

Department of Earth Sciences  
University of Cambridge



**PART IA**  
**COURSE GUIDE 2021-22**

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# 1. Introduction to the Course

**Welcome to 1A Earth Sciences** where you will be introduced to the physical, chemical and biological principles that have shaped our planet over its 4.5 billion-year history. Modern Earth scientists are tasked with addressing big problems, including some of humanity's most pressing issues. Earth sciences also is broadly encompassing, providing a home for physicists, chemists, biologists, mathematicians, and materials scientists to apply their interests and skills to address tough problems lying at discipline boundaries.

By the end of the year you will be equipped with a completely different way to solve problems in science; you will learn to determine the key scientific principles underlying complex phenomena. Where and why do rocks melt and form volcanoes? What controls Earth's climate? How do we know the composition of the core? What controls earthquakes? How and when have different groups of organisms evolved on our planet? Is the Earth, and the life it supports, unique among planets in our solar system and in the Universe? Your laboratory is not only here in Cambridge, but encompasses the entire planet Earth, and our students explore as far and wide as the Himalaya to the Arctic to make their own observations.

We will take you on field trips from Scotland to Greece and Spain. You will learn to set the boundary conditions of real research questions by making your own observations. Researchers in our department range from theoretical mathematicians and physicists to isotope geochemists to evolutionary biologists, bringing together an unrivalled diversity of thought together in one course to shape your way of thinking about the planet and our place in it.

This year we face special challenges in teaching and learning associated with the Covid-19 pandemic. In this course guide we lay out the arrangements we have put in place for this year's course, to ensure that you experience the same standard of teaching and engagement as in past years. Please read the information in this guide carefully. There are stricter protocols on laboratory use and a new code of conduct this year. Two important communication channels, which you must keep a day-to-day eye on, are the [1A Moodle page](#); and the MS Teams 1A Channel, where important announcements will be posted, sometimes on short notice. You will find a **laptop and/or tablet device** invaluable this year for accessing and getting the most out of the teaching material. You should always bring one to practicals.

**Prof Nick Tosca ([njt41@cam.ac.uk](mailto:njt41@cam.ac.uk)) and Dr Daniel Field ([djf70@cam.ac.uk](mailto:djf70@cam.ac.uk)) (Course Coordinators)**

## 2. Teaching in Part 1A Earth Science in 2021-22

Our teaching takes place in five main ways; **lectures, practical classes, supervisions** and field trips.

Communications will take place via the [1A Moodle page](#) and associated announcements; and through the Microsoft Office 1A Teams channel. We expect there to be changes to practical arrangements at short notice and/or important announcements regarding assessments. Please check both Moodle and Teams carefully and regularly.

It is important that you understand the objectives of each mode of teaching and what your role is in their success.

### (i) Lectures

Lectures are relatively formal presentations to large classes. IA Earth Sciences lectures are scheduled for **12.15–13.15 on Monday, Wednesday and Friday** in the **Physiology Lecture Theatre**. Despite their hourly time-slots, all NST lectures conventionally begin at five minutes past the hour and end at five minutes to the hour. You are expected to attend all lectures: they contain the essential material that you need to know for examinations, some of which cannot be found in textbooks. Note: Mobile phones *must* be switched off during lectures.

You should expect teaching styles to vary between courses and between lecturers. All lecturers issue online handouts of prepared lecture notes and diagrams, but you should not expect them to structure their lectures to conform precisely to this material. Some lecturers will expect you to supplement this material with your own notes. The lecturer should make their teaching and learning strategy clear to the class, although you should use the methods that you feel will best enable you to understand and learn the material.

A synopsis of the whole IA Earth Sciences lecture and practical course is included in this guide. There is no syllabus for the course, but the lecture notes provide a guide to the range of topics on which you can expect to be examined.

### (ii) Practical classes

Practicals are held in the **IA Earth Sciences Laboratory** (East Wing, second floor), in smaller groups than the associated lectures. You do *three 1-hour practicals each week*. On registration, you should have been assigned to *one* 1-hour period from each of sets 1, 2 and 3:

**Set 1:** Saturday 10am, Monday 9am, Monday 10am, Friday 11am

**Set 2:** Monday 11am, Tuesday 10am, Wednesday 9am, Wednesday 10am

**Set 3:** Wednesday 11am, Thursday 10am, Friday 9am, Friday 10am

If you are unable to attend *any* of these sessions for any reason, you **MUST** inform the relevant member of academic staff as soon as you are able.

