



DEPARTMENT OF
**COMPUTER
SCIENCE**

MSc ADVANCED COMPUTER SCIENCE
COURSE HANDBOOK 2021-22

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1. Preface

This Course Handbook applies to MSc in Advanced Computer Science students starting the course in Michaelmas term 2021. The information in this handbook may be different for students starting the course in other years.

The information here is designed to be general and relevant throughout your time at Oxford; further information on courses, practicals and projects will be given to you and/or made available on our web pages at appropriate times.

The Examination Regulations relating to this course are available at <https://examregs.admin.ox.ac.uk>.

If there is a conflict between information in this handbook and the Examination Regulations then you should follow the Examination Regulations. If you have any concerns please contact Lucy Traves at graduate.studies@cs.ox.ac.uk

The information in this handbook is accurate as at October 2021, however it may be necessary for changes to be made in certain circumstances, as explained at www.graduate.ox.ac.uk/coursechanges webpage. If such changes are made the department will publish a new version of this handbook together with a list of the changes and students will be informed.

Comments on the contents of this handbook are always welcome, so please do not hesitate to send a note to any of us if you can think of ways to improve the next issue.

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Welcome! You have chosen to study at one of the world's leading centres for the development, application and teaching of computer science. You join a rapidly expanding group of researchers, lecturers, visitors and students who have been attracted to Oxford from all over the world.

The Department of Computer Science's reputation ranges from its fundamental research into computing methods and languages through to practical solution of engineering and scientific problems on the latest highly parallel computer architectures. Our wide-ranging collaborative work with leading industries in this country has been twice recognised by the rare honour of a Queen's Award for Technological Achievement.

During your study at Oxford, we hope to share with you some of the understanding which we have gained, both by our research into basic theory and by industrial collaboration. We hope too that you will be able to share with us - and with each other - our enthusiasm for the subject, and will enjoy developing your talents in this field. The development of computing at Oxford has been heavily supported by donations and sponsorship from our industrial partners. We have devoted our best efforts to the design of the courses you will take and to the perfection of our lecturing and teaching skills; when you leave, we are confident that you will have a sound basis for a productive and rewarding career.

This handbook aims to save time by giving you a certain amount of basic information which you would otherwise have to ask for or learn by experience, but it cannot tell you all you need to know.

Given the current COVID-19 pandemic it is possible that changes will have to be made to the course and how it is delivered in order to ensure student and staff are safe and well. Any changes that are made will be communicated to you and this handbook will updated accordingly.

Do not be afraid to ask for further information or advice.

1.1 Handbook Version

Version	Action	Date
Version 1.0	Published start of MT21	

2 Supervision

You will be allocated an academic supervisor and an advisor, both of whom are usually members of academic or research staff in the Department of Computer Science. During term you are expected to remain in **close** contact with your supervisor. You should meet with your supervisor for at least half an hour per fortnight. Your supervisor is your main academic contact on the course; your advisor is an additional contact who can help if your supervisor is unavailable or if you need a second opinion.

2.1 Graduate Supervision Reporting

Graduate Supervision Reporting (GSR) was introduced in 2018 to replace the Graduate Supervision System (GSS) used by supervisors to review, and comment on their students' academic progress each term. Students are also given the opportunity to comment on their progress. Access to GSR will be via Student Self Service <https://www.ox.ac.uk/students/selfservice>. You will receive an email notification with details of how to log in at the start of each reporting window.

It is mandatory to complete a self-assessment report every reporting period. If you have any difficulty completing it, speak to your supervisor or Director of Graduate Studies (DGS). Your self-assessment report will be used by your supervisor(s) when completing a report on your performance, for identifying areas where further work may be required, and reviewing your progress against agreed timetables and plans for the term ahead. GSR will alert you by email when your supervisor or DGS completes your report and it is available for you to view.

Use this opportunity to:

- Review and comment on your academic progress during the current reporting period;
- Measure progress against the timetable and requirements of your study programme;
- Identify skills developed and training undertaken or required;
- List your engagement with the academic community;
- Raise any concerns regarding your academic progress to your supervisor;
- Outline your plans for the next term (where applicable).

Students and supervisors are reminded that having a positive student-supervisor relationship is an important factor in student success. Research suggests that one of the strongest predictors of postgraduate completion is having expectations met within the student-supervisor relationship.

Oxford's approach to graduate study emphasises the individual student's ability to work independently, to take the initiative in exploring a line of research, or in acquiring a new skill or identifying and remedying a perceived area of weakness. Your supervisor will meet you at agreed times if you encounter particular problems or difficulties that you need to discuss.

