conduct of Examinations, Harassment, Freedom of Speech and explains complaints and appeals procedures. It is important for you to read this booklet in conjunction with the **handbook** for your course.

## 2 Plagiarism

Below is an extract from the University's guidance on what constitutes plagiarism and how to avoid it. The full guidance can be found at <http://www.ox.ac.uk/students/academic/guidance/skills/plagiarism>.

### What is plagiarism?

Plagiarism is the copying or paraphrasing of other people's work or ideas without full acknowledgement. Intentional plagiarism may incur severe penalties, including failure of your degree.

### Why does plagiarism matter?

All published and unpublished material, whether in manuscript, printed or electronic form, is covered under the term plagiarism. Collusion is another form of plagiarism involving the unauthorised collaboration of students (or others) in a piece of work. Plagiarism is a breach of academic integrity. It is a principle of intellectual honesty that all members of the academic community should acknowledge their debt to the originators of the ideas, words, and data which form the basis for their own work. Passing off another's work as your own is not only poor scholarship, but also means that you have failed to complete the learning process. Deliberate plagiarism is unethical and can have serious consequences for your future career.

### What forms can plagiarism take?

The necessity to reference applies not only to text, but also to other media, such as computer code, illustrations, graphs etc. It applies equally to published text drawn from books and journals, and to unpublished text, whether from lecture handouts, theses or other students' essays. You must also attribute text or other resources downloaded from websites. Various forms of plagiarism include:

- **Verbatim quotation without clear acknowledgement.** Quotations must always be identified as such by the use of either quotation marks or indentation, with adequate citation. It must always be apparent to the reader which parts of your assessment are your own work and where you have drawn on someone else's ideas and language.

- **Paraphrasing.** Paraphrasing the work of others by altering a few words and changing their order or by closely following the structure of their argument, is plagiarism because you are deriving your words and ideas from their work without giving due acknowledgement.

Even if you include a reference to the original author in your own text you are still creating a misleading impression that the paraphrased wording is entirely your own. It is better to write a brief summary of the author's overall argument in your own words than to paraphrase particular sections of his or her writing. This will ensure you have a genuine grasp of the argument and will avoid the difficulty of paraphrasing without plagiarising. You must also properly attribute all material you derive from lectures.

- **Cutting and pasting from the Internet.** Information derived from the Internet must be adequately referenced and included in the bibliography. It is important to evaluate carefully all material found on the Internet, as it is less likely to have been through the same process of scholarly peer review as published sources.
- **Collusion.** This can involve unauthorised collaboration between students, failure to attribute assistance received, or failure to follow regulations on group work projects. It is your responsibility to ensure that you are entirely clear about the extent of collaboration permitted, and which parts of the work must be your own.
- **Inaccurate citation.** It is important to cite correctly, according to the conventions of your discipline. Additionally, you should not include anything in a footnote or bibliography that you have not actually consulted. If you cannot gain access to a primary source you must make it clear in your citation that your knowledge of the work has been derived from a secondary text (for example, Bradshaw, D. Title of Book, discussed in Wilson, E., Title of Book (London, 2004), p. 189).
- **Failure to acknowledge.** You must clearly acknowledge all assistance which has contributed to the production of your work, such as advice from fellow students, laboratory technicians, and other external sources. This need not apply to the assistance provided by your tutor or supervisor, nor to ordinary proofreading, but it is necessary to acknowledge other guidance which leads to substantive changes of content or approach.
- **Professional agencies.** You should neither make use of professional agencies in the production of your work nor submit material which has been written for you. It is vital to your intellectual training and development that you should undertake the research process unaided.
- **Autoplagiarism.** You must not submit work for assessment which you have already submitted (partially or in full) to fulfil the requirements of another degree course or examination, unless this is specifically provided for in the special regulations for your course.

## What happens if you are suspected of plagiarism?

The regulations regarding conduct in examinations apply equally to the submission and assessment of a thesis, dissertation, essay, or other coursework not undertaken in formal examination conditions, but which counts towards or constitutes the work for a degree or other academic award'. Additionally, this includes the transfer and confirmation of status exercises undertaken by graduate students. Cases of suspected plagiarism in assessed work are investigated under the disciplinary regulations concerning conduct in examinations. Intentional or reckless plagiarism may incur severe penalties, including failure of your degree or expulsion from the university.