There may be a short, spoken introduction or conclusion to each session, but during most of the class you will be working independently on a practical exercise involving geological materials. Staff and postgraduate demonstrators will be on hand to help you. They will be glad to answer questions both on the specific practical exercise and on related material from the lectures. The lecturers themselves are also usually present in some of the related practical sessions. Our practical work is mainly comprised of the examination of rocks and minerals in hand specimen and under the microscope (thin section) as well as a series of calculation and map based exercises that you will be guided through by demonstrators and staff.

If you have comments on the content or organisation of practicals, either tell the demonstrators, the head of the practical class (see Departmental Contacts). The practicals are reviewed weekly by the lecturer, head of class and the demonstrators. Student comments are usually incorporated into future practicals where possible.

You will need a hand lens (x8 or x10) in many practicals and for field work. You will receive a hand lens from the department during your first week. Alternatively, the Sedgwick Museum shop stocks good hand lenses that you can purchase. The museum can be found on the first floor of the Earth Sciences building above the Common Room, and is free to visit.

Provided that Covid-19 regulations permit, practicals will run face to face as far as is possible with a large number of Covid-19 safety precautions in place. However, all Earth Science practicals *can* be completed remotely if necessary (e.g., through participation in a live Zoom call to the practical session). See section 3.1 for instructions about signing up to practicals and the laboratory standard operating procedures for the 1A lab.

**Please bring a laptop to all practical classes. They will be used for simple calculations, watching video explanations (headphones also very useful) of the practical material and to enable the use of microscopes.**

### **(iii) Supervisions**

These are small classes, usually of between one and three students, with a member of the teaching staff or an experienced postgraduate. You should expect to get between 6 and 8 hours of supervision per term in each NST IA course that you are taking. These may take place face to face or via Zoom, depending on the preferences of both the supervisor and students. Supervisions are organized by your College, rather than by the Department. Supervisions are an excellent opportunity to discuss the course material and to learn and practice examination skills. Most supervisors will regularly set you work to be handed in and assessed. This may take the form of weekly question sheets or the supervisor may set different work. Some of these exercises will require you to write answers in the form of short scientific notes. Your supervisor will guide you as to the style of these, but full advice is given in the document '*Writing answers to Earth Sciences questions in supervisions and exams*', which can be found on Moodle.

#### **(iv) Online resources**

All course information and supporting material relating to IA Earth Sciences is available online. Current material includes the most recent lecture notes and slides, and many practical questions and answers. The site is called [Moodle](#). You should be registered automatically for access to the appropriate Moodle sites for your IA NST courses. You will intermittently receive emails via Moodle relating to arrangements for the course.

Almost all supervisors for IA Earth Sciences are members of the Department. Although supervision teaching is arranged through your College, the Earth Sciences Department ensures that supervisions coordinate well with Departmental teaching, and has periodic meetings of Directors of Studies in order to achieve this.

#### **(v) Field trips**

There are two field trips for the IA Earth Sciences course:

**Arran:** A week on the Isle of Arran in one of three weeks in the Easter Vacation,  
One of:

Party A Thursday 17 March to Friday 25 March 2022 **Kinloch**

Party B Thursday 24 March to Friday 1 April 2022 **Lochranza**

Party C Thursday 31 March to Friday 8 April 2022 **Lochranza**

**Ketton Quarry:** This is a half day trip which will run in June 2022.

You should try to attend both of these trips. They provide valuable extra experience of geological principles and practice. Some exam questions relate to the geology on these trips. The trips are well staffed, and advice can be obtained abundantly and informally.

The costs of the trips are heavily subsidized by the Department, and there is no cost to you for the Ketton Field trip. The cost of the Arran trip is £95, and payment is due by the end of Michaelmas term.

Accommodation on field trips is generally in shared single-sex dorms or large rooms. Please speak to Helen Averill or Therese Williams if you have any questions or concerns.

For all field trips you will need some stout footwear, ideally walking boots or wellington boots, and a rain jacket. For the Arran trip you must have adequate outdoor clothing and footwear: a good waterproof jacket and trousers, and boots for wet, rough terrain (not just trainers). Please refer to the Field Trip purchasing guide on Moodle.