If you have any issues with teaching or supervision please raise these as soon as possible so that they can be addressed promptly.

2.2 Guidance for MSc in Computer Science Students and their Supervisors

2.2.1. Responsibilities of the supervisor:

In agreeing to supervise an MSc student, the supervisor must recognise and accept the responsibilities both to the student and to the divisional board. Supervisors should aim to meet with their new students ideally in 0th week but no later than the end of week 1.

The supervisor is responsible for assisting the student in the selection of options and ensuring that the student has the correct background for particular courses. There must be no significant overlap with courses already completed either at Oxford or elsewhere. Students have to submit an online form by Monday of week 4 committing themselves to courses they will definitely follow. The supervisor will need to confirm this choice by an email to the Graduate Studies team. The supervisor is also responsible for advising the student about attendance at classes and requisite techniques (including helping to arrange special instruction where necessary).

The supervisor should check in with the student regularly. Times should be fixed to ensure that a busy supervisor does not inadvertently find that meetings are less frequent than the student would like, and to give sufficient time for the student to discuss the work and for the supervisor to check that certain things have been done. The supervisor should also be accessible to the student at other appropriate times when advice is needed.

The supervisor should monitor the student's progress through a combination of in-person queries and access to online reports. If a student exhibits a consistent weakness and misunderstanding, supervisors should inform the Head of Student Administration and the Director of the MSc as soon as possible so that the arrangement of extra special supervision can be authorised.

The supervisor should tell the student from time to time how well, in the supervisor's opinion, the work is progressing, and try to ensure that the student feels properly directed and able to communicate with the supervisor. It is essential that when problems arise, corrective action is clearly identified and full guidance and assistance are given to the student.

If the supervisor is unable to see a student due to unforeseen circumstances they should inform the MSc Course Administrator so that alternative arrangements can be made.

If a student regularly fails to keep appointments the supervisor should inform the MSc Course Administrator who will inform the Tutor for Graduates at the student's college and the Director of the MSc. This applies especially to project supervisions.

The supervisor is required to report on the student's work at the end of each term using GSS. Each report should state the nature and extent of recent contact with the student. The report should also make clear whether the student is making satisfactory progress.

2.2.2. Responsibilities of the student:

The student must accept his or her obligation to act as a responsible member of the University's academic community.

The student should take ultimate responsibility for his or her studies and develop an appropriate working pattern, including an agreed and professional relationship with the supervisor. The student should discuss with the supervisor the type of guidance and comment which he or she finds most helpful and agree a schedule of meetings.

The student should make appropriate use of the teaching and learning facilities available within the University. Students should make full use of the facilities for career guidance and development and should consult their supervisor for advice where appropriate.

It is the student's responsibility to seek out and follow the regulations relevant to his or her course, including faculty/departmental handbooks/notes of guidance, and to seek clarification from supervisors and elsewhere if this is necessary.

The student should not hesitate to take the initiative in raising problems or difficulties, however elementary they may seem. He or she should ensure that any problems regarding the project are drawn to the attention of the supervisor so that appropriate guidance may be offered.

If the student feels there are good grounds for contemplating a change of supervision arrangements, this should first be discussed with the supervisor or, if this is difficult, with the advisor, the Head of Student Administration or the Director of the MSc course.

The student should seek to maintain progress in accordance with the plan of work agreed with the supervisor. Both the student and the supervisor should keep a record of all formal, scheduled meetings. They may wish to agree a record of what has been discussed and decided.

The student should recognise that the supervisor may have many competing demands on his or her time. The student should give adequate notice of unscheduled meetings. The need for adequate notice also applies to requests for meetings from the supervisor.

The student should be aware that the provision of constructive criticism is central to a satisfactory supervisory relationship, and should always seek a full assessment of the strengths and weaknesses of his or her work.

Where problems arise it is essential that a student gives full weight to any guidance and corrective action proposed by the supervisor.

Students should ensure that they allow adequate time for writing up their dissertation and should not take up employment before the submission deadline. Particular attention should be paid to final proof reading.

3 MSc in Advanced Computer Science

3.1 Aims

The MSc in Advanced Computer Science at Oxford has been designed to teach a range of advanced topics and a carefully selected core of foundational subjects to graduates of computer science and other numerate disciplines.

The course aims:

- To provide a challenging and supportive learning environment that encourages high quality students to reach their full potential, personally and academically;
- To provide the foundation for a professional career in computing-based industries;
- To enhance the skills of a professional who is already working in one of these industries;
- To provide a foundation for research into the theory and computing;
- To present knowledge, experience, reasoning methods and design and implementation techniques which are robust and forward-looking.

