UNIVERSITY OF CAMBRIDGE
Faculty of Mathematics

MPhil in Computational Biology Handbook 2023-24

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Contents

1. Introduction

The MPhil in Computational Biology was developed by the Cambridge Computational Biology Institute (now C2D3 Computational Biology) and is run by the Department of Applied Mathematics and Theoretical Physics (DAMTP) at the Centre for Mathematical Sciences (CMS). DAMTP is one of two departments in the Faculty of Mathematics; the other being the Department of Pure Mathematics and Mathematical Statistics (DPMMS). The Faculty is part of the School of Physical Sciences.

This handbook provides administrative and other important information for MPhil students. In addition to this handbook there is a Moodle site which is the main repository for all materials, documentation and coursework submissions (all students will be given access at the start of the academic year). See *Section 3 – General Administration* and *Section 9 – Assessment and Examination* for further information.

The information provided in this handbook should be treated as a guide to how we intend to run the course. We will update the Handbook if necessary and keep students informed of any necessary changes.

2. Key Contacts 2023 – 2024

Directors Professor Stephen Eglen (G0.11)
Professor Gos Micklem (currently on Sabbatical)
Email: ccbi-mphil-directors@damtp.cam.ac.uk

Module Leaders Dr Tom Monie (Introductory Course, Molecular Biology)
Dr Alastair Crisp(Genomics I)
Dr Hannah Earley (BioDesign)
Dr Aylwyn Scally (Genome Sequence Analysis)
Prof. Stephen Eglen (Deep Learning and Scientific Programming)
Dr Oscar Rueda (Genomics II)
Dr Fadwa Joud (Biological Imaging and Analysis)
Prof. Richard Durbin (Population Genetics)
Dr Johan Paulsson (Systems Biology)

MPhil Students Maths-cbmphil-students@lists.cam.ac.uk
All MPhil students are subscribed to this list (see *Section 15*).

Course Administrator Samantha Noel (Postgraduate Office, C0.15, 37966)
Email: compbiomphil@maths.cam.ac.uk

3. General Information

Induction and preliminary courses
At the start of the year you will be invited to attend an Induction in which administrative and other information about the course will be distributed. This year, the induction will take place on **Monday 2nd October 2023**. All students are expected to attend this meeting. If you are unable to attend this meeting, you must let the Course Administrator know. Lectures begin on Tuesday 3rd october and there is an Introductory Course on Molecular Biology, to be delivered between Tuesday 3rd and Thursday 5th October 2023**.**

Moodle
All students and staff associated with the MPhil course will be given access to the Course Moodle at the start of the year. The Moodle site is the main repository for course materials and documentation and is also the means by which coursework is submitted. For general information and resources, please refer to the General Information Moodle.

Lectures
Lectures and practical sessions will be delivered in person where possible, alternatively pre-recorded material and live-streamed lectures will be available to students, information via the Course Moodle. The timetable will be circulated at the start of term. It is also published on the Course Moodle and at www.timetable.cam.ac.uk. A timetable is also available on the Faculty's website at www.maths.cam.ac.uk/lecturelists/. Any changes to the published timetable will be updated on Moodle and circulated to students by email at the earliest opportunity.

Examples classes / Office hours
To support students, we will provide examples classes. These will be supervision sessions with small groups of students, with an expectation that there will be 3 hours for a 16-hour course (one or two hours usually offered for an 8-hour course). These sessions may be delivered by the lecturer or by PhD students. Examples classes are compulsory and you are expected to attend.

In addition, Lecturers may offer an office hour, virtual or in person, to enable students to ask questions about course content.

Training
There is a mandatory Postgraduate Safety course to complete online. Staying Safe at the University of Cambridge (an introduction to Health and Safety at the University) can be accessed via the University training page: https://www.safety.admin.cam.ac.uk/training/postgraduate-safety-course/students and should be completed by all Postgraduate students at the start of the year.

Seminar Series
A fortnightly seminar is held alternate Thursdays during Michaelmas and Lent terms at the Biffen Lecture Theatre. These seminars are not assessed, but are compulsory and you are expected to attend each week. A programme of speakers and their topics will be posted on Moodle, to be delivered in person. Details can be found at http://talks.cam.ac.uk under Computational and Systems Biology Seminars.

The aim of the seminar series is to provide students with potential opportunities and resources that may not be provided by the taught modules. Specific seminar events may be arranged, to provide an opportunity to meet local researchers who may have research positions they want to fill, be it the summer research project or PhD posts. We aim to invite a diverse range of speakers from across the spectrum of Computational Biology to demonstrate the wide range of application areas.

Residence

The MPhil is a full-time course which runs from October to the end of August. During term time students are expected to be resident in Cambridge. They may also be expected to participate in activities outside of full term (full term is principally set for the delivery of undergraduate programmes: term vs full term dates). Students should note that it is a requirement of the MPhil degree that they are resident in Cambridge for three terms. To keep residence, they must attend for a certain number of days in each term.

MPhil students may work under supervision outside of the University and be exempted from the residence requirement for up to one term, as the course fulfils the criteria where the mandatory research project may take place outside the University and cannot be scheduled at a time to meet the residency requirement.

Students whose research project placement takes place outside University departments for more than 2 weeks are required to apply formally **in advance** for Leave to Work away from the University, this is the case even when you are resident in Cambridge for the entirety of your placement. If a student meets the residence requirement for Easter, minimum 53 nights in Cambridge between 17th April and 25th June, but wants to complete their course elsewhere, they should discuss their plans with the Course Administrator and must apply for leave to work away.

Application to work away is made via Camsis as per guidance: https://www.cambridgestudents.cam.ac.uk/your-course/postgraduate-study/your-student-status/work-away you are advised to submit your application as early as possible.

If granted, exemption from residence does not change the student's fee liability.

Course representative

Once you have had time to get to know one another we will ask you to elect a fellow student as a course representative. The role of the course representative is to provide feedback to us on any issues regarding the course, such as coursework and teaching. Further information will be circulated.

Student Progress

Students are encouraged to establish contact with their Graduate Tutor at College at the start of the year. Graduate Tutors can assist or act on behalf of postgraduate students, most hold a weekly open tutorial hour, or you can make an appointment to meet with them.

Each student will have the opportunity to meet individually with one of the Course Directors, allocated as their Course Supervisor, once per term in Michaelmas and Lent, to discuss his/her progress. Information on how and when to sign-up for a meeting will be circulated. Further guidance on what to do if you encounter problems or difficulties can be found in *Section 10 – Resolving difficulties*.