If plagiarism is suspected in a piece of work submitted for assessment in an examination, the matter will be referred to the Proctors. They will investigate the claim and summon the student concerned for interview. If at this point there is no evidence of a breach of the regulations, no further action will be taken. However, if it is concluded that an intentional or reckless breach of the regulations has occurred, the Proctors will refer the case to one of two disciplinary panels.

### **3 Policy on Intellectual Property Rights**

The University in its Statutes claims ownership of certain forms of intellectual property which students create in the course of, or incidentally to, their studies. There are arrangements in the University's regulations for protecting and exploiting this property, and sharing the commercial exploitation revenues with the student originators. By accepting a place at Oxford and signing the Student Contract with the University, you agree to be legally bound by these provisions. The regulations relating to intellectual property can be found on the University website at [www.admin.ox.ac.uk/rso/ip](http://www.admin.ox.ac.uk/rso/ip).

### **4 Code on Harassment**

The Mathematical Institute has appointed two senior members who may be consulted in connection with the University's Code on Harassment. Details are posted in reception in The Mathematical Institute.

### **5 Disabilities and Equal Opportunities**

The University is committed to making arrangements where appropriate to enable students with disabilities to participate fully in student life. Please see the University's Equal Opportunities Statement available at <http://www.admin.ox.ac.uk/eop/missionstatement/integratedequalitypolicy/>, and the Mathematics Departmental Disability Statement in Appendix VII.D.1.

### **6 Safety**

You are urged to act at all times responsibly, and with a proper care for your own safety and that of others. Departmental statements of safety policy are posted in all departments, and you must comply with them. Students should note that they (and others entering onto departmental premises or who are involved in departmental activities) are responsible for exercising care in relation to themselves and others who may be affected by their actions.

They should also note that in the Institute accidents should be reported immediately to Reception, telephone 73525, who keep the accident book. There is a First Aid room located on the ground floor of the South wing. If you require access to this room please report to reception.

Each lecture theatre has its own regulations for procedures to be followed in the case of fire or other emergency; you are urged to familiarise yourself with the proper escape routes. The escape routes from the Mathematical Institute lecture and seminar rooms, where most of your lectures will be held, are set out in the emergency exit procedure which is displayed in the Mathematical Institute. In the case of evacuation of the lecture theatre give heed to the instructions of the lecturer.

## Part VII

# Appendices

## A Courses offered in 2014–2015

**Preliminary Examinations: programme of lectures** (all subjects compulsory)

### Mathematics

#### Michaelmas Term

Introduction to University Mathematics	8 lectures
Introduction to Complex Numbers	2 lectures
Linear Algebra I	14 lectures
Analysis I	14 lectures
Introductory Calculus	16 lectures
Probability	16 lectures

#### Hilary Term

Linear Algebra II	8 lectures
Groups and Group Actions I	8 lectures
Analysis II	16 lectures

#### Trinity Term

Groups and Group Actions II	8 lectures
Analysis III	8 lectures

### Philosophy

#### Michaelmas Term

Introduction to Logic	8 lectures
General Philosophy	8 lectures

#### Hilary Term

Elements of Deductive Logic	8 lectures
General Philosophy	8 lectures

#### Trinity Term

Frege, Foundations of Arithmetic	8 lectures
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## Part A: programme of lectures

**Core** (all subjects compulsory)

#### Michaelmas Term

A1: Algebra I (Linear Algebra)	16 lectures
A2: Metric Spaces and Complex Analysis	32 lectures

### Options

Courses covered by 16 lectures are Long Options, those covered by 8 lectures are Short Options.

### **Michaelmas Term**

Probability 16 lectures

### **Hilary Term**

Algebra 16 lectures

Integration 16 lectures

Topology 16 lectures

Integral Transforms 8 lectures

### **Trinity Term**

Number Theory 8 lectures

Algebra 3 8 lectures

Projective Geometry 8 lectures

Multivariable Differentiation 8 lectures

Calculus of Variations 8 lectures

Graph Theory 8 lectures

Special Relativity 8 lectures

For information on additional courses available by special approval see III.5.2.