Entrants to the course come from a variety of backgrounds. Experienced programmers in industry and commerce will be motivated by the need for formal methods to overcome the problems of unreliable and inadequate software, or may wish to extend their understanding by studying new programming and development paradigms. Recent graduates in Computer Science will want to supplement their knowledge with the kind of sound mathematical basis which is not always found in undergraduate courses. Graduates in Mathematics will want to apply their training in the context of a rigorous application of the fundamental techniques of Computer Science.

Teaching for each topic is organised into formal lectures supported by problem sheets and practicals for individual study. Feedback (to students, supervisors, the Course Director and the Head of Student Administration) is initially given through graded classwork and supervised practical sessions. Problem sheets and practical work are designed to involve a mix of creative activity and selection of appropriate knowledge to apply to particular problems. Students can build on their understanding and develop their communication skills during class discussions of the problems set.

MSc Students will develop a knowledge and understanding of a formal disciplined approach to computer science; a range of relevant concepts, tools and techniques; and the principles underpinning these techniques and the ability to apply them in novel situations.

On subsequent employment, graduates of the course will be able to select techniques most appropriate to their working environment, adapt and improve them as necessary, establish appropriate design standards and sound practices for both hardware and software, pass on these standards and sound practices to colleagues and subordinates, and keep abreast of research and development.

3.2 Induction Arrangements

In 0th week students are provided with a comprehensive online programme which includes familiarisation with the Department's Library and a separate talk about the University's Library facilities; setting up computer accounts; familiarisation with the practical facilities; online

meetings with, or recorded talks from the Head of Department, Course Director, Academic Administrator, etc.

3.3 Length of Course

This is a full-time one-year course. Students are expected to work for about 44 to 46 weeks, but outside normal term time they might be working away from Oxford.

3.4 Course Selection

We hope that you will make a suitable selection of courses from among the many interesting topics that we offer. The choice should be related to the area of your subsequent dissertation but should not overlap with courses you followed in your undergraduate degree. Students typically study three courses per term. Those intending to study four courses should exercise caution. Students are allowed to take examinations in a maximum of four courses per term.

You are required to attain an average of at least 50 (pass) on a selection of your best six courses, including at most two courses from Schedule 1 and at least four courses from Schedule II . Students may take examinations in a maximum of four courses per term.

For further information, please consult the Examination Regulations for this course:

<https://examregs.admin.ox.ac.uk>

A number of courses recommend pre-requisites: please check the relevant webpages. If you are in any doubt, consult the course lecturer or your supervisor.

It is a good idea to start discussing choices with your supervisor as soon as possible during your first week at Oxford. Your choices have to be approved by the Director of the MSc and, in this respect, there are certain deadlines laid down in the regulations to which you must adhere.

3.5 Important Dates

Written Exams

Some courses with written examinations will have examinations in the following term in week 0.

The majority of written examinations will be held in Trinity term 2021.

Mini Projects (also known as take-home assignments)

Tuesday 4 January, 12 noon (Hilary Term, week -1): online submission deadline for Michaelmas Term mini-projects.

Monday, 11 April, 12 noon (Trinity Term, week -1): submission deadline for Hilary Term mini-projects.

Tuesday 31 May, 12 noon (TBC) (Trinity Term, week 6): submission deadline for Trinity Term mini-projects.

Practical reports

Friday 26 May, 12 noon (Trinity Term, week 5): submit all of your practical reports.

Project Dissertation

Monday 28 February (Hilary Term, week 7): Submit your project dissertation registration form.

Monday 25 April (Trinity Term, week 1): You must submit an essay about the background and objectives of your project together with a plan of work. This is a strict deadline and must be adhered to. You will receive more information at the beginning of Hilary Term about the procedure for selecting your project. Your supervisor during Michaelmas and Hilary Terms will also provide you with advice. If you are experiencing particular difficulty, you should contact the MSc Course Administrator or the Academic Administrator.

Tuesday 30 August 2021, 12 noon: online submission deadline for the dissertation.

Viva

Wednesday 28 September: viva voce examination date, for those students who require on.

3.6 Hours of study

Typically a student would attend between 8 and 12 hours of lectures, 4-6 hours of practicals and 3 hours of classes a week. Please note that students are responsible for their own academic progress, and will be expected to complete 15-20 hours of private study each week. Students will be working during the vacation on their assignments and from April until the end of August students will be working on their project and dissertation.