Student Feedback

We encourage feedback from students on all aspects of the course. This helps us assess how well the course is running, and will help us to correct any current limitations. Feedback questionnaires will be circulated for each module at the end of each term. All feedback is anonymous and you are encouraged to complete the questionnaires. The responses will be sent to the relevant lecturers and to the Course Director for consideration.

In addition to this formal mechanism, we also encourage informal feedback at any time. Your comments regarding the course will be highly valuable to us in evaluating the content and direction

of the course. As this area of computational biology is rapidly evolving, we expect to evaluate the content yearly to ensure that our students receive the best education possible in this field.

Course Administration

The Course Administrator is the main administrative contact for the MPhil (see *Section 2 - Key Contacts*). Any general questions you may have about the course should be directed to the Course Administrator in the first instance. The Course Administrator is part of the Faculty of Mathematics Postgraduate Office team which is based in C0.15. In the Course Administrator's absence please do not hesitate to contact any member of the Postgraduate Office team for assistance.

4. MPhil Calendar 2023-24

October	
Mon 02	Welcome to MPhil in Computational Biology 11.00 (students can join from 10.30 to chat)
Tue 03	Full Michaelmas term begins Introductory Lectures for Scientific Programming 10.00 (Lectures 1&2) Introduction to Molecular Biology 14.00 (Lecture 1)
Wed 04	Introduction to Molecular Biology 14.00 (Lecture 2)
Thur 05	Introduction to Molecular Biology 14.00 (Lecture 3) Introductory Lectures for Scientific Programming 10.00 (Lectures 3&4)
Fri 06	Genomics I – 12.00 Overview to the course and Lecture 1
Wed 11	Afternoon Seminar 13.00 PhD Applications
Thurs 19	Fortnightly Seminar Series begins
Tues 31	1-to-1 meetings with Course Directors start this week
November	
Wed 22	Summer research project Seminar Afternoon
Tues 28	Genomics I Presentations (Date TBC)
December	
Fri 01	Full Michaelmas term ends
January	
Tue 16	Full Lent term begins
Thur 18	Lent term teaching week 1 begins Fortnightly Seminars commence
Feb	
Tues 13	1-to-1 meetings with Course Directors start this week
March	
Fri 15	Full Lent term ends Deadline for students to submit their research outline for approval by Course Directors Students to be notified of which modules are to be examined in the general examination by this date
April	
Tue 23	Full Easter term begins
Thur 25	Easter term teaching week 1 begins
May	
Fri 10	MPhil General Written Examination (2-4pm)
Mon 13	Research Projects begin
June	
Fri 14	Full Easter Term ends

August	
Wed 7	Deadline for submission of project reports (4pm)
Mon 12	Deadline for submission of research project presentation files (4pm)
Wed 14-Thur 15	MPhil Presentations
Fri 16	MPhil Oral Examinations where applicable Course elements completed by this date. External Examiners Meeting to follow (date to be confirmed)
September	
Thur 12	Degree Committee Meeting

5. Course Structure and Requirements

The modules to be offered in 2023-24 are as set out below. All taught modules are assessed by coursework assignment. Normally students will be set two or three assignments for each full module. Please see course outlines for details of forms of assessment. In addition, students sit a two-hour general examination in the Easter Term on the material taught within the modules. Students are also required to complete a research project which is assessed by a project report of no more than 15,000 words and a presentation. At the discretion of the Examiners, students may be required to attend an oral examination (see *Section 9 – Assessment and Examination*)

The weighting for the examination in Computational Biology is out of 12, divided as follows: each module is weighted at 1, and half modules at 0.5, meaning a total weighting of 8 for the taught modules. The general examination is weighted at 1. The research project is weighted at a total of 3, the components of which are the project report and oral presentation.

Term	***Module***	***Abbreviation***	***Weight***
Michaelmas	Genomics I	G1	1
	Deep learning	DL	1
	Scientific programming	SP	1
	Genome Sequence Analysis (half module)	GSA	0.5
Lent	Genomics II	G2	1
	Population genetics analysis	PGA	1
	Biological Imaging Analysis (half module)	BI	0.5
	BioDesign	BD	1
Easter	Systems Biology	SB	1
	General Examination	EX	1
Summer	Research Project	IP	3
		TOTAL	12

6. Taught Modules 2023-24

The following information provides a summary for each module offered in the current academic year. More detailed information will be provided by the module leader and lecturers as part of the course. Course materials and lecture notes will be uploaded by lecturers direct to the course Moodle for students to access.

Michaelmas Term

Genomics I (GI)
Michaelmas Term (17 lectures, 6 practicals)
Course Lead: Dr Alastair Crisp (MRC-LMB, Cambridge)
Additional Lecturers: Luke Slater (Institute of Cancer and Genomics Sciences, Uni. of Birmingham), Michael Imbeault (Genetics Dept., Uni. Of Cambridge), Irina Armean (EMBL-EBI, Cambridge), Mary Fortune (Dept. Public Health, Uni. Of Cambridge)

Overview

- **Topics covered:**
  Genome sequencing, sequence alignment and genome assembly,
  Genome annotation - genes, transcripts, proteins (functional annotation), non-coding DNA/RNA, repeats. Gene regulation. Sequence variation and the phenotypic consequences. Ontologies and databases.
- **Suggested Reading:**
  Genomes 5 by Terry Brown (or earlier versions). Genomes 2 is available at http://www.ncbi.nlm.nih.gov/books/NBK21128/ .
  Older versions are out of date with regards to the computation and sequencing techniques, by the basic biology is still accurate. Chapter numbers may vary between editions, but I believe the relevant sections are: Chapter 1 (initial sections on DNA structure, Chapter 4 (Genome sequencing – this especially is incomplete in older versions), Chapter 5 (Understanding a genome sequence – the parts that talk about computational techniques), Chapter 6 (Understanding how a genome functions – sections on proteome, metabolome and wet lab experimental methods can be skipped), Chapter 7 (Eukaryotic Nuclear Genomes)
- **Assessment:** Three assignments (weighted 10:45:45). The first and third assignments will be individual and assessed by written report, while the second will be a group assignment assessed by presentations. Provisional submission dates: Assignment 1 - 31st October, Assignment 2 - 28th November, Assignment 3 - 15th December
- **Additional support:** 3 Examples classes throughout the term, (3) Feedback sessions after each Assignment is marked, 1 General Feedback session at end of term

Scientific Programming (SP)
Michaelmas Term (16 lectures)
Course Lead: Prof. Stephen Eglen (DAMTP)
Additional Lecturer: TBC

- **Topics covered:**

Interactive use of R. Basic data types. Writing scripts. Graphical facilities. Writing your own functions. File input/output. Vectorization. Numerics issues. Debugging. Reproducible research. Introduction to Julia (4 lectures).

