

Faculty of Computer Science and Technology

2011-12

M.Phil in Advanced Computer Science

Information Booklet

Welcome

On behalf of the Advanced Taught Courses Management Committee, we welcome to the M.Phil in Advanced Computer Science course and we hope you enjoy your time in Cambridge.

During your time in Cambridge it is likely that you will have many queries. We hope that this brief guide will be of some help but if you have further questions you are welcome to ask us, Lise Gough and Kate Cisek, the Course Administrators, by phone (3)34656 or (3)34652, or just pop in to FS03 and FS05 at the William Gates Building.

Student Admin Team
August 2011



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1. THE COMPUTER LABORATORY: WHAT AND WHERE?

The Computer Laboratory was founded in 1937 as the Mathematical Laboratory on the part of the New Museums Site now occupied by the Arup Building. The building was known as Old Pathology and was notorious for its strange smell (formaldehyde, used for preserving bodies) and the extra large lift (for transporting them!). The name was changed to Computer Laboratory in 1969 and the Computing Service was created in 1970 as part of the same department.

In 2001 we moved into purpose-built facilities in West Cambridge. Our address is:

Computer Laboratory
Faculty of Computer Science and Technology
William Gates Building
15 JJ Thomson Avenue
Cambridge, CB3 0FD

The Computer Laboratory is a department in the Faculty of Computer Science and Technology and is part of the Graduate School of Technology along with Engineering, Chemical Engineering and Biotechnology and the Judge Business School. See <http://www.tech.cam.ac.uk/Graduate/aboutgrad>

The Computer Lab occupies the ground, first floor and most of the second floor of the William Gates Building. To help you find your way around the rooms are labelled by:

Floor	(ground-G, first-F and second-S)
Corridor	(north-N, centre-C, south-S, east-E, west-W)
Number	

For example room FS05 is on the first floor, south corridor.

The large central entrance corridor is known as The Street.

There is a small café on the ground floor which is open 09:30-16:00 Monday to Friday excluding public holidays. There is a Costa Coffee in the Hauser Forum at the end of JJ Thomson Avenue south of the West Cambridge site.

You will be based in SW01 (Teaching Room), SS03 (Teaching Room) and SW02 (Teaching Laboratory) on the second floor and FW26 (Seminar Room) on the first floor balcony. There is an M.Phil/Part III Retreat room for quiet discussion and work in FS07. Access to these rooms and the rest of the secure area including the library is by the blue University Card and card readers. The University Card also gives you access to the main doors 24 hours a day, 365 days a year.

2. THE COURSE FORMAT AND MODULES

Course Format 2011-12

1. In 2011-12, students will choose one of the following formats:

Option A

- a) 9 taught full modules (or a combination of full and half-modules to the equivalent of 9 full modules) including the mandatory C00 Research Skills; and
- b) submit a research essay of, provisionally, 7,500 words (length subject to approval by the Advanced Taught Courses Management Committee); or

Option B

- a) 6 taught full modules (or a combination of full and half-modules to the equivalent of 6 full modules) including the mandatory C00 Research Skills; and
 - b) undertake a project and submit a project report of up to 15,000 words.
2. The examination may include, at the discretion of the Examiners, an oral examination on the work submitted by the candidate under Regulation 1, and on the general field of knowledge within which such work falls.¹

Modules 2011-12

Number/Title/Mode of assessment (coursework (c), written test (t))

Michaelmas 2011

C00	Research skills (mandatory) (c)
P34	Advanced computer design (c)
R01	Advanced topics in computer systems (c)
L18	Automated reasoning (c and t)
L108	Category theory and logic (c and t)
R05	Chip multiprocessors (c and t)
E4F8	Image processing and image coding (t)
R03	Innovative user interfaces (c)
L100	Introduction to natural language processing (c)
R07	Introductory logic (half module) (c and t)
P31	Low power embedded systems programming (c)
R204	Multicore semantics and programming (c)
R02	Network architectures (c)
P36	Programming for mobiles (c)
L106	Spoken language processing (c)
L113	Word meaning and discourse understanding (c and t)

Lent 2012

L22	Advanced topics in concurrency (half module) (t)
P33	Building an internet router (c)
R202	Data centric networking (c)
L110	Flows in networks (c and t)
R207	Language and concepts (c)
L101	Machine learning for language processing (c)
R206	Operating and distributed system security (c)
L109	Social and technological network analysis (c)
L107	Syntax and semantics of natural language (c and t)
P35	System on chip design and modelling (c and t)
L15	Topics in logic and complexity (t)

Easter 2012

L21	Interactive formal verification (c)
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¹ See Appendix A for the official Regulations

3. ASSESSMENT AND EXAMINING

MPhil Students must take twelve modules, selected from those offered in each year in consultation with their course supervisor, each of which is assessed independently.

In consultation with their Course Advisor and other ACS teaching staff, students may choose to substitute either a research essay for three taught modules or a research project for six taught modules. The deadline by which students must submit their final selection of modules is **24 October 2011**. Module selections must be approved by the Advanced Taught Courses Management Committee. Student Administration will enrol MPhil students for modules on CamSIS. There will be one final opportunity to change module selections for **Lent** and **Easter** Terms in early Lent Term. The deadline by which all students must confirm their enrolment is **20 January 2012**.

Each year ACS teaching staff will propose research essays and projects that they are willing to supervise and these will be published on the web in the second part of Michaelmas Term.

Students must achieve an average mark of **60%** across all taught modules and also **60%** in the essay or project to obtain the MPhil degree.