3.6.1 Holidays

Please note that this is a full-time course and you will need to be in Oxford for most of the year. This means that you should not take on any other commitments during the year, e.g. it will not be possible for you to fit in any sort of employment. Also, before making any holiday arrangements please bear in mind that you will have to complete written assignments and possibly attend one-week options outside of normal term. You should seek advice from your

supervisor or the MSc Course Administrator/Head of Student Administration before booking holidays.

3.7 Timetables

The timetable for each term can be found on our web pages at:

www.cs.ox.ac.uk/teaching/timetables

3.8 Tutorial Classes

Each lecture course will have associated tutorial exercises and, in most cases, practical exercises as well. You are expected to attend the tutorial classes and any practical sessions for the courses you wish to follow.

The lecturer will provide you with the tutorial exercises. Your work on these exercises must be handed in by the required deadline for assessment by the person running the tutorial classes for that subject.

The timetable for these classes (and the associated deadlines) will usually be published on the Minerva database. Sign-up for classes is done entirely online at

<https://www.cs.ox.ac.uk/minerva/>

There will be multiple groups for the classes for each course.

Classes will start in week 3 and all option courses will have only four problem classes in the term. To allow for change over in rooms all classes will be 45 or 75 minutes long, starting at 5 past and finishing at 10 to the hour.

Model solutions will be provided to all students electronically after the class has taken place.

The marks from the tutorial exercises will be made available to your supervisor for information.

3.9 Assessment and feedback

Formative assessment, defined as having “a developmental purpose and is designed to help learners learn more effectively by giving them feedback on their performance and on how it can be improved and/or maintained” (Quality Assurance Agency, 2006, p.35) is achieved in the MSc in Computer Science by means of classwork (see 5.8) and practical exercises (see 5 below). The marks you receive on your class and practical work will give you and your supervisor regular feedback on your progress, help you consolidate your understanding, and identify any areas of weakness.

Where a problem is identified, additional tuition may be provided either by the supervisor or, with the Course Director’s approval, by the class tutor.

There will also be opportunities in both classes and practical sessions to receive informal feedback on your work by means of discussion with tutors or demonstrators.

Summative assessment, defined as being used to “indicate the extent of a learner’s success in meeting the assessment criteria used to gauge the intended learning outcomes of a module or programme” (QAA, 2006, p.36), of the taught part of the course is through a combination of

take-home assignments or sit-down examinations (see 6 below), where appropriate, reports on practical work, and the dissertation (see 7 below).

You will receive a University Standardised Mark (USM) for each of the take-home assignments or sit-down examinations you complete, and for the dissertation. The criteria for USMs are published in the Examination Conventions: <https://examregs.admin.ox.ac.uk>

You will receive written feedback on your dissertation after the final Examiners' meeting in September. You will also receive general feedback for your cohort for your take-home assignments (**but not for 'sit down' examinations**) each term. You are welcome to consult past Examiners' Reports to understand past cohorts' performances on individual assignments and examinations: <https://www.cs.ox.ac.uk/teaching/internal/examinersreports/MSCinCS.html>

Candidates must not contact the assessor with queries regarding feedback. Please refer to the Exam Conventions at www.cs.ox.ac.uk/teaching/examconventions/MSCinCS which state "Candidates should not under any circumstances seek to make contact with individual internal or external examiners." If you have a query or complaint about the conduct of your examination, it must be raised with the Senior Tutor or equivalent at your college. Further information about this is available at www.ox.ac.uk/students/academic/complaints

4 Practicals

4.1 Practical Sessions

Practical sessions for courses organised by the Department of Computer Science will be conducted remotely during Michaelmas Term. Demonstrators will be present to assist you in overcoming any difficulties. The purpose of practical exercises for the Computer Science courses is to help you make sure you understand the application to practical programming of the theory that is taught in lectures. You will find more information about how to sign up for practicals (signing up, signing off and submission of reports, assessment) in the Courses section of the website of the Department of Computer Science.

Please note that where a course has classes and practical sessions, students are expected to attend both.

4.1.1 Timetable

Practicals will start in week 3 of the term and there are normally four 2-hour sessions for each course during the term. During the first 2 weeks of the term you will be required to sign-up for a practical group. Most courses have 2 groups at different times in the week; you should choose the session that fits best with your timetable. Sign-up is done online using the Minerva database; you will be informed through the termly notices of how to sign up for classes and practicals. Sign up is on a first-come-first-served basis: there is a limit to the number of students in any group, which may mean you don't get your first choice of group.