- **Suggested reading:** A First Course in Statistical Programming with R, Braun and Murdoch (3rd edition, 2021). Available from CUP book store with 20% discount
- **Assessment:** Three assignments with weighting 25:25:50
- **Additional support:** There will be feedback session for each assignment after it is marked and 3 Examples classes

Genome Sequence Analysis (GSA)
Michaelmas Term (8 lectures)
Course Lead: Dr Aylwyn Scally (Department of Genetics)

Overview

The course will introduce hidden Markov models, their properties, implementation and application to some important problems in bioinformatics and genomics.

- **Topics covered:**
  Probabilistic models; Markov chains; hidden Markov models; inference with HMMs; the Viterbi algorithm; Baum-Welch training; sequence alignment.
- **Suggested reading:** not required, but the following is a useful reference for the course: R. Durbin, S. R. Eddy, A. Krogh & G. Mitchison, *Biological Sequence Analysis: Probabilistic Models of Proteins and Nucleic Acids*.
- **Assessment:** One practical assignment, in which students are required to implement and apply a computational HMM to genome sequence data and interpret its output. Provisional submission date: January 20th
- **Additional support:** 2 example/tutorial classes

Theory and Practice of Deep Learning (DL)
Michaelmas Term (16 lectures)
Course Lead: Prof. Stephen Eglen (DAMTP)

Overview

This module will comprise two parts. In part one, we will introduce the theory of deep learning and practical applications. In part two, we will provide applications. Where appropriate, contemporary applications within industry will be described.

- **Topics covered**:

  Part One **-** Network architectures, unsupervised, supervised and reinforcement learning paradigms, training, visualisation, libraries.

  Part Two **-** Convolutional networks for image analysis and classification, Long Short-Term Memories (LSTM) for text analysis.
- **Assessment**: one assignment worth 100% due at end of term.
- Suggested reading: Artificial Intelligence Engines, Jim Stone (2019). https://jamesstone.sites.sheffield.ac.uk/books/artificial-intelligence-engines
- **Additional support:** 3 Examples classes and Feedback sessions

Lent Term

Genomics II (GII)
Lent Term (16 lectures, 8 practicals)
Course Lead: Dr Oscar Rueda (MRC Biostatistics Unit)
Additional Lecturers to be confirmed

Overview
Functional genomics looks at the dynamic aspects of how the genome functions within cells, particularly in the form of gene expression (transcription) and gene regulation. The Genomics II course surveys current methods for functional genomics using high-throughput technologies.

- **The course covers all stages of the experimental workflow:**
  Experimental design and planning, pre-processing and quality control, normalization, differential expression, clustering, classification and survival analysis. We present workflows for the processing, quantification, and downstream analysis of microarrays, RNA-seq, CHiP-seq and methylation data as well as approaches that seek to integrate different data types.
- **Prerequisites:** (Genomics I)
- **Assessment:** Three assignments (weighted 30:30:40). The first two assignments consist of an individual paper answering questions related to the lectures and practicals. The third assignment (40% of the final mark) has a group component (reproduce the analysis) and an individual component (extend the analysis). Students will be required to write a report and present the results in a 1-hour session. Provisional dates: Mid-February, March and April
  Additional support: 3 example classes

Population Genetic Analysis (PGA)
Lent Term (16 lectures)
Course Lead: Prof. Richard Durbin (Department of Genetics)

Overview
Introduction to population genetics and evolutionary theory

- Topics covered:
  Basic evolutionary forces, mutation, genetic drift, recombination, and selection. More complex evolutionary scenarios. Inference of signatures of evolution from intra and inter-specific sequence data. Examples of evolutionary processes: cancer evolution, evolution of drug resistance. Quantitative models for understanding evolution experiments. Inference of selection in multi-locus systems. Inference of demographic histories of natural populations using sequence data.
- Assessment: One written assignment TBC
- Additional support: Examples classes TBC
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Biological Imaging and Analysis (BIA)
Lent Term (8 lectures)
Course Lead: Dr Fadwa Joud (Cancer Research UK Cambridge Institute)

Overview
This course will introduce basic concepts of biological imaging, and image analysis. The first part will

focus on the physics and theory behind microscopy techniques and image formation, and common techniques used in biological imaging. The second part will focus on the theory, techniques and applications related to scientific image processing and analysis.

- **Topics covered**:
  Physics and theory of light and image formation, resolution, concepts of microscopy techniques, state-of-the-art imaging techniques (multiphoton, light-sheet, super-resolution, volumetric), digital image processing and analysis, image digitization, deconvolution, image processing with ImageJ/Fiji, filtering, denoising, segmentation, spot detection, counting & tracking, machine learning tools in image processing.
- **Prerequisites**: familiarize yourself with ImageJ/Fiji open source image analysis software would be beneficial (https://imagej.net/learn/)
- **Assessment:** One assignment, comprising the whole of the mark for the course.
- **Additional support:** Examples classes / Tutorials TBC. Q&A session at the end of the module and after assignment release

BioDesign (BD)
Lent Term (16 lectures and two lab demonstrations)
Course Lead: Dr Hannah Earley (DAMTP)

Overview
This course will introduce you to practical techniques for biodesign. These have originated in the molecular techniques that have become ubiquitous in modern biology. Combined with our growing understanding of biology, we are now able to adapt existing biological systems within cells, or design non-living systems that make use of biological molecules.

- **Topics covered:**
  Part One **-** Designing genetic circuits, the mainstay of traditional synthetic biology and a core technique when introducing novel functions into cells and organisms.
  Part Two **-** Designing nucleic acids and proteins, directed evolution, and rational design techniques.
  Part Three - Editing genomes, redesigning genomes, rebuilding genomes.
  Part Four - Designing abiotic systems: molecular programming and synthetic cells.
- **Prerequisites:** the course is aimed at students without a biological background and thus there should be no prerequisites and no need to read anything in advance.
- **Assessment:** Two written individual assignments, comprising the whole of the mark for the course. Provisional submission dates Sunday 25th February, Sunday 24th March
- **Additional support:** 4 Example classes and two seminars.

Easter Term

Systems Biology (SB)
Easter Term (6 lectures, 3 Tutorials TBC)
Course Lead: Johan Paulsson (Harvard Systems Biology)
Additional Lecturer: TBC

- **Topics covered:**

Kinetic design principles in cells, e.g. feedback loops, multi-stability. Deterministic rate equations.
Stochastic processes. Master equations. Gillespie algorithm. Linear noise approximation. Performance bounds and trade-offs in control. Biological model systems, e.g. bacterial gene expression, plasmids. Single cell and single molecule experiments. Synthetic biology

- **Assessment:** One assignment that is comprised of an individual and a group part, with submission dates in May TBC
- **Additional support:** Tutorials and feedback sessions as required.