Coursework and Written Tests

In 2011-2012, each student must take either:

- 9 taught full modules (or a combination of full and half-modules to the equivalent of 9 full modules) and submit a research essay of, provisionally, 7,500 words (length subject to approval by the Advanced Taught Courses Management Committee), or
- 6 taught full modules (or a combination of full and half-modules to the equivalent of 6 full modules) and undertake a project and submit a project report of up to 15,000 words

Each taught full module consists generally of 16 contact hours over 8 weeks which may consist of any combination of lectures and/or supervised practical classes, seminars or reading groups. (Where any half modules of 8 contact hours are offered and taken, these must be combined with another half module to count towards the degree requirement.)

Modules may be assessed by a combination of tests and/or coursework. Coursework may consist of recorded 'ticks' for ungraded assignments and/or graded term papers, practical reports, or essays. Ticks for ungraded reading assignments, oral presentations, or practical work may constitute a maximum of 25% of the coursework for any individual module.

Written papers may be set on selected modules. Test questions are marked according to a marking scheme and solution notes that are made available to the course examiners and agreed in advance of the test. Test papers will indicate the assignment of marks to each question and each component of a question. Students taking modules in which a 'take home test' test is set will be required to sign an undertaking that the work will be their own and not completed in collaboration with any other person.

Formal notices of the schedule and format of **written and take-home tests** will be sent electronically to all students and posted in the MPhil Retreat Room and the teaching laboratory SW02 at the end November (for Michaelmas modules) and early March (Lent modules). Written and take-home tests are, in general, set during the first week of following term. Written tests are no longer than two hours' long and reading time is provided; students are generally given between 48 and 72 hours to complete take-home tests. For modules where assessment is by **coursework alone**, the deadlines are, usually, also set for the first week of the following term.

Students are recommended to use the 'study weeks' immediately after and immediately before the Cambridge full terms to revise for the tests and to complete coursework.

Deadlines

A schedule of coursework deadlines will be published each term. Deadlines are taken seriously and marks will be deducted for late coursework submission.

The penalty will be calculated as follows: **penalty = $n/10 \times \text{mark}$** where **n** is the integer part of the number of days late, rounded up to the nearest integer. Failure to submit the **research essay** (Option A) or **research project** (Option B) by the published deadline will result in outright failure of the course.

Oral examinations (*viva voce* examinations)

The final meeting of the Examiners for the M.Phil in Advanced Computer Science is expected to be held on Thursday 28 June or Friday 29 June 2012. The Examiners will announce which students will be called for an oral examination after the first session of their meeting. It is essential, therefore, that all MPhil students are in Cambridge and are available to attend an oral examination if they are called. An oral examination can only improve a result or leave it unchanged.

Research essays and research projects

Note: there will be a **project briefing session** on 31 October 2011 at 12:05 in LT2.

Option A: Essay

In Option A, the student is required to submit a research essay. The essay is the equivalent to three taught modules. Students are required to pass the essay with a minimum mark of 60.

An essay is a document of no more than 7,500 words (provisional: to be approved by the Advanced Taught Courses Management Committee) on a topic agreed between the student and their essay supervisor. The object of a typical essay is to give an exposition of a research area in computer science that is scattered over several books and papers. The essay does not necessarily need to contain original material but must contain evidence that the candidate can assess and interpret the current state-of-the-art in the research area, and place the work in the wider perspectives of the subject.

The topic of the essay is chosen in Lent term. A supervisor for the essay topic must be identified before it can be approved. The essay topic and choice of supervisor require the approval of the Management Committee for the M.Phil in Advanced Computer Science.

- Essay selection and planning is in Lent Term.
- The essay itself is undertaken in Easter Term.
- A member of the Faculty's academic staff will be appointed as an essay supervisor. This person is responsible for overseeing the student.
- The supervisor will assist the student in producing an Essay Proposal document and work plan must be submitted by **Monday 5 March 2012**. A latex template and cover sheet are available from http://www.cl.cam.ac.uk/teaching/acs_projects/
- The supervisor and the Management Committee must all approve the Essay Proposal documents prior to the student starting work on the tasks specified in the Proposal by **Wednesday 14 March 2012**.
- The essay must be submitted to Student Administration by no later than **9 a.m. on Friday 15 June 2012**.

Option B: Project

In Option B, the student is required to conduct a substantial research project. A research project is equivalent to six taught modules. Students are required to pass the research project report with a minimum mark of 60%.

The student is integrated into the research culture of the Department by joining one of the research groups. Students are expected to attend the Department's and research group's programme of research seminars. An element of the research training will be in the context of a research group and will be overseen by their project supervisor.

- Project selection and planning is in Michaelmas term.
- The project itself is undertaken in Lent and Easter terms.
- Projects can be research oriented or application oriented. Industrial collaboration on projects is possible.
- A member of the Faculty's academic staff will be appointed as a project supervisor. This person is responsible for overseeing the project student.
- A member of the Faculty's academic staff may be appointed as a project advisor. The person is available as a second advisor to the project student.
- The supervisor and adviser will assist the student in producing a Project Proposal document and work plan. This must be submitted by **Monday 21 November 2011**. The Proposal must include the tasks to be undertaken and the anticipated timescales. A latex template and cover sheet are available from http://www.cl.cam.ac.uk/teaching/acs_projects/
- If your research project involves experiments on human subjects you should first seek the approval of the Computer Laboratory Ethics Committee. Full details of how to submit an application for ethics approval can be found on the website at <http://www.cl.cam.ac.uk/local/policy/ethics>
- The supervisor, the advisor, and the Management Committee must all approve the Project Proposal document prior to the student starting work on the tasks specified in the Proposal by **Wednesday 30 November 2011**.
- The supervisor will monitor the progress of the project and a formal progress review will be conducted in conjunction with the student and advisor at the end of Lent term. Presentations of work in progress will be given in the second week of Easter term to all students and departmental teaching staff.
- A project final report, of not more than **15,000** words, must be submitted at the end of the project, no later than 9 a.m. on **Friday 15 June 2012**. The report shall provide evidence that the candidate can design and carry out investigations, assess and interpret the results obtained, and place the work in the wider perspectives of the subject.