## **Part B**

### **Mathematics: list of units**

See also the Supplement to the Mathematics & Philosophy Handbook for Part B 2014-15.

(B1.1 and B1.2 are compulsory)

### **Schedule 1 (standard units)**

The following are units unless otherwise stated.

B1.1 Logic

B1.2 Set Theory

B2.1 Introduction to Representation Theory

C2.6 Commutative Algebra

B3.1 Galois Theory

B3.2 Geometry of Surfaces

B3.3 Algebraic Curves

B3.4 Algebraic Number Theory (if you wish to offer B3.4 you must also offer B3.1)

B3.5 Topology and Groups

B4.1 Banach Spaces

B4.2 Hilbert Spaces (if you wish to offer B4.2 you must also offer B4.1)

B8.1 Martingales Through Measure Theory

B8.2 Continuous Martingales and Stochastic Calculus

B8.4 Communication theory

B8.5 Graph Theory

SB3a Applied Probability

### **Schedule 2 (additional units and double-units)**

The following are single unless otherwise stated.

BEE	“Mathematical” Extended Essay	double unit
BO1.1	History of Mathematics	double unit
BOE	“Other Mathematical” Extended Essay	double unit
OCS1	Lambda Calculus and Types	
OCS2	Computational Complexity	
OCS3	Knowledge Representation and Reasoning	
OCS4	Computer-aided Formal Verification	
BN1.2	Undergraduate Ambassadors’ Scheme	

And also

Any other unit or double-unit course from the list of Mathematical Institute units in Part B for which special approval has been granted.

**Philosophy** (Subject **122** is compulsory and at least one of subjects **101** and **102** must be chosen)

- 101 Early Modern Philosophy
- 102 Knowledge and Reality
- 103 Ethics
- 104 Philosophy of Mind
- 106 Philosophy of Science and Social Science
- 107 Philosophy of Religion
- 108 The Philosophy of Logic and Language
- 109 Aesthetics and the Philosophy of Criticism
- 110 Medieval Philosophy: Aquinas
- 111 Medieval Philosophy: Duns Scotus and Ockham
- 112 The Philosophy of Kant
- 113 Post-Kantian Philosophy
- 114 Theory of Politics
- 115 Plato, *Republic*
- 116 Aristotle, *Nicomachean Ethics*
- 117 Frege, Russell, and Wittgenstein
- 118 The Later Philosophy of Wittgenstein
- 120 Intermediate Philosophy of Physics
- 122 Philosophy of Mathematics
- 124 Philosophy of Science
- 125 Philosophy of Cognitive Science
- 127 Philosophical Logic - *first examination in 2015*
- 199 Thesis

## Part C

### Mathematics

See also the Supplement to the Mathematics & Philosophy Handbook for Part C 2014-15.

The following are single units unless otherwise stated.

**C1.1** Model Theory

**C1.2** Gödel’s Incompleteness Theorems

**C1.3** Analytic Topology

**C1.4** Axiomatic Set Theory  
**C2.1** Lie Algebras  
**C2.2** Homological Algebra  
**C2.3** Representation Theory of Symmetric Groups  
**C2.4** Infinite Groups  
**C2.5** Non-Commutative Rings  
**C2.6** Commutative Algebra  
**C3.1** Algebraic Topology  
**C3.2** Geometric Group Theory  
**C3.3** Differentiable Manifolds  
**C3.4** Algebraic Geometry  
**C3.5** Lie Groups  
**C3.6** Modular Forms  
**C3.7** Elliptic Curves  
**C3.8** Analytic Number Theory  
**C4.1** Functional Analysis  
**C4.2** Linear Operators  
**C8.1** Stochastic Differential Equations  
**C8.3** Combinatorics  
**CCD** Dissertations on a Mathematical Topic (unit or double unit)  
**CCS1** Categories, Proofs and Processes  
**CCS2** Quantum Computer Science  
**CCS3** Automata, Logic and Games  
**COD** Dissertations on a Mathematically related Topic (unit or double unit)

And also

Any other unit or double unit course from the list of Mathematics Department units for which special approval has been granted.