There will usually be a number of exercises that you will need to complete for each course.

You might also need to work on the practicals in your own time, outside the scheduled practical sessions.

4.1.2 Attendance

Attendance at practical sessions will not be compulsory for this year. However we recommend that you do attend them to check that your progress is satisfactory and to receive help if needed. Consultation sessions will be organised via MS Teams so that students can ask for help and have their practicals signed off.

4.2 Writing Practical Reports

Each practical requires a report to be submitted for assessment. The report should not be a major burden: it is simply to provide evidence that you have done the work properly. Practical exercises usually give specific instructions as to what should be included in the practical report. In any case the following guidelines should be followed.

In many practicals, most of the report will be in the form of a program. Of course, you are expected to follow good programming practice:

- In a multi-module program, you should include some text explaining the role of each module, and the relationship between them;
- You should include suitable comments explaining the purpose of variables and procedures;
- You should also include comments to explain any interesting algorithms you have used: writing down an invariant will often help;

- You should make the code easy to read, for example by following standard indentation conventions, and by suitable use of white space;
- You should also include some evidence that the program works, for example by including sample output or screen shots: testing is a very important programming skill, and so you should show that you have considered suitable tests.

Many practicals will include specific questions for you to answer. Make your answers concise and relevant.

If the aim of the practical is to produce some experimental results, then you should present and discuss those. Do not just include pages and pages of numbers spewed out by the program. A concise summary is better, perhaps using another program to show the results are correct (by making a graph, say).

Try to avoid reproducing large volumes of code from the practical materials or repeating program code that you have already listed in the report. If a second program has to include the same procedure definition (say), just write "Procedure Sort(x) defined as before."

You are encouraged to write up reports on practicals as you do them during the term. The demonstrators will happily look at your reports and give you advice about them at the practical sessions. It is perfectly acceptable to have your report marked at one practical session, then do further work on the practical and submit an improved report by the deadline.

You may want to produce the report using a text formatter like TeX or LaTeX, or a word processor. Be careful that the time you spend in formatting the document prettily does not distract you from getting the content right. A cogent, concise, neatly hand-written report is preferred to pages of word-processed verbiage. If you do produce a typed report, please ensure that it is legible, with adequate margins and with type that is no smaller than 10 points. While working on your practical, keep a record of the tests you performed on your program, so that you can easily copy relevant data into your report.

Do not copy any other person's practical report. You may have general discussions with other students about the practicals, but the code, test data and report must be all your own work.

4.3 *Signing off Practical*s

In order to have the demonstrator record that you have completed the practical, you must show them that you have done the work, perhaps by demonstrating a working program.

4.4 *Assessment of Practical*s

When you have completed the work for a practical and the report on it, a demonstrator will check and mark your work at a practical session. They will ask you first to show that you have done the work, leaving aside any optional parts, and will record this fact in their register, together with your attendance at practical sessions. If a practical turns out to be very long or difficult, the demonstrators (with the advice of the course lecturer) may record the practical as complete if you have done a reasonable amount of work, even if you have not finished it.

The demonstrator will also mark your report, either at the practical session if there is time, or by taking it away and returning it later. The practical report will be marked, taking into account whether you have done any optional parts, as well as the quality of your write-up, and the general difficulty of the practical exercises. As a general guide, even an incomplete report on each practical in the course gains more credit than one where some practicals are entirely

missing. Extra credit is awarded for completing optional parts of practicals, but not to such an extent that it is worth spending many hours finishing every optional part.

The following scale of marks is used by the markers; the descriptions attached to each mark indicate the rough level of performance expected, but may be adjusted to take into account the degree of difficulty of the practical exercise.

- S+ The student has either completed the compulsory parts of the exercise and submitted an exemplary report, or completed all parts of the exercise and submitted an adequate report.
- S The student has completed the compulsory parts of the exercise and submitted an adequate report.
- S- The student has completed only part of the exercise, or has submitted an inferior report.

Practicals are assessed in two ways: first, the demonstrators keep a record of who has attended the practical classes and completed each practical exercise associated with a lecture course; and second, you write a practical report that the demonstrators mark, and which you submit to the examiners.

The following percentages are allocated to the grades shown above:

- S+ 100%
- S 70%
- S- 30%

In examinations, the marks for practicals are treated separately from those for written papers. Practical marks do not affect the class of degree that you will be awarded, provided that you achieve a pass mark. However if you fail to reach the required standard in your practicals the examiners may deem you to have failed the examination.