4. MARKING GUIDELINES: PROJECTS AND ESSAYS

Essays and project reports are marked out of 100 and the pass mark is 60:

Under 60: Work that is below the standard of an MPhil candidate (approximately that of the 2:1 class division for undergraduate degrees), poorly presented or showing a poor grasp of the research method adopted, the course material, or the relevant literature.

60--64: Work that shows evidence of reasonable understanding of the course material, literature and research methods adopted and which is presented acceptably.

65--69: Work that shows evidence of good understanding of the course material, literature and research methods adopted and which is presented well.

70--74: Work that shows evidence of independent thought and research and maintains a high standard of argument and scholarship.

75--79: Work of undoubted interest and originality providing evidence of the candidate's potential suitability for doctoral research.

80+: Work publishable with only minor revisions at a conference or workshop.

Test papers in the form of questions seeking short factual answers may be used where more appropriate to the subject matter. These will be marked out of 20 and the assignment of marks for each question and/or component of a question will be indicated on the paper.

Coursework

Individual module lecturers will inform students about the assessment scheme for their module on the module's web pages. However, as an example, if a piece of work is marked out of 20, 12 marks will constitute a pass, and if marked out of 100, 60 marks will constitute a pass.

Feedback

Students will be notified about their progress in Michaelmas and Lent Terms by letter following the Examiners' meetings in February and May.

The marks provide provisional feedback only; results are subject to confirmation at the Final Examiners' meeting and by the University of Cambridge's Board of Graduate Studies.

Official University transcriptions of results will be available from the University's Students Records Office and via the CamSIS self-service (extended access) in the August following the end of Easter Term and after graduation.

5. PROJECT AND ESSAY GUIDELINES

Option A: ACS research essays

Guidance on M.Phil in ACS research essays for students and supervisors from the Examiners
http://www.cl.cam.ac.uk/teaching/acs_projects/essay-guidelines.html

The requirement for the research essay is a document of not more than 7,500 words in length on a topic approved by the Degree Committee.

These guidelines for research essays refer to the conduct of research essay work, to the status of research essay results, to the structure of the research essay and to issues relating to confidentiality and intellectual property rights (IPR). The IPR guidelines are generally intended, but they are particularly relevant to research essays being done in cooperation with outside organizations (industrial or other) and to essays being done by students on EPSRC Studentships.

- i. The research essay is primarily intended to meet the course requirements of the M.Phil, i.e., it should demonstrate the student's knowledge and skill in a rounded piece of work. The research work officially starts at the end of Lent term and the thesis is submitted during the following June. To satisfy the course requirements for the M.Phil degree it is necessary for students to obtain a pass mark for the essay. The research essay specification has to be approved by those responsible for the course, and the student should have a formal supervisor within the university. The student's prime place of work is normally at the University. Where an outside organization is involved in the research essay, the student will usually visit the organization to discuss his or her work as thought necessary, with expenses being paid by the organization. Students are required to submit a written research essay proposal and work-plan for their research, to be explicitly agreed by their supervisor by the deadline specified in Lent Term. Students and supervisors meet to discuss research essay progress on a regular basis. Many supervisors find that arranging regular weekly, half-hour meetings with students works well.
- ii. The "research essay results" are defined for the purposes of examination and any subsequent exploitation as being represented by the research essay report itself and any software (or hardware) produced during the work.
- iii.
 - a. The first page of the research essay must give the MPhil course name in the University of Cambridge; the title of the essay; the student's name and college; and the date. The following page must provide an abstract.
 - b. The inside of the front page of the research essay must contain a declaration of originality, as follows:

I [Name] of [College] , being a candidate for the M.Phil in Advanced Computer Science, hereby declare that this research essay and the work described in it are my own work, unaided except as may be specified below, and that the research essay does not contain material that has already been used to any substantial extent for a comparable purpose.

Signed [signature]

Date [date]

The word count, excluding bibliography, photographs and diagrams but including tables, footnotes, and appendices (except as noted below), should also be given on this page.

- c. All collaboration should be specified in an acknowledgements section.

- d. Original software produced by the student should be made available for inspection by the examiners. This can be done by sending supervisors a pointer to a readable directory at the time of submission, or by other means that may be agreed by the supervisor and an examiner. Where software has been produced by extending an existing piece of software, then those parts of the existing software which are necessary to understand the operation of the new software should be included but should be clearly marked as being not the student's own work.
 - e. A .pdf version of the report (as a single file) is also required. This should be identical in content to the printed version.
 - f. The Degree Committee enters research essay titles with the Board of Graduate Studies during Lent Term. If you wish to change the title from that originally specified, you must discuss this with your supervisor and notify the Student Administrator in good time so that the Board and the Degree Committee may be informed.
- iv. Students should note that the situation regarding intellectual property generated by a research essay is complex. Students should discuss with their supervisor any result which they consider might have commercial significance and they must do so in good time before publication or other disclosure so that suitable protection can be obtained.
 - v. Where third parties are involved, such as companies proposing and/or being involved in supervising MPhil research essays, there may be a need for a collaboration agreement to be signed before commencing the research essay. This agreement will typically cover confidentiality and specify how exploitation of any results might be achieved. No commitment with regard to the assignment of IPR should be made by a student without taking advice from the University (via the academic supervisor). Companies should note in this respect that it is extremely difficult to assign IPR up-front and the University prefers to work on the basis of an exclusive license to any generated IPR being negotiated on fair and reasonable terms after the research essay has finished when the full nature of the exploitation is known.
 - vi. All students should note that publication for research essays is represented by their being made generally available, as in the Department's library, and should also observe two general consequences of the formal rules:
 - a. that student research essays should not make use of any material supplied by an organization to which any confidentiality is attached, or, without appropriate safeguards, where the organization wishes to retain rights; and
 - b. that student research essays should not make use of any material supplied by others within the university, e.g. by the supervisor or other staff members, without their rights being safeguarded; written statements would appear appropriate for this. Prudent students might attach a copyright declaration to their reports.
 - vii. Students are also reminded that they have signed the Computing Service form agreeing to abide by the Rules Governing Use of the University Computing Service, and that this applies to University resources used for research essays, as for other course work.

