Programme Specification 2020-21

MASTER OF PHILOSOPHY IN HOLOCENE CLIMATES

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<tr>
<th>Awarding body</th>
<th>University of Cambridge</th>
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<tr>
<td>Teaching institution</td>
<td>Department of Geography</td>
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<tr>
<td>Accreditation details</td>
<td>None</td>
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<td>Name of final award</td>
<td>Master of Philosophy</td>
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<td>Programme title</td>
<td>Holocene Climates</td>
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<td>HECoS code(s)</td>
<td>100381 (environmental sciences)</td>
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<td>Relevant QAA benchmark statement(s)</td>
<td>Geography</td>
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<td>Qualifications framework level</td>
<td>7 (Masters)</td>
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Geography has a long tradition at Cambridge. The first University Lecturer in Geography was appointed in 1888, the first Reader in 1898 and the Department is celebrating the centenary of the Geography Tripos—the examination for a B.A. degree—during 2019. In 1931 the first Professor was appointed and in 1933 the Department moved into its own accommodation, considerably enlarged in recent years. The Scott Polar Research Institute became a sub-department of Geography in 2002. Today, the Department has 38 academic staff including 14 Professors. The Department of Geography is a flourishing and expanding academic community committed to the highest standards of research and teaching. The questions we ask, the philosophies and methodologies we draw upon, embrace the natural and social sciences, as well as the humanities. Research is organised through our six main research thematic groups and our work brings us into contact and collaboration with many other disciplines to address the challenges of a changing world.

Programme structure

The MPhil is an 11-months full-time programme and involves formal taught and assessed material during Michaelmas and Lent Terms, an online dissertation forum at the end of Lent Term and an independent research dissertation completed between May/June and August. Students are integrated into the research culture of the Department by joining thematic seminars, reading groups, as well as specifically designed laboratory and research methods groups. They also attend the Department’s graduate training programme. Informal opportunities to develop research skills also exist through mentoring by fellow students and members of staff.

All elements of the Programme below are compulsory and are as follows (percentages refer to the assessment contribution to the overall Degree):

**Induction Week** (satisfactory attendance requirement)
A week-long introduction to the MPhil Programme, run jointly with the MPhil in Anthropocene Studies, explaining the scope of the degree, the nature and significance of the questions being explored, together with expectations, logistics, resources and staffing.

**Holocene Climates** (assessed: essay and written examination)
This course is taught across Michaelmas and Lent Terms, through weekly two-hour lectures. It is supported by the fortnightly research and methods groups that will be specifically designed for the new MPhil in Holocene Climates. The syllabus includes critical review of the full suite of interpretations of the causes (volcanic eruptions, solar activity, changes in land-use/land-cover, greenhouse gases) and consequences (ecological and societal) of natural and anthropogenic climate change as reconstructed from a wide range of proxy archives and simulated by state-of-the-art climate models for most of the Holocene. This in-depth survey of past and contemporary climate research will include mention of those fundamentals of planetary physics that operate in concert with geophysical and biological processes, such as
the global carbon and hydrological cycles, which have operated under different environmental conditions during the past 12,000 years. This new programme will provide the students with a functional understanding of how exceptional the Holocene is and how, from this deep time perspective, it is that we can put the many unique characteristics of the Holocene in a planetary perspective.

**Interdisciplinary Concepts** (assessed: written examination)
This course is taught across Michaelmas and the first half of Lent Terms, through a weekly two-hour lecture and is taught jointly with students from the MPhil Programme in Anthropocene Studies. The syllabus covers theories of knowledge from natural and social sciences, methods and institutions for organising and communicating knowledge across disciplines—such as models, assessments and narratives—and inter-disciplinary concepts such as resilience, co-production and planetary boundaries.

**Dissertation Residential School** (assessed: written dissertation proposal) A three-day online dissertation forum, run jointly with the MPhil in Anthropocene Studies, for intensive learning, preparation and presentation regarding the research dissertation, supplemented by interdisciplinary excursions and expert talks in the sciences, social sciences and humanities from external speakers.

**Research Dissertation** (assessed: 15,000-word dissertation)
The research dissertation aims to provide students with the opportunity to engage critically in, and contribute to, intellectual debates about the Holocene by providing them with the opportunity to identify, design and execute a small, empirically-grounded research study. Much of the fieldwork for the dissertation will take place during June and July, either around Cambridge, the UK or abroad.

**Natural Science Research Methods** (satisfactory attendance requirement)
Paleoclimatic research methods training for physical science postgraduate students at MPhil and PhD level either in our labs, seminar rooms or online. Students will complete a range of research methods modules, selecting from qualitative and quantitative research methods, and from basic training to advanced statistical analysis. In many cases, lectures and discussions are followed by practical classes and submitted practical exercises, which students are required to pass.