All the practical reports must be submitted to the examiners at the end of the year. **You must submit them to the Examiners, online via Inspera, by 12 noon on Friday of Week 5 of Trinity Term;** full details will be given nearer to that date. Note that reports should be anonymous: they should contain your candidate number, but not your name.

4.5 Late Practical

Practicals are intended to support the lectures and tutorial work on a course, to help to impress material on your understanding, and to connect theory with practice. Accordingly, it is very much better to be doing the practicals for a lecture course at the same time as the other work on that course. Deadlines are set to help you to resist the temptation of putting off practicals.

Another advantage of doing your practicals during the scheduled classes is that the demonstrators are often able to spot problems that are affecting several people and do something about them, perhaps clarifying the instructions or providing a piece of missing information. If you do not attend the practical classes, you will not have access to this help.

Under the rules specified in the Examination Regulations, the Examiners will not take into account practical reports unless they have been "signed by a demonstrator". The Examiners will give you no credit for practical work that was not submitted for marking by the deadline and

signed by a demonstrator, unless there are extenuating circumstances. Likewise, demonstrators will not mark work that is late, unless there are extenuating circumstances.

4.6 *Difficulties*

If you are having difficulties in your practicals please make sure you speak to your supervisor or a member of the academic admin team as soon as possible.

5 Mini-projects (assignments) and Written Examinations

Lecture courses are examined either by mini projects (sometimes called take-home assignments) or by written examination.

5.1 *Mini-projects (take-home assignments)*

At noon on Friday of week 8 of each term you will be given mini-projects for each of the lecture courses for which you have registered that term and which are examined in this way. For courses that are shared with the MSc in Mathematics and Foundations of Computer Science, the assignments will be given out on Monday of week 8. Typically you will be given two to three weeks to complete all the assignments. The deadline for completion will be indicated on the assignment.

Note that the duration between the distribution and submission of assignments may vary by several days from term to term.

5.2 *Submission of Mini-projects*

Computer Science mini-projects will be released on the last Friday of the term in which the subject is being taught. This information will be included in the Notice to Candidates sent out each term.

Mini-projects must be uploaded to the Inspira by noon on the date specified below. The mini-project will be designed to be completed in about three days. It will include some questions that are more open-ended than those in a standard sit-down exam. The work you submit must be entirely your own work. If you make use of material from web-sites, books, articles or other sources you must acknowledge these and give suitable references. **Please see the [Appendix on plagiarism](#) in the Computer Science Course Handbook.**

Michaelmas Term 2021

Course
Categories, Proofs & Processes
Automata, Logic and Games
Bayesian Statistical Probabilistic Programming
Computer-Aided Formal Verification
Concurrent Algorithms and Data Structures
Quantum Processes and Computation
Computational Learning Theory

The submission deadline for the all mini-projects listed above is **12pm on Monday, 3rd January 2022.**

Hilary Term 2022

Course
Advanced Security
Categorical Quantum Mechanics
Database Systems Implementation
Ethical Computing in Practice
Advanced Topics in Machine Learning
Law and Computer Science

The submission deadline for the all mini-projects listed above is **12pm on Tuesday, 11th April 2022**.

Trinity Term 2020-21

Course
Requirements

Please see the Notice to Candidates nearer the time.

Written Examinations

In 2021-22, the following courses will be examined by written examination at the following times:

Computational Game Theory	Trinity term
Machine Learning	Trinity term
Probabilistic Model Checking	Trinity term
Probability and Computing	Trinity Term
Computer Security	Trinity term
Principles of Programming Languages	Trinity term
Artificial Intelligence	Trinity term
Computational Complexity	Trinity term
Knowledge Representation & Reasoning	Trinity term

The finalised timetable will be made available at www.ox.ac.uk/students/academic/exams/timetables

5.2.1 Preparation

Your supervisor and the course lecturer will advise you about revision and practice. There will be revision classes for courses examined in this way, and these tend to be held in week 9 of Michaelmas and Hilary Term.

Past examination papers are a good guide to the sort of examination question that you might be set. A word of caution: the syllabus for examinations changes over time, and is certainly not determined by what has appeared in past papers. Past papers can be found at: <https://www.cs.ox.ac.uk/teaching/internal/papers/index.html>

5.2.2 Entering for Examinations

Examination entry is an online process using Student Self Service. You will receive an email invitation to log into Student Self Service to complete your examination entry assessment selections by a given date. Your selections will be validated and confirmed by a series of display screens within Student Self Service, and you will be able to log back in and change your choices within the examination entry window as many times as you wish.