7. Research Project

You will spend the last three months of the course (during May to August) working on a research project based in a company, other academic institution (such as EMBL-EBI or the Wellcome Sanger Institute) or in another department of the University of Cambridge. The research project is a compulsory assessed component of the MPhil course and is weighted as three modules towards your final result (2.5 modules for the written report, 0.5 modules for the oral presentation). It is a very important part of the course as it provides students with the opportunity to undertake a piece of original research and to make contacts that may be useful when going on to do a PhD or to find work. Those who are looking for a job after the end of the course may find a company project particularly useful as this will provide you with a reference and relevant work experience.

We have found that it takes at least the first term for many students to know what field they wish to pursue. Lent Term is therefore normally when students start looking for and discussing potential projects with supervisors. You can of course start earlier and we strongly recommend that students use Seminar events as an opportunity to familiarise themselves with current research and to start exploring potential project topics. We will have a meeting towards the end of Michaelmas Term to discuss research projects.

Projects advertised by the Department

The Department will advertise a list of potential projects on the course Moodle. These will give you brief details of projects that have been submitted to us. You are encouraged to follow up projects that interest you directly with the named contact. Please remember that details of the company projects are often necessarily sketchy because they may involve commercially-sensitive material. We will continue to update the list of available projects as they are received, up until the end of Lent Term. You are therefore advised to monitor the Moodle page for updates.

Arranging your own project

We would encourage you, in the first instance, to pursue research from the list of potential supervisors on Moodle which most closely aligns with your own interests. If there is a particular area in which you wish to conduct research which is not represented, you should discuss this at supervision with one of the Course Directors. Arrangements for potential research projects should be made with your project supervisor directly. If you decide that you need to arrange your own project, please ensure that arrangements are made well in advance. You must submit a project proposal, including contact details for your project supervisors, before the end of Lent Term. The proposal must be approved by the Course Directors before you confirm any arrangements with your project supervisor.

Please remember that when you are contacting a company or university that you are representing not only yourself but the course and the University of Cambridge. It is absolutely essential that any contact is made in a professional, polite and business-like manner. If you are unsure about the best way to contact a company or institution then please ask for advice before proceeding.

Please note: the University and Department will not agree to sign 'non-disclosure' agreements (NDAs) with organisations for research projects. Where students are asked to sign any such agreement we strongly urge you to renegotiate, as an NDA may negatively impact upon the work that you will be able to submit for examination and can lead to delays both in organising and starting the project and also in submitting the report. In these instances, please discuss the matter with a Course Director in advance of agreeing to take part in a project.

Confirmation of your Research Project

When you have chosen a research project from the information posted on the course Moodle and have received confirmation from the project supervisor, you must confirm the details with the Course Administrator via email to compbiomphil@maths.cam.ac.uk stating your project title, a short outline, your supervisor's name and contact details. Project details should be submitted for final approval **before the end of Lent Term.** All arrangements to be approved by the Course Directors by Friday 03 May 2024. As outlined above, students making their own arrangements for a research project, must submit an online form (link available via the course Moodle) or a completed project proposal template form **before the end of Lent Term.** Please ensure Project Supervisors are made aware of the schedule and commitments (as set out in *section 11*).

Written Report

You should ask your project supervisor for general advice and discuss the way that you should undertake writing your project report. You are advised to share a draft of your report (which does not need to be complete) with your supervisor for his/her general comments. Their role is to advise, but not to edit or proofread your work.

The exact nature of this report will vary according to your research project. It should take the format of a dissertation, and as a guide should be structured as follows:

- Chapter 1 - introduction/aims/literature review
- Chapter 2 - your work (possibly broken down into more than one chapter).
- Chapter 3 - conclusions / future work
- References
- Appendices - for any extra material (e.g. code snippets, detailed derivations) that you wish to be included for future reference, rather than necessarily to be read by the examiner.

The report should be no more than 15,000 words, which means that your report should be no more than around 30 pages (at 500 words/page, but that assumes no figures). This word limit ***excludes*** the bibliography and appendices, but includes everything else, including the figure legends and any glossary. Thus, figure legends must not be included as images.

Please note this is an upper word limit — writing a short clear report is much better than a long report padded with text to reach the upper word limit. Please write the word count on the front page of the report.

Declaration of Authorship

In the preface to your report you must include a declaration of authorship, signed and dated as follows:

I hereby declare that this dissertation entitled [Enter Your Project Title] is the result of my own work and includes nothing which is the outcome of work done in collaboration except as declared in the Preface and specified in the text. I further state that no substantial part of this dissertation has already been submitted, or, is being concurrently submitted for any such degree, diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. I confirm that I have read and understood the Faculty of Mathematics Guidelines on Plagiarism and the University-wide Statement on Plagiarism.

This declaration is ***not*** included in the word count.

Submission deadline
The deadline for submission of your Project Report is **no later than 4pm on Wednesday 7 August 2024**. You must submit an electronic copy of your report by this date and time via Moodle (see *Section 9*).

Presentation
All students are required to give a presentation on their project research. Presentations will take place on **Wednesday 14 August to Thursday 15 August 2024.** A detailed timetable will be provided closer to the time. Given the number of presentations involved and the need to co-ordinate the timetable with the availability of the examiners, it is not possible for students to select their own time slots. Students are therefore advised to make sure that they are available all day on these dates until they are notified of the final arrangements. Students are welcome to attend each other's presentations if they so wish and are encouraged to support each other in this way.

It is expected that students will give their presentation in person. If you are unable to attend in person, you should contact the Course Administrator at the earliest opportunity. Permission from the Course Director must be given for the presentation to be undertaken by remote means. If this proves necessary, students must take responsibility for ensuring that appropriate arrangements are made. No allowances or dispensations will be made. We strongly advise students to make every effort to make their presentation in person. If the situation changes, making it impossible for live presentations to take place, students will be informed of alternative arrangements.

Each presentation is expected to last 20–25 minutes, with five minutes for questions. You will be expected to keep to time. If you are still talking at 25 minutes, you will be asked to stop immediately. A timer is usually available to help you keep aware of the time elapsed. We strongly advise that you arrange to give several practice talks (e.g. to your colleagues, or host lab). Experience has shown that people who practice give better talks.

For your presentation, you will be required to submit your electronic files (PPT/PDF/Keynote) by **Monday 12 August 2024**. Submission is via Moodle (see *Section 9*).