There is another field trip to note if you continue with Earth Sciences beyond IA. This is the Cumbria Mapping Course in Northwest England, nine days at the end of the Summer Vacation

(late September). Attendance on this trip is strongly advised if you are carrying on to IB Earth Sciences and if there is a possibility that you will continue to Part II Earth Sciences.

Please note, it is essential that you attend the **Field Safety Training** which will take place at the end of Easter Term. Further information will be distributed nearer the time.

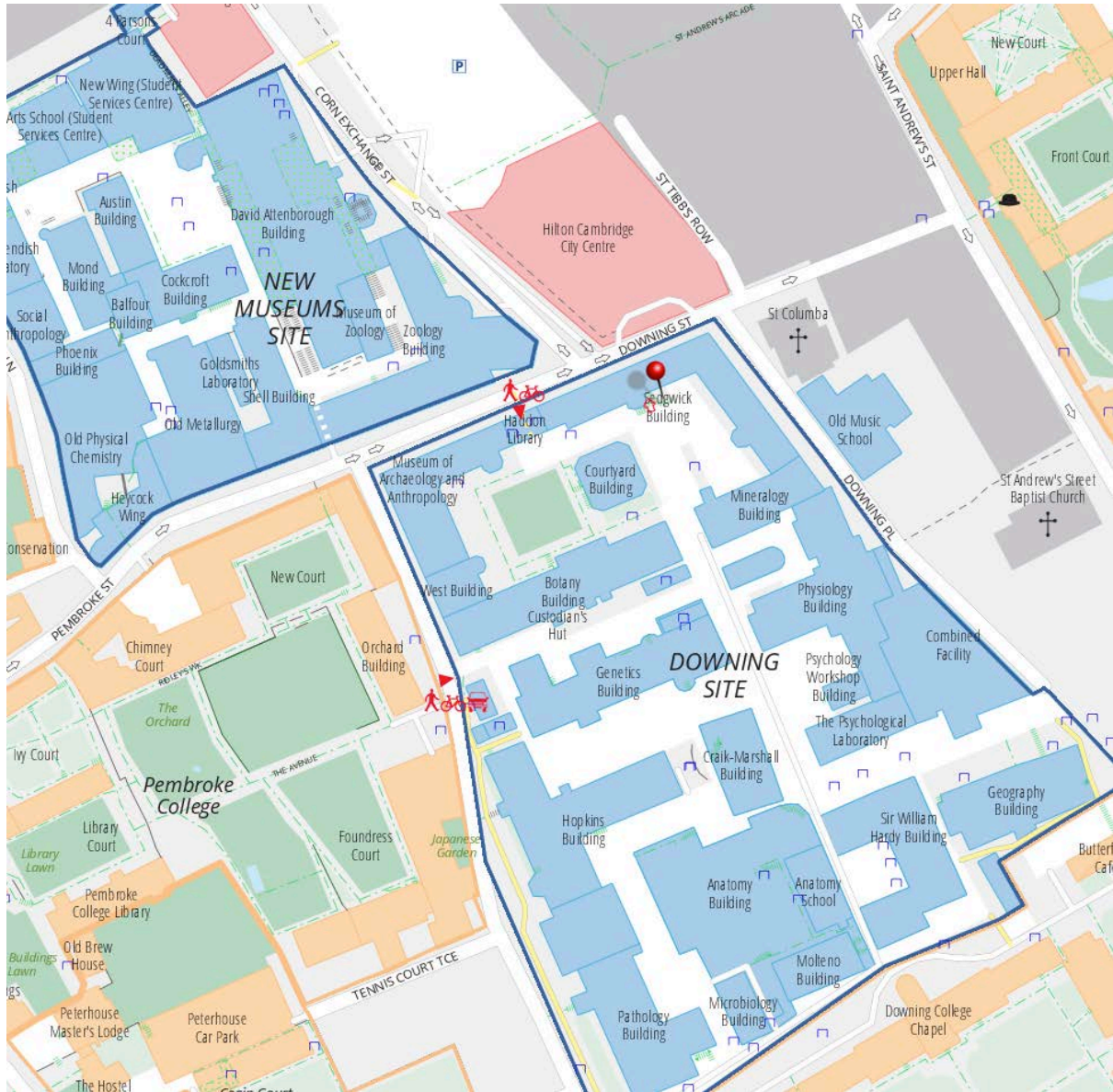
### **Course questionnaires**

At the end of every part of the course we ask you to fill in an online questionnaire on Moodle. This is another opportunity for comment on the content or structure of the lectures and practicals anonymously. It is essential that you complete these at the time. They are a pivotal way for us to improve delivery of our courses to students like you.