A couple of weeks before exams begin, a timetable will be sent to you showing where and when each written paper will take place (this will also be available at www.ox.ac.uk/students/academic/exams/timetables). Your College will give you your timetable and a randomly allocated *candidate number* which you will use to identify your scripts, instead of your name and College, so they can be marked anonymously.

5.2.3 Notices to Candidates

Before your examination you will receive one or more letters of *notice to candidates* from the examiners. Notices to candidates will be sent to you by the MSc Course Administrator. These notices contain important information about your examinations and should be read very carefully. If you have any questions then please ask the MSc Course Administrator; you must **not** contact the examiners directly.

Information on (a) the standards of conduct expected in examinations and (b) what to do if you would like examiners to be aware of factors that may have affected your performance before or during an examination (such as illness, accident or bereavement) are available on the Oxford Students website: www.ox.ac.uk/students/academic/exams/guidance

5.3 Prizes

Three prizes, each to the value of £200, may be awarded:

- One for best overall performance in the examination;
- One for best project; and
- The Richard Bird Prize for the dissertation that best presents a piece of software, an algorithm, or a mathematical theory pertaining to program construction.

If dissertations of sufficient merit are not submitted, the award may be withheld.

5.4 Examination Conventions: Marking and Classification

Examination conventions are the formal record of the specific assessment standards for the course to which they apply. They set out how your examined work will be marked and how the resulting marks will be used to arrive at a final result and classification of your award. They include information on: marking scales, marking and classification criteria, scaling of marks, progression, resits, viva voce examinations, penalties for late submission, and penalties for over-length work.

The Examination Conventions can be found online at:

<https://examregs.admin.ox.ac.uk/>

5.5 Examiners' Reports

Previous years' Examiners' reports can be found online at:

www.cs.ox.ac.uk/teaching/internal/examinersreports/MSCinCS.html

Students are strictly prohibited from contacting external examiners directly. If you are unhappy with an aspect of your assessment you may make a complaint or appeal:

<https://www.ox.ac.uk/students/academic/complaints> .

6 Projects

6.1 Important Deadlines

- **Monday 28 February 2022 (Week 7, Hilary Term):** a project registration form must be submitted to us by this date.
- **Monday 25 April, 2022 (Week 1, Trinity Term):** a project proposal must be submitted.
- **Tuesday 30 August 2022, noon (Week -5, Michaelmas Term):** submission deadline.
- **Tuesday 27 September 2022 (Week -1, Michaelmas Term):** viva voce examination.

Please see the Project Handbook for information on how to choose, conduct and present your project. <https://www.cs.ox.ac.uk/teaching/courses/projects/handbook/Project%20Handbook.pdf>

6.2 Submission of the project dissertation

Submission of the dissertation is through the online submissions portal on the Computer Science Inspira site. An electronic copy of the dissertation (saved as PDF) and, where applicable, associated source code, must be uploaded to the Assignments section of the Computer Science Inspira site by **12 noon, Tuesday 30 August 2022**.

The dissertation must be submitted no later than that detailed above, unless Proctoral permission has been received (<https://www.ox.ac.uk/students/academic/exams/problems-completing-your-assessment>). Work may be submitted in advance of the deadline if you choose. In doing this you will also avoid any issues that may arise due to IT problems and lead to late submission.

As mentioned above, any code generated as part of the project must be submitted alongside the dissertation. All formats are acceptable for the source code.

We recommend that you take time to ensure you are fully familiar with the procedures given on the submissions portal, well in advance of the submission deadline. While the Course Administrator will be available to answer questions, it is not intended that a step-by-step guide be provided, as this would be unfair to other students who wish to make contact.

The department will provide training on how to upload a dissertation to the submissions portal.

Please note the following:

- It is the student's responsibility to ensure that their work is submitted by the deadline.
- Failure to submit an assignment on time as a result of IT problems (eg computer malfunction, slow internet connection) will not be accepted as a valid reason for late submission. You should make regular back-up copies of all work and ensure that there is adequate time to submit your work. Do not leave submission until just before the deadline.
- Responsibility for the work rests with the student at all times until issue of receipt, regardless of the method submission.
- All work will be dealt with under the standard submission procedure, whether submitted early, near the deadline, or late.
- Once submission has been made, the assignment cannot be withdrawn or altered.

You will be informed when the assignment submission area on the Computer Science Examinations portal is open.

6.3 Satisfying the Examiners

The regulations state that the examiners must be satisfied that the candidate has attained an adequate level of achievement in the dissertation: <https://examregs.admin.ox.ac.uk>.