Option B: ACS research projects

*Guidance on M.Phil in ACS research **projects** for students and supervisors from the Examiners*
http://www.cl.cam.ac.uk/teaching/acs_projects/proj-guidelines.html

The official requirement for the project report is a document of not more than 15,000 words in length on a topic approved by the Degree Committee. These guidelines for projects refer to the conduct of project work, to the status of project results, to the structure of the project report and to issues relating to confidentiality and intellectual property rights (IPR). The IPR guidelines are generally intended, but they are particularly relevant to projects being done in cooperation with outside organizations (industrial or other) and to projects being done by students on EPSRC Course Studentships.

- i. The project is primarily intended to meet the course requirements of the M.Phil, i.e., it should demonstrate the student's knowledge and skill in a rounded piece of work. The project work officially starts in Lent term and the thesis is submitted during the following June. To satisfy the course requirements for the M.Phil degree it is necessary for students to obtain a pass mark for the project. The project specification has to be approved by those responsible for the course, and the student should have a formal supervisor within the university. The student's prime place of work is normally at the University. Where an outside organization is involved in the project, the student will usually visit the organization to discuss his or her work as thought necessary, with expenses being paid by the organization. Students are required to submit a written research proposal and work-plan for their project, to be explicitly agreed by their supervisor by the deadline specified in Lent Term. Students and supervisors meet to discuss project progress on a regular basis. Many supervisors find that arranging regular weekly, half-hour meetings with students works well.
- ii. The "project results" are defined for the purposes of examination and any subsequent exploitation as being represented by the project report itself and any software (or hardware) produced during the work.
- iii.
 - a. The first page of the project report must give the MPhil course name in the University of Cambridge; the title of the report; the student's name and college; and the date. The following page must provide an abstract.
 - b. The inside of the front page of the report must contain a declaration of originality, as follows:

I [Name] of [College] , being a candidate for the M.Phil in Advanced Computer Science, hereby declare that this report and the work described in it are my own work, unaided except as may be specified below, and that the report does not contain material that has already been used to any substantial extent for a comparable purpose.

Signed [signature]

Date [date]

The word count, excluding bibliography, photographs and diagrams but including tables, footnotes, and appendices (except as noted below), should also be given on this page.

- c. The report should clearly indicate the scope and results of any experimental work done. All data used should be clearly described. Appendices should be avoided where possible, but may be appropriate in some cases. For example, if the results are copious, they should be summarized in the main text and given in full in an appendix. Similarly additional straightforward yet verbose elements of a proof can be placed in an appendix. In such cases, you need not include the relevant appendix(ces) in the word count, but should note any such exclusions in your declaration. Note that assessors are not expected to read any such appendix, and you should not rely on their doing so. Where a project has as its main aim the production of a piece of software, the project report should state clearly what test procedures were adopted and should include test output.
- d. All collaboration should be specified in an acknowledgements section.
- e. The report should explicitly describe the starting point for the project, making clear what existing software or other resources were used. If a student is building on any work that they did before starting the MPhil, this should be indicated. The report should include a concise summary of the work undertaken by the student in the course of the project.
- f. Original software produced by the student should be made available for inspection by the examiners. This can be done by sending supervisors a pointer to a readable

directory at the time of submission, or by other means that may be agreed by the supervisor and an examiner. Where software has been produced by extending an existing piece of software, then those parts of the existing software which are necessary to understand the operation of the new software should be included but should be clearly marked as being not the student's own work.

- g. A .pdf version of the report (as a single file) is also required. This should be identical in content to the printed version.
 - h. The Degree Committee enters project report titles with the Board of Graduate Studies during Lent Term. If you wish to change the title from that originally specified, you must discuss this with your supervisor and notify the Student Administrator in good time so that the Board and the Degree Committee may be informed.
- iv. Students should note that the situation regarding intellectual property generated by a project is complex. Students should discuss with their supervisor any result which they consider might have commercial significance and they must do so in good time before publication or other disclosure so that suitable protection can be obtained.
 - v. Where third parties are involved, such as companies proposing and/or being involved in supervising MPhil projects, there may be a need for a collaboration agreement to be signed before commencing the project. This agreement will typically cover confidentiality and specify how exploitation of any results might be achieved. No commitment with regard to the assignment of IPR should be made by a student without taking advice from the University (via the academic supervisor). Companies should note in this respect that it is extremely difficult to assign IPR up-front and the University prefers to work on the basis of an exclusive license to any generated IPR being negotiated on fair and reasonable terms after the project has finished when the full nature of the exploitation is known.
 - vi. All students should note that publication for reports is represented by their being made generally available, as in the Department's library, and should also observe two general consequences of the formal rules:
 - a. that student projects should not make use of any material supplied by an organization to which any confidentiality is attached, or, without appropriate safeguards, where the organization wishes to retain rights; and
 - b. that student projects should not make use of any material supplied by others within the university, e.g. by the supervisor or other staff members, without their rights being safeguarded; written statements would appear appropriate for this. Prudent students might attach a copyright declaration to their reports.
 - vii. Students are also reminded that they have signed the Computing Service form agreeing to abide by the Rules Governing Use of the University Computing Service, and that this applies to University resources used for projects, as for other course work.