### **Philosophy**

As for Part B, except for

- the exclusion of Subject 122;
- the addition of Subject 180 **The Rise of Modern Logic**;
- the substitution of an M-level Thesis for Subject 199.



## B Documents produced by the Faculty of Philosophy

### B.1 Informal Descriptions of FHS Philosophy Courses

The Informal descriptions of all the subjects for examination in Honour Schools with Philosophy (apart from 180: see below) are available on the Faculty of Philosophy website:

[http://www.philosophy.ox.ac.uk/undergraduate/course\\_descriptions](http://www.philosophy.ox.ac.uk/undergraduate/course_descriptions)

They should be read in conjunction with the official stipulation of the examination syllabus of each of these subjects in the *Examination Regulations* 2014, pp. 399 - 408.

It is helpful in understanding what a subject encompasses also to look at past exam papers set for that subject (in doing this you may need to check if the past paper you are looking at was set on the present syllabus, and be aware if not how the syllabus in force when that paper was set differs from the current one). Past exam papers are available on the University's website from Oxford Examination Papers Online (OXAM) <http://www.oxam.ox.ac.uk/main.asp>.

Please be aware that the informal description for the Part C option *The Rise of Modern Logic* is not included online.

#### 180: The Rise of Modern Logic

The period of scientific thought to be covered is 1879 to 1931 and includes principally the logical and foundational works of Frege, Russell, Hilbert, Brouwer, and Gödel that fall within this period. Questions may also be asked concerning Cantor, Dedekind, Poincaré, Zermelo, Skolem, Wittgenstein (Tractatus only), and Ramsey.

Most of the relevant material is contained in Jean van Heijenoort (ed.), *From Frege to Gödel. A Source Book in Mathematical Logic, 1879–1931* (Harvard University Press).

The Rise of Modern Logic is a bridge paper for this joint school. Mathematics and Philosophy fourth years are very well prepared for it having already studied B1 Foundations and 122 Philosophy of Mathematics. For someone with interests in this area a particularly good combination is this paper with some or all of the M-Level Logic courses in Mathematics, Gödel's Incompleteness Theorems, Axiomatic Set Theory, and Model Theory.

### B.2 Aims and Objectives common to all undergraduate degree courses with Philosophy in Oxford

The Faculty of Philosophy shares the University's general aims as found in its Mission Statement.

In providing teaching in Philosophy it aims, by drawing on the strengths of the University and of its constituent Colleges, to provide a high-quality education, one which enriches the student's knowledge and understanding of fundamental issues.

Undergraduates may study Philosophy in Oxford as a degree subject in one of seven Joint Honours programmes. Their common aims are:

- (1) to offer a structured but flexible programme of studies, one which entails the demands and the benefits of studying Philosophy in tandem with another discipline, and which allows study of an interdisciplinary nature;
- (2) to develop in students qualities and skills of value to them in their professional and personal life;
- (3) to attract and select high calibre students in the context of the University's policy on equal opportunities.

For all programmes it aims to appoint research-active staff to contribute their knowledge and skills to the teaching programmes.

### **OBJECTIVES**

*At all levels students will enjoy a challenging education in Philosophy. They will:*

- (1) have developed the ability to read carefully and with sensitivity to context philosophical texts of different ages and/or traditions, through following a guided programme of regular reading assignments;
- (2) have been required to develop and to present (usually in writing) to their tutor/supervisor their own critical understanding of the issues studied;
- (3) have learned to engage in critical dialogue with their tutors and peers during regular tutorials, i.e. meetings between an expert tutor and one, two or occasionally three students, at which the participants' views are discussed, and have benefited from the oral and/or written feedback on their work for tutorials;
- (4) have enjoyed, through the University and their College, access to excellent library holdings and a good range of IT resources, and have learned to use libraries effectively;
- (5) have had the opportunity to attend lectures and/or seminars (many given by leading researchers) both within and outside their chosen options, together with a range of special lectures and Philosophy society meetings.

*Through the above they will:*

- (6) have acquired knowledge and understanding of philosophy;
- (7) have developed the ability to think critically, to look for underlying principles, to identify and analyse key concepts;
- (8) have developed independence of approach, good writing skills, a facility for independent learning and investigation, and good organisational skills.