To satisfy the examiners for the degree of MSc in Advanced Computer Science, a candidate must attain an average of at least 50 (pass) on a selection of their best six courses, including at most two courses from Schedule 1, pass in the dissertation, pursue an adequate course of practical work and achieve an overall pass in practicals, and unless dispensed under cl.3 (iii) above satisfy the examiners in the viva voce examination.

The decision of the examiners will be based upon two things: the standard set in previous examinations, and the stated aims of the MSc in Advanced Computer Science.

Students are encouraged to examine previous dissertations, available in the library, but are reminded that many of these will be of a higher standard than would be expected of dissertations at the pass/fail borderline. A document which is particularly relevant notes that:

Each project will be read by at least one examiner, and an assessor on behalf of the examiners. Both readers will be asked to supply a brief paragraph describing the scope and achievement of the project, and will be asked to give a grade.

6.4 Viva Voce

The examiners have the right to require any student to attend for an oral examination on **Tuesday 27 September 2022**. You will be expected to be available on that day. The oral examination is intended to help candidates whose performance in one or both of the other parts of the examination is questionable or not quite satisfactory. If you are required to attend, you should consult your supervisor on the best method of preparing yourself. Most candidates will be dispensed from attendance.

6.5 Intellectual Property

Please see the University's policy on Intellectual Property rights at <https://researchsupport.admin.ox.ac.uk/innovation/ip>

6.6 Marking Assessments

Each band has an informal interpretation, as described in the Exam Conventions at <https://examregs.admin.ox.ac.uk>

7 If things go wrong

The most common cause for failure is personal problems. If these begin to affect your health or your work, do not delay in consulting your medical advisor or one of the many supervisors or advisors allocated to you by the Department and your College. Nearly all problems, whether emotional, medical or psychological, can be solved or alleviated by those who have the experience and expertise to advise, *provided that they know early enough*.

Please see the General Course handbook for more information on the resources available to you: <https://www.cs.ox.ac.uk/teaching/handbooks.html>.

7.1 Difficulties

If you have difficulty in understanding a lecture, please discuss it with your supervisor, or the class tutor for the course; at least one of them should be able to make an explanation that meets your needs. If you find the lectures unsatisfactory in any other way, please tell the lecturer or your supervisor; they are keen to make improvements where possible. If you find any aspect of your supervision unsatisfactory and you feel unable to discuss it with your supervisor, you should contact one or more of the following members of staff: your Advisor; the MSc Course Director; the MSc Course Administrator; the Academic Administrator or (in exceptional circumstances) the Head of Department.

7.2 Feedback

You will be asked to complete a questionnaire for each lecture course you attend. Please take the time to complete this and return it, as feedback is extremely valuable in helping us to continue to improve the course and your learning experience.

All students will also be invited to complete an end of course questionnaire, the results of which will be considered by the MSc Supervisory Committee in the following academic year.

Students on full-time and part-time matriculated courses are surveyed once per year on all aspects of their course (learning, living, pastoral support, college) through the Student Barometer. Previous results can be viewed by students, staff and the general public at: www.ox.ac.uk/students/life/student-engagement

7.3 Student Representative

You will be asked to nominate a student representative(s) to sit on the MSc Supervisory Committee which meets once a term in week 3. Once confirmed, the names and email addresses of the student representative(s) will be circulated to the Cohort, and an additional reminder will be sent out prior to the Supervisory Committee each term. Please make sure that the representative is aware of any concerns or comments you have regarding the course.

8 Doing a Research Degree at Oxford

Some students undertake the MSc course specifically as initial preparation for doing PhD level research; others discover an interest in doing research during the course. If you wish to be considered for a research place in the Department, you will have to apply following the standard applications procedure. The process and deadlines are documented on the Department's website, and you are encouraged to consult the information provided there.

If you are applying for funding, you must apply by the 08 January deadline. All students who are offered a place are automatically considered for funding.

You will need to include a research proposal or a statement of your research interests and further information on what is required can be found here:

www.cs.ox.ac.uk/admissions/graduate/dphil-computer-science/statement

Of course, it's a good idea to have informal discussions with potential DPhil supervisors in the Department, before proceeding to a formal application. Perhaps you are thinking of a research proposal arising from your MSc project, in which case you should discuss your ideas with your project supervisor. Perhaps you have become interested in the research area of one of your lecturers or another member of the Department; get in touch with them to talk about it. The Director of Graduate Studies or the Graduate Studies Administrator are also happy to talk informally about doing a DPhil.