**Natural Science Laboratory Groups** (satisfactory attendance requirement)
Laboratory groups will take place fortnightly during term-time, either in our labs, seminar rooms or online. These elements will allow students to get familiar with different proxy data and then think and discuss critically through a small number of methodological challenges associated with the reconstruction of Holocene climate variability. Each session will be led by one or two students in the presence of a laboratory group tutor. Each student will submit a short reflection on the discussion to the tutor for an assessment.

In addition, the Department offers a Graduate Graining Programme, which focuses on key research, presentation, publication and employment skills. Students are encouraged to attend the lectures, research seminars, workshops and reading groups that make the Department a lively centre of intellectual activity.

**Educational aims**
This MPhil is offered by the Department of Geography as a full-time programme of study and research and introduces students to specialist knowledge and research skills. Its main aims are:

- to enable students to acquire a critical and well-informed understanding of the contested and accepted academic, public and political understanding of natural climate variability over the past 12,000 years.
- to better place future climate scenarios in a realistic perspective of past variability at
many levels of human consequences;
• to give students the opportunity to acquire or develop advanced subject expertise and transferable skills relevant to their research interests and career aspirations;
• to equip students to deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate their conclusions clearly to specialist and non-specialist audiences;
• to help students intending to go on to doctoral work to acquire the requisite research skills and to prepare a well-planned and focussed PhD proposal;
• to offer students exposure to those activities that employ some of the same tools and techniques used in paleoclimatology, however applied in a commercial enterprise.

By:

• providing lectures, supervisions and methods as well as laboratory groups in a range of technical/specialist subjects central to inter-disciplinary environmental scholarship and research at the forefront of knowledge, in the different areas of physical geography pertaining to Holocene climate variability, and giving students the opportunity to base their essays and dissertation on such teaching;
• giving students the experience and guidance necessary for them to be able to formulate, design and execute a realistic research proposal, and to prepare written work based on such a proposal to a strict timetable;
• introducing students to relevant intellectual and research resources, including an understanding of a range of research methods;
• giving students the experience of presenting their own work and discussing the issues that arise from it with an audience of their peers and senior members of the Department.

Research dissertation topics must be chosen so as to relate to ideas and concepts relating to Holocene Climates, for which a relevant supervisor is available, and which draw upon social science and/or humanities theories and research methods.

Learning outcomes

Knowledge and understanding

Students from this Programme can expect to have acquired:

• a comprehensive understanding of natural climate variability has progressed to produce the unusually favourable Holocene, and a critical awareness of the challenges and creative thinking that is required to produce and refine this retrospective field of science called paleoclimatology, much of which is at, or informed by disciplines of geography;
• a comprehensive understanding of analytical techniques, interpretation and communication skills applicable to their own research or advanced scholarship;
• originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in this field;
• an objective ability to critically evaluate current research and advanced scholarship in the area of paleoclimate, and, sufficient insight to propose new hypotheses to test the strength and influence of natural climate forcing factors.

Skills and other attributes

Typically, students from this Programme can expect to be able to:

• deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate their conclusions clearly to specialist and non-specialist audiences;
• exhibit proficiency in use of a range of software including low-level programming
languages like MatLab© and R to give students the tools for testing, with statistical authority, extant evidences, and conduct their own experiments on theories they design;

- demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level continue to advance their knowledge and understanding;
- possess the qualities and transferable skills necessary for future employment including: the exercise of initiative and personal responsibility; decision-making in complex and unpredictable situations; and the independent learning ability required for continuing professional development.

### Teaching methods

The Programme is delivered through a variety of teaching methods, be it at the Department or online, namely:

- **Lectures** – means for introducing substantive subject material — e.g. key theories, concepts, case studies, controversies, open questions, etc;
- **Tutorial supervision** – usually one or two students meeting with a supervisor to provide feedback on a formative essay or guidance on the research dissertation;
- **Methods and Laboratory groups** – “hands-on” small group learning for 5 to 10 students, often self-directed but always with a tutor present; encouraging peer-to-peer learning;
- **Dissertation Forum** – an intense three days of individual and group learning, focused on developing the dissertation proposal, with invited expert speakers;
- **Research dissertation** – the dissertation is a piece of independent research, based on a question derived from the Programme syllabus; students will be advised through a supervision from initial question identification through the design and execution of research.

During Michaelmas and Lent Terms students should expect to have between 8 and 10 hours per week of timetabled and compulsory learning sessions at the Department or online, plus optional participation in other Departmental lectures, seminars, workshops, methods and laboratory groups.

### Assessment methods

The assessment of all Cambridge MPhils falls under the formal control of a Degree Committee, which in this case is the Degree Committee of the Faculty of Earth Sciences and Geography.