### 3. Department of Earth Sciences – Location

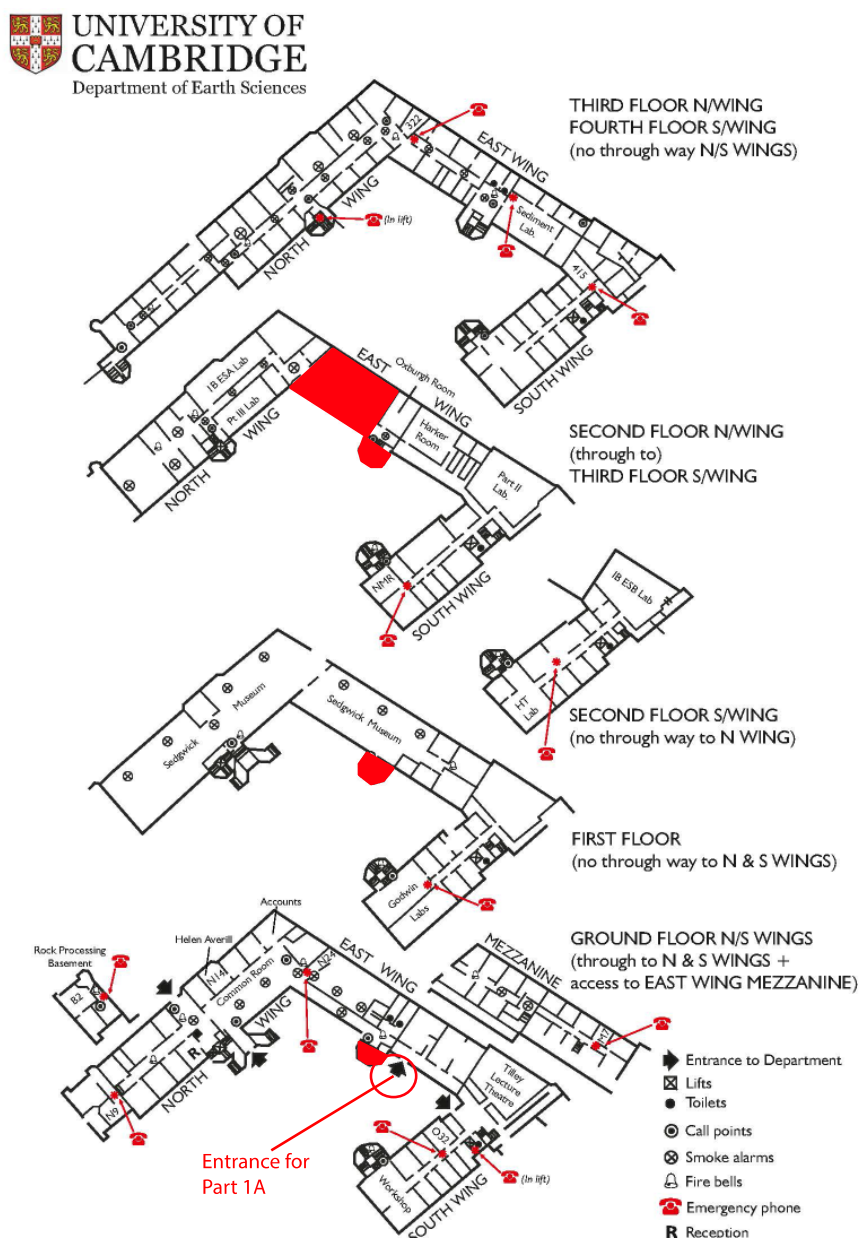
The Department of Earth Sciences (which contains the Sedgwick Museum) are located on the Downing Site.

**Fig 1: Map of the Downing Site**





**Fig. 2: Department of Earth Sciences – Map**



The red circle shows the entrance for Part 1A students. Areas highlighted in red show the 1A lab and the stairs which provide access to the 2<sup>nd</sup> floor.