6. IMPORTANT DATES 2011/2012

1. The Calendar 2011/2012

Michaelmas:	Board's Admission Date:	Saturday 1 October 2011
	Registration, Talk, Tour:	Monday 3 October 2011 10:00
	M.Phil/Part III Lectures:	Thurs 6 October – Wed 30 November 2011
	M.Phil/Part III Study weeks:	Mon 5 – Fri 16 Dec.; Tues 3 – 16 Jan.
Lent:	M.Phil/Part III Lectures:	Thurs 19 January – Wed. 14 March 2012
	M.Phil/Part III Study weeks:	Mon 19 March – Fri 13 April 2012
Easter:	M.Phil/Part III Lectures:	Thurs 26 April – Wed 13 June 2012
	Essay project submission:	Friday 15 June 2011 9:00 a.m.

2. Important dates to note

See also <http://www.cl.cam.ac.uk/teaching/calendar.html>

Michaelmas

- 4 October:** All graduate students must attend the University's **General Safety course** on Tuesday 4 October 2011 in the Babbage and Cockcroft Lecture Theatres at the New Museums Site, Pembroke Street from 10:00-12:30. Go to the Babbage by 09:45 to ensure the session can start on time.
- 6 October:** **Lectures start on Thursday at 9:00. See the timetable for details.**
- 14 October:** **Welcome Party** for MPhil, Part III and Research Students: come and meet research students and staff in The Street from 17:30 to 19:00.
- 24 October:** Last day to change module selection for Michaelmas Term
- 31 October:** 12:05 Project briefing session Lecture Theatre 2
- 21 November:** **Option B** Research project proposals deadline
- 2 December:** Deadline for submission of PhD applications from **international** and **EU** students who wish to be considered for Gates Trust, Cambridge Overseas Trust or Cambridge International Scholarship Scheme (CISS) funding competitions. Applications received after this date, or incomplete applications, will not be considered by these competitions.

Lent

- 13 January:** Deadline for submission of PhD applications from **UK** and **EU** students who wish to be considered for the Cambridge Higher Education Scholarship Scheme (CHESS) and Qualcomm (School of Technology) funding competitions. Applications received after this date, or incomplete applications, will not be considered by these competitions. Students who are eligible for EPSRC DTA funding are **strongly** recommended to apply by this date also.
- 17 January:** Start of assessment weeks including written papers and take-home tests
- 20 January:** Last day to change module selections for Lent and Easter Terms
- 5 March:** **Option A** Research essay proposals deadline

31 March: Deadline for submission of PhD applications – all self-funding students wanting to start in October 2012

Easter

24 April: Start of assessment week including written papers and take-home tests

15 June 🕒: **9:00 a.m. deadline for submission of research project reports and research essays**

28 or 29 June: Examiners' meeting; oral exams in afternoon

3 July: Degree Committee for the Faculty of Computer Science and Technology approves M.Phil Degrees

21 July: Earliest graduation date (known as *Congregation* at Cambridge)

3. Assessment during the Course

Most coursework modules are assessed continuously. A full schedule of coursework deadlines will be posted on the website and under the individual modules' 'Assessment' tabs at the beginning of each term.

7. WHO'S WHO ON THE COURSE

The Head of Department in the Computer Laboratory is Prof Andy Hopper. He is also Professor of Computer Technology. The M.Phil in Advanced Computer Science Course Director is Dr Steven Hand. The Chairman of Examiners is Dr Ian Wassell.

Lecturer	Module	Code
Prof. Ross Anderson	Operating and Distributed System Security	R206
Prof. Ted Briscoe	Introduction to Natural Language Processing;	L100
	Machine Learning for Language Processing;	L101
	and Syntax and Semantics of Natural Language	L107
Dr Bill Byrne	Spoken Language Processing	L106
Dr Stephen Clark	Introduction to Natural Language Processing;	L100
	and Syntax and Semantics of Natural Language	L107
Dr Ann Copestake	Language and Concepts	R207
Prof. Jon Crowcroft	Network Architectures	R02
Prof. Anuj Dawar	Topics in Logic and Complexity	L15
Prof. Neil Dodgson	Research Skills	C00
Dr Mark Gales	Machine Learning for Language Processing;	L101
	and Spoken Language Processing	L106
Dr Richard Gibbens	Flows in Networks	L110
Dr David Greaves	System on Chip Design and Modelling	P35
Dr Steven Hand	Advanced Topics in Computer Systems	R01
Dr Timothy Harris	Multicore Semantics and Programming	R204
Prof. Sir Tony Hoare	Algebra and Programming Semantics	M004
Dr Mateja Jamnik	Automated Reasoning	L18
Mr Brian Jones	Low Power Embedded Systems Programming	P31
Dr Nicholas Kingsbury	Image Processing and Image Coding (CUED)	E4F8
Dr Joan Lasenby	Image Processing and Image Coding (CUED)	E4F8
Dr Cecilia Mascolo	Social and Technological Network Analysis	L109
Dr Andrew Moore	Building an Internet Router	P33
Dr Simon Moore	Advanced Computer Design	P34
Dr Robert Mullins	Chip Multiprocessors	R05
Dr Steven Murdoch	Operating and Distributed System Security	R206
Prof. Alan Mycroft	Introductory Logic	R07
Prof. Larry Paulson	Interactive Formal Verification	L21
Dr Andrew Rice	Programming for Mobiles	P36
Prof. Peter Robinson	Innovative User Interfaces	R03
Dr Peter Sewell	Multicore Semantics and Programming	R204
Dr Frank Stajano	Operating and Distributed System Security	R206
Dr Sam Staton	Category Theory and Logic	L108
Dr Simone Teufel	Word meaning and Discourse Understanding	L113
Dr Ian Wassell	Low Power Embedded Systems Programming	P31
Mr Robert Watson	Operating and Distributed System Security	R206
Dr Tjark Weber	Interactive Formal Verification	L21
Prof. Glynn Winskel	Advanced Topics in Concurrency	L22
Prof. Phil Woodland	Spoken Language Processing	L106
Dr Eiko Yoneki	Data Centric Networking	R202