The summative assessment of the MPhil is as follows:

- one coursework essay of 4,000 words from a pre-determined list of topics based on the Holocene Climates module. Submission at the end of Lent Term (20% of overall mark);
- one written online examination consisting of a choice of questions in two sections: Inter-disciplinary Concepts and Holocene Climates. Candidates will be expected to answer one question from each section (30% of overall mark);
- a dissertation (50% of overall mark) consisting of a three-page written proposal (5%) and a 15,000 word thesis submitted by the penultimate Friday in August (45%). The dissertation must be clearly written, take account of previously published work on the subject, and represent a contribution to learning, as well as showing evidence of independent research.

Students are required to satisfactorily attend the induction week, the Natural Sciences Research Methods and Laboratory Groups, and the dissertation residential school.
The following mark scheme is employed in the Department:

- 75% and above: Distinction
- 67-74%: Merit
- 60-66%: Pass
- 55-59%: Marginal Fail
- 54% and below: Fail

Marks will be weighted according to the assessment scheme. To pass the MPhil, candidates are required to obtain a pass mark in each of the three (essay, written examination, dissertation) elements of the Degree separately, except in the following special circumstances:

(a) a candidate whose failure in the essays and/or exam is marginal should be allowed to submit a dissertation, and a high performance in the dissertation may be considered by the Degree Committee;
(b) where a candidate’s failure in the dissertation is marginal, a high performance in the essays and/or exam may be taken into consideration by the Degree Committee.

In either case, (a) or (b), the Degree Committee may recommend the candidate attends an oral examination, conducted by the external examiner.

Students will be notified of their Degree class (Pass 60-74% or Distinction 75%+) following the meeting of the Degree Committee in September and students will receive written feedback on their dissertations with 21 days of this meeting.

**Entry and/or progression requirements**

Entry onto the Degree will be for students who have obtained, as a minimum, an upper 2nd class degree (or equivalent) in the subject of geography, or a related degree programme which includes some element of environmental or geographical content.

**Student support**

The Department conforms to the University’s Code of Practice for Students Studying for the Master of Philosophy (MPhil) by Advanced Study.

All students are members of a College as well as the Department and have access to learning support from both College and University. The course is overseen by the MPhil Programme Director who is the overall supervisor for each student and who gives advice on planning the year’s work. They are responsible for monitoring the progress of each student, submitting termly progress reports, and will assign individual supervisors for each student’s dissertation. The Department’s Director of Graduate Studies will also be available to offer advice or to resolve difficulties. The College Tutor for Graduates will play a role in induction, support and guidance.

A programme of departmental research workshops, seminars and reading groups, some of them run by PhD students and post-docs, helps students to develop research expertise, employability and transferrable skills. An MPhil Handbook is available on the departmental website.

The Department’s learning resources include a Library which constitutes the main working collection for MPhil students; a computer facility for graduate students; and a Museum and Library at the Scott Polar Research Institute.

Further information about student support may be obtained on request to the Department.
Management of teaching quality and standards

The University ensures high standards of teaching and learning in the following ways:

- The completion of Annual Quality Updates by each Faculty and Department, to enable central overview of provision and assist in dissemination of good practice
- Scrutiny of the reports of External Examiners for all teaching programmes
- Encouraging student engagement at both the local level, through involvement in Faculty and Departmental Committees and through soliciting formal and informal feedback from students, and at a central level by participation in the Student Barometer.
- Holding reflective, centrally-coordinated, Learning and Teaching Reviews for all teaching institutions every six years to explore provision and suggest constructive courses of action.
- Mentoring, appraisal, and peer review of staff, and encouraging staff participation in personal development programmes.

A recent (2017) external research assessment states that the Department provides an exemplary research environment, in particular in the number of active research groups, the level and use of research income and the provisions for graduate students. Around a quarter of the Department’s existing MPhil students go on to study for a PhD.

Graduate employability and career destinations

Preparation for employment in general is provided in the opportunities for the acquisition of relevant transferable skills outlined in this programme specification. Where programmes with a significant vocational or professional element are accredited by Professional, Regulatory or Statutory Bodies details are given above.

The Careers Service maintains links with employers and takes their needs and opinions into account in the services which it provides for students. The Careers Service also allocates a Careers Adviser to each College, faculty and department to act as a point of contact.

Every effort has been made to ensure the accuracy of the information in this programme specification. At the time of publication, the programme specification has been approved by the relevant Faculty Board (or equivalent). Programme specifications are reviewed annually, however, during the course of the academical year, any approved changes to the programme will be communicated to enrolled students through email notification or publication in the Reporter. The relevant faculty or department will endeavour to update the programme specification accordingly, and prior to the start of the next academical year.

Further information about specifications and an archive of programme specifications for all awards of the University is available online at: https://www.camdata.admin.cam.ac.uk/