8. Unfair means, plagiarism and collusion

The University and Department take very seriously the use of unfair means, plagiarism and/or unauthorised collusion in work submitted for formal assessment. All students are expected to be familiar with and abide by the Faculty and University guidance on plagiarism and academic misconduct. The Faculty guidance on plagiarism can be found online. University guidance on plagiarism, along with guidance on study skills and good academic practice is available online. Students should be aware that the University subscribes to the Turnitin UK text-screening software, and that

under University policy any work submitted for assessment can be submitted to this software for screening. MPhil students are required to complete a declaration on the course Moodle at the start of the academic year stating that they have read relevant guidance and understand this policy.

9. Assessment and Examination

Marking Scheme
We will use the following marking scales to evaluate your work on each module:

Grade A	75–100%	Excellent
Grade B	65–74%	Good
Grade C	60–64%	Satisfactory
Grade D	50–59%	Fail
Grade F	Under 50%	Fail

Your final mark will be based on your average score from all the modules you have taken (including the three modules which are awarded for the project). To pass the course, your average score must be 60% or over. Those scoring 75% or more overall and at least 60% in the examination will be awarded a distinction.

Managing your workload
The course is intensive, with multiple assignment deadlines throughout Michaelmas and Lent Terms. Therefore, you are advised to start working on assignments as soon as they are released via Moodle, regardless of their due date.

If you are feeling overloaded and cannot hand in your coursework on time then please do not panic. We would prefer you to hand in work that is incomplete rather than failing to meet the deadline. This may seem harsh but we have found that giving general extensions to deadlines can compound the feeling of being overloaded because other coursework deadlines then start to overlap. When a particular task proves difficult for many students we will take this into account when marking the work.

If there is a general sense of being overloaded or other difficulties with coursework then please ask your Course Representative to speak to a Course Director. You should also consult your College Graduate Tutor. You may find particular elements of the course difficult, please let us know if this is the case.

Late Submission and Extensions
The deadlines set for the submission of assessed work (including the research project report and presentation) should be treated as firm. Any work that is submitted after the specified deadline without clear mitigating circumstances ***will not*** be marked. You will be awarded zero for the piece of work in question.

Students may request a formal extension to deadlines on the basis of illness or serious personal grounds. To request a formal extension, students should in the first instance speak with their College Tutor. If a student needs to submit a formal request, they should contact the Course Administrator compbiomphil@maths.cam.ac.uk Whenever possible, the above procedure must be carried out before the original submission date has passed.

Submission of assessed work to Moodle

Each piece of coursework must be submitted in the format specified by the lecturer setting the work. Presentation of your work is important and will be taken into account when marking your assignments. Please keep a reference copy of all work submitted for assessment until after the examinations process has been completed.

Unless otherwise stated, all coursework, including the research project report and presentation, must be submitted for marking via Moodle. You will be given access to the site at the start of the year and will be able to log-in using your Raven password. Assignment details are added to Moodle throughout the course of the year as they are needed, so do not be concerned if you cannot see all the assignments straight away.

Please note that when you submit your work **Moodle will automatically note the time of submission.** If you submit work before the deadline (e.g. if you upload the wrong file or you want to amend a piece of work) the Course Administrator can revert your submission to draft for you to amend it. If you experience any technical difficulties in using the site or cannot access it please contact the Course Administrator.

Unless explicitly requested otherwise, upload only one file, which should be a PDF. Please do not scan in handwritten notes and submit them as a PDF. They will not be accepted. We strongly encourage the use of LaTeX, as this generates high-quality portable documents.

Anonymous marking

Where possible coursework is marked anonymously. Before submitting each piece of work, please make sure that you have not included in the file or file name any personal identifies (e.g. your name or CRSid). Instead, please use your personal assignment number and the abbreviated assignment name and number. For example, if user 'MCB5466' was submitting Genomics I Assignment 1, their file would be called: gIa1_MCB5466.pdf. You will receive your assignment number via email from the Course Administrator early in Michaelmas term. Contacting lecturers directly regarding the specifics of your submission is discouraged in order to maintain anonymous marking. Therefore, queries should be directed to the Course Administrator.

Written Examination

There will be a two-hour written examination during Easter Term. You will be advised by the end of Lent term which modules will be examined. The exam is scheduled to be held on **Friday 10 May 2024**.

If appropriate, you are allowed a calculator in the exam room, but it must be an approved University model. Approved models are CASIO fx 991 (any version), CASIO fx 115 (any version) and CASIO fx 570 (any version). Before the examination you must have your calculator marked as approved by the Mathematics Undergraduate Office (B1.28). Only calculators marked as approved in advance will be permitted in the exam hall. There is further advice on the Cambridge Students website.

If you require exam access arrangements to be put in place, you should discuss the circumstances with your College Tutor well in advance of the examination and let the Course Administrator know.

Oral examinations (viva voce)

The regulations for the MPhil in Computational Biology permit the examiners to call any candidate for the degree to an oral examination. Usually the Examiners will only request an oral examination where a candidate is at risk of failing the degree on the basis of his/her provisional marks. The provisional

date for oral examinations is **Friday 16 August 2024**. Students are expected to be available in Cambridge on this date and to attend an oral at short notice.

Provisional marks and feedback

In order for students to know how they are progressing it has been agreed that individual assignment marks may be released as they are received. Marks will be released by the Course Administrator via Moodle. Students should note that provisional marks are subject to change and may be adjusted (either up or down) as part of the ongoing examinations process. They are provided as an indication of progress only. Any other form of feedback on assignments is provided at the discretion of the examiner or lecturer concerned.

No marks are confirmed until they have been formally approved by the Degree Committee at a meeting at the end of September and no formal confirmation of the outcome can be provided prior to this. Students who require a letter confirming provisional results prior to the Degree Committee (e.g. for a PhD application, or future employer) can request one from the Course Administrator.

Notification of degree and confirmation of final marks

At the beginning of September, the Examiners will meet to agree the final marks for each candidate. The Examiners recommend to the Degree Committee the final marks, and whether or not each candidate has met the requirements of the degree for which they are being examined. The Degree Committee will review the recommendations and will ultimately confirm the approval or non-approval of the degree in each case.

Following the Degree Committee meeting a statement of final confirmed marks, together with notification concerning the overall outcome of the examination will be sent individually to candidates by email. Whilst the Department seeks to notify students of the outcome at the earliest possible opportunity candidates should not expect to receive their results until mid-October following the end of their course. Students who require a hard copy of their award letter may request one from the Course Administrator.

Graduation, Degree Certificates and Official University transcripts

Colleges are responsible for organising graduation and the Department has no role to play – candidates should contact their College Tutorial Office to make the necessary arrangements. The Student Registry is responsible for the production of formal University transcripts and Degree Certificates.