8. WHO'S HERE TO HELP

In Michaelmas Term students will be assigned a Course Adviser who will monitor progress and write reports via the **CamSIS** reporting system. These reports are open and you will also have access to them via your Self-Service web-pages. Part III students will also have a College Director of Studies. **College Tutors** will also be able to read the reports and make comments. College Tutors are available for non-academic matters as well. In Lent and Easter Term, your Project or Essay Supervisor will take over as adviser.

In addition to your Course Adviser and Supervisor, the following people are here to help. Add "@cl.cam.ac.uk" after the user ID.

Prof. Andy Hopper	Head of Department	GC10	ah12
Caroline Matthews	PA to Head of Department	GC08	cb210
Margaret Levitt	Departmental Administrator	GC07	mal
Prof Jon Crowcroft	Graduate Students Advisor	FN13	jac22
Nicholas Cutler	Librarian	GN04	ncc25
Carol Nightingale	Dept. Secretary of Finance	GC12	cs219
Lise Gough	Graduate Education Manager	FS03	lmg30
Megan Sammons	Student Under Grad Admin. Assistant	GC04	ms725
Dinah Pounds	Student Post Grad Admin. Assistant	FS05	dp341
Louis Massuard	Building Services	Stores	lm342
Ian Burton-Palmer	Building Services Manager	GW04	ib253
Reception staff	Reception Office	GC03	lab-reception
Dr Martyn Johnson	Systems Administrator	GC09	maj1

Manager of the email system

postmaster 'at' cl.cam.ac.uk

Help with problems relating to computing systems

sys-admin 'at' cl.cam.ac.uk

Help with problems relating to Lab managed Win NT systems

win-admin 'at' cl.cam.ac.uk

Help with problems relating to printers

printing 'at' cl.cam.ac.uk

Computer Lab website

<http://www.cl.cam.ac.uk/teaching/1011/acs.html>

Board of Graduate Studies (including welfare)

<http://www.admin.cam.ac.uk/offices/gradstud/current/>

Self-service web page

<http://www.camsis.cam.ac.uk/public/gradss/>

Graduate Union

<http://www.gradunion.cam.ac.uk/>

Disability Resource Centre

<http://www.cam.ac.uk/cambuniv/disability/>

University Counselling Service

<http://www.counselling.cam.ac.uk/>

9. LIBRARIES AND RECOMMENDED READING

Computer Laboratory

The library principally serves the staff and students of the Computer Laboratory, although other members of the University may use the library for reference purposes on application to the librarian.

Opening hours

At present the library is open and staffed between 9am and 5pm, Mondays to Fridays. The librarian is normally away for lunch from 1 until 2pm, and users visiting for the first time, or needing assistance, are advised to avoid those hours. Current members of the Laboratory may gain access to the library outside of these hours using their University access card including MPhil students.

Location of collections

All of the library's collections are housed in the single room of the library; either on the open shelves to the left of the main entrance, or, for less frequently used material, in the mobile stacks running along the back of the library. The shelves are numbered such that case 1 is to the left of the main entrance and case 2 is the other side of that shelf unit cases 3-4 the next unit and so on.

Case no.	Contents
1	Book Locker (Undergraduate course texts)
2-6	Monographs and other published material
9-10	Oversize items
13-20	Periodicals
22	M.Phil dissertations
23	CL Tech reports; Ph.D. Theses; Standards

Colleges

Your College will carry varying numbers of relevant titles.

Recommended reading and preparation

Each module lecturer has provided some preparatory reading on their individual syllabi web pages. Please see <http://www.cl.cam.ac.uk/teaching/1112/acs.html>.

The core text for the compulsory Research Skills module, Zobel, J. (2004) *Writing for Computer Science*, will be available to borrow from the Graduate Education Office FS05 for a £10.00 deposit.

10. STUDENT ADMINISTRATION

Student Administration is based in the Computer Laboratory, William Gates Building, JJ Thomson Avenue, Cambridge, CB3 0FD.

- University regulation calculators - £12.00 each from the **Reception Desk**
Calculators may also be borrowed for tests for a £12.00 deposit from Reception
- Printer credit (for printers in the Intel Lab) from **Undergraduate Student Administration** hatch in the Street; all other printing in the Lab is free

Graduate Education Offices:

- Letters: certificates of attendance; termly feedback letters
- Submission of all coursework, take-home tests, project proposals, project reports and essays
- Collect copies of Zobel's *Writing for Computer Science*; £10 refundable deposit
- Module changes (module change forms available from Dinah Pounds)
- Discuss continuation to the Ph.D. (Graduate Education Manager, Lise Gough)
- Degree Committee administration

All coursework must be submitted to Mrs Dinah Pounds in FS05 and should have a completed pink cover sheet attached. Pink cover sheets are available from the M.Phil students' pigeonholes in the FS05. Marked work will be returned to your pigeonholes in FS05 in named envelopes.