*In addition they will:*

- (9) have had the opportunity to participate in a wide range of extra-curricular activities at College and University level to stimulate personal development;
- (10) have received sustained academic support from their tutors and pastoral support where appropriate from other providers;
- (11) have had the opportunity of appropriate careers advice.

**Undergraduate Programmes** All seven programmes are multi-disciplinary. Three of them, (Physics/Phil, Maths/Phil, and Phil/Theol) require interdisciplinary study. Appropriate 'bridge subjects' are available for each of the other programmes, but are not required. For their first year examination(s) in Philosophy students will have:

- (1) pursued a course which introduces them to central philosophical texts and issues, and enables them to acquire key philosophical skills and concepts. After the first examinations students work towards Finals. On completion, all will have:
- (2) taken an active role in planning a path through their programme, selecting subjects within each discipline and the balance between Philosophy and the other discipline(s), and will have benefited from the simultaneous study of both disciplines at a higher level;
- (3) developed enhanced precision of thought and expression in the analysis of problems and in the construction and marshalling of arguments;
- (4) received regular feedback through tutorials and regular reports, together with College examinations where considered appropriate, to enable them to assess their progress and identify strengths and weaknesses;
- (5) taken the Final written examinations in up to five Philosophy subjects at a time, thus enjoying the benefit of a mature understanding and possible cross-fertilisation between subjects.

## C Qualitative Class Descriptors for Examinations

### Qualitative description of examination performance in Mathematics

- *First Class*: the candidate shows excellent skills in reasoning, deductive logic and problem-solving. He/she demonstrates an excellent knowledge of the material, and is able to use that in unfamiliar contexts.
- *Upper Second Class*: the candidate shows good or very good skills in reasoning, deductive logic and problem-solving. He/she demonstrates a good or very good knowledge of much of the material.
- *Lower Second Class*: the candidate shows adequate basic skills in reasoning, deductive logic and problem-solving. He/she demonstrates a sound knowledge of much of the material.
- *Third Class*: the candidate shows reasonable understanding of at least part of the basic material and some skills in reasoning, deductive logic and problem-solving.
- *Pass*: the candidate shows some limited grasp of at least part of the basic material.  
[Note that the aggregation rules in some circumstances allow a stronger performance on some papers to compensate for a weaker performance on others.]
- *Fail*: little evidence of competence in the topics examined; the work is likely to show major misunderstanding and confusion, coupled with inaccurate calculations; the answers to questions attempted are likely to be fragmentary only.

### Qualitative description of examination performance in Philosophy

The standard of work for the various classes is specified in the following terms.

- **Class I** 100 to 70

Markers are encouraged to use First Class marks divisible by 3 as initial marks. Agreed marks can be any marks within the First Class range, e.g. initial marks of 72 and 75 might result in an agreed mark of 74.

- Upper: 84+

- Exceptional answer displaying originality, outstanding analytical and argumentative skills, superior command of the facts and arguments relevant to the question, excellent organisation, and lucid and precise expression.

- Middle: 81, 78

- Excellent answer offering high-level analysis, independent and rigorous argument, skilled handling of the facts and arguments relevant to the question, transparent organisation, and lucid and precise expression.

- Lower: 75, 72

- Strong answer displaying a high standard of analysis and argument, a thorough command of the facts and/or arguments relevant to the question, transparent organisation and clear language.

- **Class II.1** 69-60

- Upper: 69 to 65

- Strengths: Effective analysis and argumentation, thorough command of evidence, clarity of expression, transparent organisation of material.

- Weaknesses: Occasional imprecision in argumentation or expression; or lack of depth; or minor omissions; or lapses in focus.