The main building of the Department comprises a North Wing fronting onto Downing Street, an East Wing bordering Downing Place, and a South Wing protruding into the Downing Site. Fig. 2 shows this layout, the locations of the facilities mentioned below, and the access routes to them. **At Part 1A, access to the building will be via the East Wing door, indicated on the plan (Fig. 2) in a socially distanced manner.**

The main toilets are located a) on the ground floor at the bottom of the East Wing staircase, b) at the top of the East Wing staircase. There is a toilet with disabled access near Reception.



The IA Earth Sciences Teaching Office is staffed by Ben Froste in Room 217 (bf268@cam.ac.uk) and Simon Childs in Room 222 (sjc298@cam.ac.uk), off the lobby at the back of the IA Lab. Email them for practical needs outside the advertised practical times.

The Teaching Support Manager, Helen Averill, is in Room N14 off the Common Room, and can be contacted on hpd20@cam.ac.uk. Speak to Helen about anything related to the course, teaching and field trips. Mitha Madhu (mm853@cam.ac.uk) is the Teaching Assistant and can also assist with general course enquiries.

Most of our communication with you will be via e-mail, Moodle and MS Teams. *Please* ensure that you check your @cam.ac.uk account regularly and respond promptly when necessary.

## 4. Departmental Facilities

Whilst you will spend most of your time in the 1A lab if you are coming to the Department for practicals, there are a number of other facilities which are available to you:

- **The Sedgwick Museum**, with its entrance on the 1st floor of the North Wing, has a large collection of fossil, rock and mineral material relevant to the IA course. Admission is free and you are encouraged to look round the museum at any time.
- **The Sedgwick Museum Shop**, immediately inside the museum entrance, sells geological equipment and some books. The shop also sells a wide range of specimens and gifts: an inflatable dinosaur may be just the birthday present for that 'difficult to buy for' relative!
- **The Sedgwick Club**, the student geology society, arranges evening talks, field trips, and social events. Whilst run mainly by Part II/III and IB students, the club welcomes interested IA Earth Sciences students. You will find contact information on and event details on the [Sedgwick Club website](#).
- **The Common Room** is on the ground floor of the North Wing. Covid-19 restrictions allowing, the Common Room may be available for you to use as a quiet area at most times of the day, but please be prepared to clear tables for others to use for coffee from 10.30-11.30am each day. There is a drinks machine in the entrance hall near Reception and a snack machine at the far end of the Common Room, just outside the doors.
- **The Earth Sciences Library**, on the second floor of the north wing. The librarian, Sarah Humbert (shum05@esc.cam.ac.uk), has an office just inside the Library entrance. The library holds teaching material of most use to students in Parts IB, II and III. Your College library should hold the relevant books for Part IA, and it is the responsibility of your DoS in Earth Sciences to keep the College library up to date. However, if you have a specialist requirement or want to borrow from the short-loan teaching collection, please consult the Earth Sciences Librarian in her office inside the Library entrance. You will need a University Library card to borrow material. You are also welcome to use the Earth Sciences Library for private study. Rarely, students from second and later years may need to be given priority for the limited seating space and computer facilities available.
- Other lecture theatres and teaching laboratories used for teaching in Parts IB, II and III are labelled on the plan.
- Reception for Earth Sciences is on the ground floor of the North Wing.
- The Kitchen is opposite Reception. Get drinking water here rather than from taps in the toilets. Please take water in bottles rather than cups to avoid spills in the labs.

- All staff, postgraduates, Part II and III students have pigeonholes or mail folders in the North Wing Foyer next to Reception.

## 5. Practical Logistics, Conduct and Safety

### Keeping each other safe in laboratory classes

A number of measures have been implemented for the academic year 2021-22 to ensure the 1A practical class is Covid secure. As a Department we are extremely lucky to have large teaching laboratories so that **1m+ distancing** can be maintained at all times between students, staff and demonstrators. To enable this, the desks have been spaced accordingly and **face-coverings must be worn at all times in the Department.**

**If you have any of the main Covid-19 symptoms, please do not attend your practical class.**

The main symptoms of coronavirus (COVID-19) are:

- a high temperature – this means you feel hot to touch on your chest or back (you do not need to measure your temperature)
- a new, continuous cough – this means coughing a lot for more than an hour, or 3 or more coughing episodes in 24 hours (if you usually have a cough, it may be worse than usual)
- a loss or change to your sense of smell or taste – this means you've noticed you cannot smell or taste anything, or things smell or taste different to normal

**To protect others, do not come to the Department if you have any of these symptoms. Get a test to check if you have coronavirus and stay at home until you get your result.**

### Entry to the building

Please enter using your university card by the east-wing door at the start time of your practical.