Continuation to the PhD

It is not possible to provide formal confirmation of your degree result or marks prior to the Degree Committee meeting. If you have been made an offer to continue to undertake a PhD at Cambridge either in the Department or elsewhere, your offer will, as a minimum, require evidence of completion of the MPhil degree. It is the responsibility of the Degree Committee for the PhD programme you will be commencing to liaise with the Mathematics Degree Committee and the Postgraduate Admissions Office to confirm fulfilment of your academic condition. Please speak to the Course Administrator for the programme you are being admitted to for further advice.

Review of Examination results

Examinations are covered by strict regulations and students **should not, under any circumstances, seek to discuss examination results with the Examiners**. The University has a standard procedure for the Review of Examination Results for Postgraduate Students. Students who are considering requesting a review under this procedure should discuss the matter with their College Tutor before

proceeding. You should note that any investigation by the University will usually confine itself to seeing that the examiners acted correctly (for example that all the marks you received were entered into the mark book) and not try to second guess the examiners by re-marking your papers.

Data Protection

To meet the University's obligations under the data protection legislation, the Faculty deals with data relating to individuals and their examination marks as follows:

- Final marks for each module, the written examination and the research project are sent routinely to individual candidates after the September Degree Committee. The final examination mark book and individual module mark books are kept indefinitely by the Postgraduate Office.
- Scripts, assignments and project report submissions are kept, in line with the University policy, for six months following the examinations (in case of appeals). Scripts are then destroyed; and local copies of coursework and project reports deleted. Assessor feedback reports and comments are also retained for six months where available.
- Neither the Data Protection Act nor the Freedom of Information Act entitle candidates to have access to their examination scripts. Data appearing on examination scripts is technically available on application to the University Information Compliance Officer. However, such data consists only of the examiner's ticks, crosses, underlines, etc. and mark subtotals and totals.

10. Resolving difficulties

Occasionally students may experience problems or difficulties during the course of the MPhil. Such difficulties can take very different forms. The guidance below is provided to help you to identify available support and advice should you encounter difficulties. Students are encouraged to raise any difficulties that they may have at the earliest opportunity. The sooner that we know about problems, the sooner they can be addressed.

Problems with particular modules

If you are experiencing difficulty with a particular module, you are encouraged to contact the relevant lecturer in the first instance. He or she may be able to clarify the material, or provide you with additional literature. You may also find it helps to talk to other students on the course. If there are issues with a module that cannot be resolved through discussion with lecturers you may wish to consult the Module Leader or a Course Director (see *Section 2 - Key Contacts*).

Problems with the course in general

Sometimes a student may find that the course is not right for them. If you are at all concerned that this is the case you should consult a Course Director at the earliest opportunity. You may also wish to consult your College Tutor or Graduate Tutor at this time. It is important to note that you will become liable for payment of fees from day 21 of every term, even if you withdraw before the end of term.

Personal difficulties

Occasionally students encounter personal difficulties (e.g. medical or financial) during the course of their studies. If you encounter such personal difficulties, you should inform your College Tutor as soon as possible. They can advise you on your options and on any formal processes or procedures that may apply. Your College may also be able to provide you with other support (e.g. access to counselling

services) and will have experience of dealing with many different issues. In addition, you should keep the Course Director informed. The University Student Wellbeing website has links to many useful resources.

Medical problems and disabilities
Students with medical problems or disabilities are strongly advised to discuss such problems with their College, who will offer advice and support for medical problems and disabilities. Please contact the University's Accessibility & Disability Resource Centre.

Equality and Diversity
The Mathematics Faculty is committed to creating and maintaining an environment for work, learning and research which is free from discrimination. It is expected that all members of the Mathematics Faculty (staff and students) will treat each other with respect irrespective of, for example, race, disability, religion, gender or sexual orientation. If you have concerns about any such matter, you are encouraged to approach, in confidence either one of the Faculty Equality and Diversity contacts: Orsola Rath-Spivack (room G0.09, email or100@cam.ac.uk); or Stephen Eglen (room G0.11, email sje30@cam.ac.uk); or your College Tutor.

Informal advice
If at any stage you are uncertain of the best approach to dealing with problems, please do approach the Course Administrator (compbiomphil@maths.cam.ac.uk) or the Faculty's Postgraduate Office Manager (grad-administrator@maths.cam.ac.uk) on an informal basis. The Postgraduate Office is shared by a number of administrators, so if you would prefer to meet in a more private setting, just let us know.

University procedures
Where local resolution is not possible, the University has procedures for managing a range of student complaints (https://www.studentcomplaints.admin.cam.ac.uk/).

11. Guide for Research Projects Supervisors and Examiners

Potential supervisors are encouraged to submit potential research projects to the Course Administrator before the end of Lent Term. The nature of these projects can be quite diverse, as long as computational modelling/analysis of biological systems forms a central part of the project. Where possible, potential supervisors are encouraged to give a seminar to the students about their work.

There is a template form with which to submit proposals, requiring no more than a ½ page description of the project and contact details of the potential supervisor.

The template sets out Timescales and commitments required from supervisors, who are expected:

- To provide the students with all the resources required to complete the project. (Students will however have access to a computer server based in the Mathematics Department. If HPC is required, we would expect the supervisor to provide this.) Sufficient data for the project to be written up would need to be available within the timeframe of the placement.
- To provide project/s which are appropriate for students to research. We advise that supervisors strongly consider the nature of the research environment when providing background information for projects that may be of a confidential or sensitive nature.

Students should not be required to sign 'non-disclosure' agreements (NDAs) with organisations in order to carry out research projects.

- To meet the students regularly throughout the placement: we recommend at least weekly meetings to ensure that the student is making suitable progress on the project. Co-supervision of the project, e.g. with senior postdocs in a group, is allowed.

- To review and provide general comments on a draft of the students project report. Students are advised to share a draft of their report with their supervisor in a timely fashion. There is no expectation that supervisors will provide further feedback or proofread the report before submission.

- To be available to mark the project within the strict window of 8-13 August 2024. Project reports will be marked independently by two assessors: the project supervisor and an examiner. Each assessor will write a short (usually ½ to 1 page) report on the project, commenting where appropriate on the following elements:

  - Scientific approach to problem
  - Results
  - Overall quality of explanation
  - Style and presentation

  An overall grade should be provided according to the University-wide MPhil marking scheme:

  - 75% and over for a distinction
  - 65-74% for strong reports
  - 60-64% for satisfactory reports
  - A mark of under 60% therefore indicates a fail

  If the discrepancy between two assessors' marks is less than 10%, the two marks will be averaged. Otherwise, the two assessors will be asked to discuss the reports, and possibly adjust their marks. If no agreement can be reached, another assessor will be asked to adjudicate. Note that assessor reports will be made available to students after marking.