Opening hours

The Undergraduate Student Admin hatch is in the "Street":
Monday to Friday 09:30 - 12:00 13:00 - 16:30

Graduate Education Offices FS03, FS05:
Monday to Friday 09:00 - 12:30 14:00 - 16:45

Please note that tea-breaks between 10.30 – 11.00 and 15.30 – 16.00 are sacred to Graduate Education team. We also take bank holidays as part of our annual leave. If the Graduate Education or Student Admin offices are closed, you can always drop correspondence off at Reception staff or leave it in the pigeonhole marked 'Student Administration'.

Student Administration Staff

Graduate Education Manager and Secretary of the Degree Committee

Ms Lise Gough (3)34656 Room FS03
lmg30@cl.cam.ac.uk

Graduate Education Assistant

Miss Kate Cisek (3)34652 Room FS05
dp341@cl.cam.ac.uk

Accounts

Departmental Secretary for Finance

Mrs Carol Nightingale Room GC12
cs219@cl.cam.ac.uk

11. STUDENT REPRESENTATION

M.Phil Students are represented on the **Faculty of Computer Science and Technology** by a Junior Member. Elections for members are held in the November of each academic year. The Faculty receives the Minutes of the Staff Student Consultative Forum, the Committee for Advanced taught Courses, the Teaching Committee, and the Forum of Directors of Studies, and itself reports to the General Board of the University. The Faculty Minutes are sent to the Secretary General of the Faculties, the members and to Officers in the Computer Laboratory. Copies are filed in the Departmental Secretary's office, currently Room GC07, William Gates Building. The junior members, two students on taught courses and one research student, attend the first part of each meeting during which unreserved business is discussed - that's the bulk of the business and includes things like the Head of Department's annual report, accreditation matters, examiners' reports, teaching matters related to the Tripos and M.Phil courses, the use of calculators in exams, new proposals for courses, etc.

Reserved business covers matters referring to named members of staff (e.g. promotions and leave of absence), and such things as the appointment of Examiners and the Form and Conduct of examinations.

Whilst the faculty representative elections are formally independent of the Graduate Union, under the terms of the GU Constitution (which has the approval of the University Council) the elected graduate representative is also a voting member of the GU governing council. Further information about the GU Council is available at <http://www.gradunion.cam.ac.uk/gradunion/council/>

Faculty meetings are fairly formal and reasonable dress is required!

M.Phil students are also represented on the **Staff Student Consultative Forum** (usually by an Option A student) and the **Graduate Students' Forum** (usually by an Option B student). Both of these groups are relatively relaxed occasions and provide the opportunity for student and staff representatives to exchange comments about facilities and teaching. The **Graduate Students' Forum** is made up of research student representatives from research students and the M.Phil course, the Graduate Students Coordinator and a member of the Student Administrative team. The Forum has the opportunity to suggest courses and activities that fall within the remit of the Transferable Skills allocation as well as issues that are particularly relevant to research students in the Faculty. Meetings are held at lunch time once a term and the minutes are received by the Graduate Education Committee and Degree Committee.

The **Staff Student Consultative Forum** (SSCOF) is made up of student representatives from every year of the undergraduate course, a Part III student, an M.Phil student, a research student co-opted from the Graduate Students Forum, and members of the academic, support and Student Administration team. Meetings are held at lunch time twice a term. See <http://www.cl.cam.ac.uk/local/committees/staff-student/>

Graduate Students also have a representative on the **Graduate School of Technology Committee**. The post is currently held by a PhD student from the Computer Laboratory, Mr Sören Preibusch.

We will be emailing the student body about the elections at the beginning of term.

12. WOMEN@CL

Based at the Computer Laboratory, *women@CL* provides local and national activities for women engaged in computing research and academic leadership. The network was established because only one in four computing PhDs, one in eight computing academic staff and one in twenty computing professors are female, yet 33% of academic women, as opposed to 22% of men, aspire to leadership positions. The purpose of the *women@CL* network is to put in place a positive action programme for women in computing research, with a particular focus on interdisciplinary research, leadership and enterprise.



Our programme consists of a variety of local activities such as

- *women@CL* lunch talks that aim to provide role models to our students;
- coffee and cakes once a month;
- big/little sister events which have included formal halls at a variety of colleges; meals out at local restaurants; and more recently a countryside walk with cream teas.

women@CL events are open to all, women and men. For more information on our meetings and resources for and about women in computing, please visit the *women@CL* webpage <http://www.cl.cam.ac.uk/women/>.



13. AFTERWARDS.....Applying to study for a Ph.D.

Many of our successful M.Phil students have progressed to study for the Ph.D. Degree in the Computer Laboratory, other departments at the University of Cambridge and other UK and overseas institutions.

Applications

There are three intakes of research students each year: October 1st (preferred), January 5th and April 10th. The latter dates may be of interest to M.Phil students as there is a small possibility that students *might* not graduate until the beginning of the new academic year. We hold an annual information day for those interested in doing a Ph.D. Watch out for emails about this towards the middle of Michaelmas Term.

If you are considering applying for admission at Cambridge as a research student after the M.Phil in Advanced Computer Science course you should complete an online application form available via your CamSIS self-service webpage. It is very important to discuss your research ideas with a potential supervisor before submitting your application.

Note that the deadline for receipt of **complete** applications from international and EU students who wish to be considered for the funding competitions is **2 December 2011**. 'Home' and EU students who wish to be considered for CHES funding should submit **complete** applications by no later than **13 January 2012**. The absolute deadline for all applications is **31 March 2012**.