- Lower: 60-64  
Strengths: Well-structured answer offering a generally accurate analysis of central arguments and themes, and a well-reasoned conclusion.  
Weaknesses: Occasional lapses in argumentation; writing may be somewhat pedestrian or unclear or imprecise; some omissions or infelicity in organisation of material.
- **Class II.2** 50-59
  - Upper: 59 to 55  
Strengths: Adequate, if somewhat basic, analysis and understanding of key concepts and arguments.  
Weaknesses: Significantly lacking in scope, depth or precision; flat or pedestrian representation of thoughts and arguments; important inaccuracies or omissions; some lapses in argumentation.
  - Lower: 50-54  
Strengths: Answer showing a basic grasp of relevant material and arguments, and a fair attempt to arrive at a reasoned conclusion.  
Weaknesses: Serious inaccuracies or omissions; significant lapses in argumentation (e.g. nonsequiturs, misuse of concepts or evidence); failure to digest material; minor irrelevance.
- **Class III** 49-40
  - Upper: 49 to 45  
Strengths: Limited answer to the question; constructs a rudimentary argument; some evidence of relevant study.  
Weaknesses: Superficial or incomplete treatment; some gaps or mistakes in understanding of key concepts and arguments; poor focus and organisation; some irrelevance.
  - Lower: 40-44  
Strengths: Significant elements of a basic and relevant answer.  
Weaknesses: Muddled argumentation, very superficial discussion with poor focus, significant misunderstanding of key concepts and arguments; considerable irrelevance; seriously incomplete answer.
- **Pass** 39 to 30  
Strengths: Limited attempt to address question showing a rudimentary grasp of some relevant information.  
Weaknesses: Very incomplete, brief, or poorly organised answer; fundamental misunderstanding of key arguments or ideas; large portions of discussion irrelevant or tangential.
- **Fail** 0-29
  - Upper: 15-29  
Strengths: Some slight evidence of a proper attempt to answer question; glimpse of relevant material.  
Weaknesses: Extremely limited and inadequate answer, for instance in note form; discussion mostly irrelevant.
  - Lower 0-14:  
Weaknesses: Completely or almost completely irrelevant or ignorant answer. Nothing or almost nothing written.

## D Departmental policy documents

### D.1 Mathematical Institute Departmental Disability Statement

The Institute will do everything within its power to make available its teaching and other resources to students and others with disabilities to ensure that they are not at a disadvantage. In some cases, this may require significant adjustments to the building and to teaching methods. Those with disabilities are encouraged to discuss their needs with the Academic Administrator [tel: 01865 615203, email [academic.administrator@maths.ox.ac.uk](mailto:academic.administrator@maths.ox.ac.uk)] at the earliest possible opportunity.

The Executive Committee is responsible for the department's disability policy.

The Academic Administrator will notify those directly involved with teaching and scheduling lectures. For instance, students with visual impairment might have lectures in rooms with whiteboards; students who are hard of hearing might have their lectures scheduled in a room with an induction loop. In some instances, it may be possible for lecturers to provide students with lecture notes, even when they are not posted on the Mathematical Institute website.

### D.2 Mathematical Institute Complaints—Complaints within the Department

Undergraduates with a complaint should first normally discuss it with their college tutor.

If the concern or complaint relates to teaching or other provision **made by the faculty/department** then the student should raise it with the Director of Undergraduate Studies. Within the faculty/department the officer concerned will attempt to resolve your concern/complaint informally and as speedily as possible.

Students may also contact their student representatives for informal support on MURC and the Joint Consultative Committee for Undergraduates.

In thinking about causes of concern/complaint, please bear in mind that the first step if at all possible is to raise the matter that is troubling you with the person who is immediately responsible. If this is difficult, then many sources of advice are available within colleges, within faculties/departments and from bodies like OUSU or the Counselling Service, which have extensive experience in advising students. General areas of concern about provision affecting students as a whole should, of course, continue to be raised through Joint Consultative Committees via student representation on the faculty/department's committees.

If your concern or complaint relates to teaching or other provision **made by your college**, then you should raise it with your tutor or with one of the college officers, e.g. Senior Tutor. Your college will also be able to explain how to take your complaint further if you are dissatisfied with the outcome of its consideration.

In the rare instances where you are dissatisfied with the outcome of a complaint, and all other avenues listed above have been explored, then you may take your concern further by making a formal complaint to the University Proctors. A complaint may cover aspects of teaching and learning (e.g. teaching facilities, supervision arrangements etc), and non-academic issues (e.g. support services, library services, university accommodation, university clubs and societies, etc.) A complaint to the Proctors should be made only if attempts at informal resolution have been unsuccessful.

Further information can be obtained from the Proctors Memorandum.