Please note:

By submitting a proposal, supervisors consent to the University's standard project Terms and Conditions for University of Cambridge projects (available on request).

Projects are to be considered academic in nature and any inventions or other intellectual property generated by a given project will be wholly owned by the student. External partners shall be given the results of a project for internal research purposes only, the acquisition of any other intellectual property rights by a sponsor organisation shall be at the discretion of the student.

The University is unable to provide measures to protect students exposed to sensitive information. Students should not be required to sign 'non-disclosure' agreements (NDAs) with organisations in order to carry out research projects. The University will not allow students to undertake personal exposure to commercial liability while working on the projects

Assessment

Students will be assessed in two ways:

1. A written report of the project (worth 2.5 modules)
2. An oral presentation (worth 0.5 modules)

Written report

The exact nature of this report will vary according to the research project, but it should take the format of a dissertation, normally with the following structure:

- Chapter 1 - introduction/aims/literature review
- Chapter 2 - the work (possibly broken down into more than one chapter).
- Chapter 3 - conclusions / future work
- References
- Appendices - for any extra material (e.g. code snippets, detailed derivations) that can be included for future reference, rather than necessarily to be read by the examiner.

The report should be no more than 15,000 words; as a guide it should be no more than around 36 pages of text (at 500 words/page, but that assumes no figures). This word limit excludes the bibliography and appendix and includes everything else, including the figure legends and glossary. Please note this is an *upper* word limit - writing a short, clear report is better than a long report padded with text to reach the upper word limit. Students must write the word count on the front page of the report.

Examples of reports from previous years are available on Moodle or from the Course Administrator.

Oral presentation

Presentation files (PDF/PPT) are submitted to Moodle and uploaded to a group laptop that is used for all presentations; students are not normally permitted to use their own laptops for presentations. Each talk is expected to last 20-25 minutes, with five minutes for questions. Students are expected to keep to time, as there are many presentations each day. If any students reach 25 minutes, they will be asked to stop immediately. We strongly advise that students arrange to give several practice talks (e.g. to colleagues, or host lab) as experience has shown that people who practice give better talks. Students are also encouraged to attend the talks of their colleagues.

Presentations are given in person, unless permission has been granted for them to be made remotely via Zoom.

Key dates and contacts for 2024

The key dates for students are:

- Project start: 13 May 2024
- Report submission: 7 August 2024, 16:00 BST
- Presentation submission: 12 August 2024, 16:00 BST
- Presentations: 14-15 August 2024 (times TBC)

Project supervisors and examiners will receive reports for grading by 8th August; evaluations are required by 12th August. Project supervisors and examiners should be available to discuss their evaluations on 13th August, in the event that the marks are not within 10% of each other.
Please email the Course Administrator compbiomphil@maths.cam.ac.uk with any queries.

12. Safety and Security

Access and Security at CMS

Your University Card must be obtained from your College and you will need to bring it to Reception at the CMS to be activated before the course induction. Once activated, you will have access out of hours/during holiday periods when doors throughout CMS may be locked.

The main doors into Central Core are normally unlocked on weekdays between 8.00am-5.30pm, and on Saturdays from 8.30am-5.00pm in term time. Magnetically locked doors should not be propped open, or the alarm will sound. You need a University Card to unlock exterior doors and interior doors outside core hours. *Keep your card on you at all times.*

Do not let strangers without keys or entry cards into the buildings and do not move computers without contacting the Computer Officers. Close manual windows and lock manual doors if you are the last to leave.

The MPhil Room is GL.03. MPhil students can make use of the lockers outside the MPhil Room if they are available, but will need to bring in a lock if they want to lock them. The Facilities Dept. request that lockers be emptied and unlocked by 30th June, any occupied lockers will be cleared shortly thereafter.

The University is not insured for theft of, or damage to, your personal property while you are on University premises, so if you bring a computer with you, you should take out insurance for it. The University is insured for accidental personal injury to staff, students and visitors while they are on University premises, but only where the accident was due to fault on the University's part.

Fire Safety

Familiarise yourself with entrances, emergency exits and fire-alarm assembly points. In the event of the fire alarm sounding, leave the building by the nearest exit. **Do not re-enter the building, even if the alarm has been silenced, until advised to do so.**

The external doors do not unlock automatically for security reasons; exit in the normal way. Assembly points are shown on posted site plans and Fire Wardens will direct you. Do not attempt to enter another building if the alarm is sounding there also.

In an emergency, and in the event of doors failing to open, break the glass in the green "break glass" boxes located alongside each door. Please report this to Reception/Security, as the doors will remain unlocked until the glass is replaced.

Fire alarms are tested in each building every Wednesday morning between 08:30 and 09:00. The alarm will sound for only a few seconds and for this brief period only it can be ignored; if the alarm continues to sound please evacuate the building. Fire Safety training is provided at CMS in Michaelmas term and you are encouraged to attend.

First Aid

First Aiders may be summoned via Reception (**65000**). First Aid boxes are held in each common rooms in one of the cupboards and a First Aid room is located in the lower ground floor of Pavilion F. There

is an automated external defibrillator (AED) sited on the buttress adjacent to reception leading to the entrance to Pavilion G common room.

If an accident occurs outside normal office hours, telephone Security on 31818. The emergency number for FIRE, POLICE or AMBULANCE is **via Security on 101, or 1999 on any network phone**.

All incidents must be reported to Reception, and a report form completed. Completed forms should be submitted to the Department Safety Officer as appropriate.

General Safety

It is important that all members of the Department staff observe safe working practices and inform the appropriate Site Safety Officer, if they see anything giving cause for concern. The *CMS safety policy* is available online.

All accidents or near misses should be reported, whether or not they involve personal injury. Accident report forms are available from Reception. Completed forms should be submitted to the Department Site Safety Officer as appropriate.

Site Safety Officers are:

- Jamie Bonnyman, Facilities Manager (cmsfacilitiesmanager@maths.cam.ac.uk)
- For DAMTP: Rachael Plunkett, Business and Operations Manager (37863, damtpsec@maths.cam.ac.uk)
- For DPMMS: Ben Daft, Business Operations Manager (37996, dpmmssec@dpmms.cam.ac.uk)
- For the Laboratory: Dr Mark Hallworth (37841, mah14@cam.ac.uk)

Covid-19

The Centre for Mathematical Sciences is currently fully open but measures are still in place to reduce respiratory communicable disease transmission. You can access our current workplace protocol on the Faculty Covid-19 webpage. Any changes will be communicated by email. Students will be expected to comply with any new guidance or protocols put in place in order to minimise the risks of respiratory illnesses such as Covid-19 within the CMS.