With effect from September 2011, the application, which should include two references and a research proposal, will be made as an electronic submission

When applying for admission as a research student in the Computer Laboratory we will expect you to submit a proposal of research. This will be a document of no more than 3,000 words. You should be able to show an understanding of existing work in the field, the first-year deliverables and be able to identify an area for new work. You will also need to provide two academic references one of which should be from a staff member from the Computer Laboratory. You will not need to provide transcripts again.

If you are accepted by the Computer Laboratory as a research student we would not necessarily expect you to adhere to the draft proposal, but it is useful to be able to pin down your area of interest more specifically. It also provides a good opportunity for you to demonstrate that you are able to select an interesting research topic, and present any insight you may have into how it could be tackled. We would recommend that you look at our web pages at <http://www.cl.cam.ac.uk/research/> to gain some insight in to our current areas of research.

All offers for places as research students are conditional upon achieving a good pass in the M.Phil course as well as funding and College membership, **and** having secured the full support of a willing supervisor. All offers must be ratified by the Degree Committee at its final meeting following the approval of results and the awarding of degrees.



Some survivors from the 2010-11 MPhil course and many of whom will be research students in the Lab in 2011-12.

14. GETTING TO THE LAB

Students at the University of Cambridge are not permitted to have cars except under very special circumstances.

Walking or cycling

The William Gates Building is 2 km (1.3 miles) west of the city centre. From the city centre go west on Garret Hostel Lane, Burrell's Walk (past the University Library), Adams Road, the Coton Cycle-path, and then turn right into Clerk Maxwell Road then left beside the Centre for Applied Photonics and Electronics to the William Gates Building. The official university map should help you to trace this route. A map of the area surrounding the William Gates Building shows the final part of this route. Please see Appendix C.

If you are cycling, please take care. The EMBS has a useful website for cyclists, old and new, at <http://www.admin.cam.ac.uk/offices/embs/travel/cycle/>. We also strongly recommend purchasing a strong D-lock.

Buses

Buses **Uni 4** (substantially reduced fares for University Card holders) and **Citi 4** run from the city centre to the West Cambridge Site. Both buses stop on the West Cambridge Site itself. In the city centre they stop on Silver Street (on the west side of Silver Street Bridge) and Trumpington Street (near the Fitzwilliam Museum and near Pembroke Street).

For more information about all three services, see the links from the Bus Services page (<http://www.admin.cam.ac.uk/offices/embs/travel/bus/index.html>) which is maintained by the Estate Management and Building Service.

Anyone planning to make three or more journeys in a day on Stagecoach buses (other than the **Uni 4** or **Citi 4**) will find it cheaper to purchase a *Dayrider* ticket, which can be used on any Stagecoach route within the city.

Appendix A: Regulations

Regulations in Statutes and Ordinances 2010-11 page 500

ADVANCED COMPUTER SCIENCE

1. The scheme of examination for the one-year course of study in Advanced Computer Science for the degree of Master of Philosophy shall consist, at the choice of the candidate, of *either* Option A *or* Option B as follows:

Option A

At least twelve modules selected from a list of mandatory and optional modules published by the Degree Committee for the Faculty of Computer Science and Technology.

Option B

- (a) At least six modules selected from a list of mandatory and optional modules published by the Degree Committee for the Faculty of Computer Science and Technology;

and

- (b) a thesis of not more than 15,000 words in length, on a subject approved by the Degree Committee.

2. The list of modules shall be published by the Degree Committee not later than the end of the Easter Term of the academic year preceding that in which the examination is to be held, provided that the Degree Committee shall have power to give notice of additional optional modules not later than the end of the Michaelmas Term. In publishing the list of modules and additional modules, the Degree Committee shall announce the form of examination for each module, which shall be either a written paper, or course-work, or a combination of these, and shall specify the duration of any written paper and the limit to be placed on the length of any essay or other exercise. A candidate may not offer a module that he or she has taken in any other University examination.

3. The examination may include, at the discretion of the Examiners, an oral examination on the work submitted by the candidate under Regulation 1, and on the general field of knowledge within which such work falls.

Appendix B: Links

Course links (under Teaching <http://www.cl.cam.ac.uk/teaching/>)

Timetable (subject to change)

<http://www.cl.cam.ac.uk/teaching/timetables/ACSMichTimetable.pdf>

Calendar (subject to change)

<http://www.cl.cam.ac.uk/teaching/calendar.html>

Course pages

Each module has its own web page divided into syllabus, course material and assessment

<http://www.cl.cam.ac.uk/teaching/1112/acs.html>

Research projects with human subjects

<http://www.cl.cam.ac.uk/local/policy/ethics/>

Board of Graduate Studies

Current students

<http://www.admin.cam.ac.uk/offices/gradstud/current/>

Self-service page

<http://www.camsis.cam.ac.uk/public/gradss/>

University maps

<http://www.cam.ac.uk/map/>

Appendix C: Map of West Cambridge site



3	Centre for Advanced Photonics and Electronics (CAPE)
4	Department of Physics Cavendish Laboratory
5	William Gates Building - Computer Laboratory
7	Hitachi Cambridge Laboratory
8	Kapitza Building (Optoelectronics, NanoPhotonics)
9	Department of Chemical Engineering and Biotechnology - Magnetic Resonance Research Centre
10	Merton Hall Farmhouse
11	Microelectronics Research Centre
12	Microsoft Research
13	Interdisciplinary Research Collaboration Nanoscience Centre
14	Department of Veterinary Medicine
17	University Nursery at West Cambridge
18	University Residences - West Cambridge
19	Whittle Laboratory, Department of Engineering
20	Institute for Manufacturing
21	Physics of Medicine
22	Cambridge Enterprise Limited, University Offices
ARB	Alan Reece Building
BB	Bragg Building
HF	Hauser Forum
MB	Mott Building
RB	Rutherford Building