Smoking

Smoking, including electronic cigarettes and vapour pipes, is not allowed in any of the CMS buildings and is actively discouraged near entrances or automatic vents and windows. Ashtrays are provided beneath the cycle shelters around the perimeter of the site and the circular seating areas outside the main entrance to Central Core.

Recycling

CMS has one of the best recycling rates within the University with approximately 2/3 of waste recycled; please help us maintain and better this by thinking carefully about how you should dispose of waste and select the correct waste stream. Most waste may be recyclable or compostable so please do take the trouble to carefully segregate different items. Minimising our impact on the environment is increasingly important and it costs the University twice as much to dispose of general waste as it does for mixed recyclables waste.

13. Departmental Information

Bicycles

There are cycle racks at several points around the CMS site - please use these. A good lock is a necessity! Please take care **not** to lock your cycle to neighbouring cycles. Cycles are not allowed inside the buildings or inside the courtyard between the Gatehouse and Pavilion A.

Cars

Unless you are registered disabled (and even then a place cannot be guaranteed) you will not be allocated parking.

Disabled Students

The building was designed for universal access but please contact the CMS Facilities Manager cmsfacilitiesmanager@maths.cam.ac.uk for advice on your detailed access requirements. A range of support is available via the Accessibility & Disability Resource Centre, or contact your department Disability Liaison Officer (DAMTP: Alison Cook damtpsec@maths.cam.ac.uk).

Mail Services

A University Messenger Service (UMS) circulates between the University's Departments and Colleges. Mail is collected by the UMS from CMS daily at 10:00. There are no mail services at weekends. If necessary any incoming correspondence should be sent to you at your college

Seminars

Lists of forthcoming seminars within DAMTP, DPMMS and the nearby Isaac Newton Institute for Mathematical Sciences can be found on the relevant Department web pages. See also http://www.talks.cam.ac.uk/

Women in Maths

The women mathematicians at all levels, from Part III students to University Officers, meet in an informal group several times a year. You may also want to look at the Faculty's Women in Maths page.

14. Library

The Betty and Gordon Moore Library, located on the CMS site, is the principal STEM library of the University holding collections across the whole of STEM (with the exception of Clinical Sciences, which are held at the Medical Library). Inparticular, tThe Library holds extensive collections in Mathematics and the Physical Sciences. Students are pre-registered for borrowing on the library management system as part of their general enrolment to the University.

There are many specialist print and online resources to support mathematical sciences in Cambridge, which are detailed in the Maths LibGuide.

Other libraries in Cambridge may be relevant to postgraduate students. For example, the University Library in West Road holds a large collection of older mathematical material. There is a Libraries Directory.

The library discovery system is iDiscover. Use this to search the University's libraries print and online collections using a single search. You can also manage your patron account through iDiscover, check your loans, pay fines online etc.

You may find that you have to search existing academic literature for your work. The Betty & Gordon Moore Library's Research Support team will be happy to help you do this. Feel free to get in touch with them to book an appointment at moore-rso@lib.cam.ac.uk. The team also offers useful training sessions on a range of topics, which are advertised to all mathematics students throughout the year.

For current library opening hours, please refer to the *BGML website*.

15. Email and Computing

Email and Computing Accounts

Students will be issued with a University email account and a Desktop Services computing account by the University Information Services (UIS). Students who are new to Cambridge are able to retrieve passwords for these accounts in advance of arrival in Cambridge as part of the University's Student Registration process. Students returning to Cambridge should be able to access their previous account. Accounts that have been closed down during the summer vacation by UIS can be re-activated upon request.

To collect your Maths computer account you must first have CRSid from the University's central IT services (UIS). For further information see the General information page of the course Moodle.

Most work is done on the Unix workstation subliminal.maths.cam.ac.uk / Login via:
ssh -Y crsid@subliminal.maths.cam.ac.uk

Students should save their files into the cohort folder (provisional filename subliminal:/local/data/mphilcompbio/2023) This is a large disk for shared use and is not backed up.

Please be responsible when adding files, backing up and removing all files at year end, or risk losing them in the automated data cleanse. In exceptional circumstances (eg. sickness, intermission) any student who needs data to be retained should either (a) move it to a safe place themselves or (b) contact the course administrator compbiomphil@maths.cam.ac.uk to liaise with IT.

Please refer to the Maths Computing policy

Cohort mailing lists

The Faculty uses student mailing lists for issuing important information to the entire student body, or specific student groups. They are moderated to prevent students receiving unofficial email and/or junk email. Most students will have no need to send email to these lists, and should do so only if information is of genuine academic interest to all students.

Noticeboard mailing lists

The Faculty also operates email lists for students who wish to receive information about careers, courses or jobs via a system called 'noticeboard'. All new students are added to this mailing list at the start of their course. If you wish to opt out of the 'noticeboard' you are free to do so.

Laptops/Wifi Devices

You can connect to the Internet using Eduroam Wifi on most of the site, help with wireless connections is available online.

Computing Help

Help with computing at CMS can be found online. Please email requests for computing assistance to: help@maths.cam.ac.uk.

Computing Courses

The University Information Service offers a wide range of training courses which are open to members of the University. See the online training timetable and booking facility for details.

Please note that non-attendance (failing to attend without cancelling your booking) will result in a penalty charge. The Department will refuse to pay any administrative penalty charges, so it will be charged to you. To avoid this charge, please ensure that you sign the attendance register at every course or cancel the booking as soon as possible if you are not able to attend the course.

Computing Rules

Users of Faculty computing facilities are subject to some rules which are published by *UIS*. In particular your attention is drawn to the following:

- Computer accounts are issued for use by a single individual. You must not log in using another person's login name or allow any other person to access facilities using your login name.
- Computer hardware should be used carefully and left in a condition fit for others to use.
- Information belonging to other users is confidential. You must not read, access, or modify any file not owned by you without the explicit permission of the owner. When a file is not protected (i.e. read or write access by others is allowed), it should not be assumed that permission to copy or modify the file is granted.
- Proprietary software must be used correctly in accordance with licensing conditions and must not be copied or modified. If you install any proprietary software, including shareware, on maths faculty computers, you must hold a valid licence.
- Users must **not access** any material on the Internet or other facility which:

a. is libellous, racist, obscene or indecent;

b. is likely or designed to cause offence, inconvenience or anxiety to others;

c. infringes copyright law or any other law (images and sound particularly);

d. is of a character likely to bring the University or Faculty of Mathematics into disrepute.

- If you encounter such material by accident you are advised to stop viewing immediately and avoid accessing it again.