### In the practical class

- Please remain seated in the practical session. If you need assistance or have a question, please raise your hand and a demonstrator will attend to you.
- If appropriate, you will be provided with specimens, microscopes, maps or other exercises to complete.
- All microscopes have been fitted with an eyepiece camera, so that demonstrators can view what is under your microscope, and so that your eye doesn't need to be in close proximity to the microscope, which can be difficult with a face covering and eye protection. The microscope camera is supplied with a USB cable to plug directly into a laptop. You will need to install software that can be downloaded from the following link for Windows, Mac and Linux: <https://www.amscope.com/software-download>
- All doors and windows will be open in the lab, in addition to the mechanical ventilation. In winter, you should wear warm clothes.
- The nearest toilets are at the top (332 & 334) and bottom (32A & 32B) of the East Wing staircase.

### General safety

- Food or drink **must not** be consumed in any laboratory with the exception of water in a capped bottle.
- All bags, coats and cycle helmets are to be kept off the benches.

- To allow unobstructed passage around laboratories all students' personal possessions must be stowed under the benches or in the cubby holes provided.
- If the fire alarm sounds, you will hear a very loud continuously ringing bell. On the instructions of the demonstrator in charge of the class, you must leave the building and assemble on the lawn by the Department of Archaeology & Anthropology. Do not stop to collect personal belongings and do not re-enter the building until the fire brigade has given the all-clear.

### **Equipment and practical material**

- Keep a minimum number of possessions on the bench tops, and try to keep them in order so that the risk of knocking samples onto the floor is minimised.
- Bench lamps **must** be lifted by their bases, not by the arms. Lifting by the arms can damage the pivoting mechanism.
- You will be instructed in the use of microscopes, and these instructions must be followed. Do not drag microscopes across the bench top; move them by safe lifting. Dragging the microscopes causes severe vibration, which leads to the optics becoming misaligned.
- When using microscopes and computers, check your seating position to ensure that you are at the correct height and, to avoid eye strain, look across the lab to allow your eyes to change focus every 20 minutes or so.
- Glass microscope slides must be treated with care. They are easily broken; some are irreplaceable, and all are expensive to replace.
- Handle ALL specimens with care. Many, especially the palaeontological material, are of museum display quality and are irreplaceable. *Do not mark or scratch them* unless you are specifically told you may do so.
- Ensure that all specimens, microscope slides, etc. are returned to the correct tray or drawer after use, and that any microscopes and bench lights are turned off before you leave the lab.

## 6. Course Documentation and Moodle

**The Lecture lists** for Part IA, plus timetables and other essential course-related information can be found on [Moodle](#). You can also set up your own personal timetable based on your subject and practical choices, using the online University [Timetable](#)

**Reading lists** are available on Moodle, and lecture notes and other course documentation will be added to Moodle throughout the year. Please speak to Helen Averill or Mitha Madhu if you are having any problems with access, although everyone should have access to the course pages from the beginning of Michaelmas Term.

## 7. Examinations

The Natural Sciences Tripos exam for IA Earth Sciences consists of two papers. These are taken in the main examination period, during the second half of the Easter Term.

**Theory paper:** The theory paper is three hours long and divided into two sections. **Section A** will be a single compulsory calculation question, typically involving numerical or graphical analysis of data or concepts. From **section B** you will be asked to answer **four** questions chosen from eight or nine offered. You can expect about two questions for each half-term of the lecture course, although there may be questions covering different parts of the course. Calculation components to these questions are not precluded. 60% of the marks are allocated to the theory paper.

**Practical paper:** The practical paper is three hours long and comprises four compulsory questions taking three quarters of an hour each:

Q1 - Identification of 15 hand specimens of rocks, minerals, fossils or of photographs of geological features.

Q2 - Microscopic description and identification of rocks.

Q3 - Description, identification and interpretation of fossil material.

Q4 - Interpretation of a geological map.

40% of the total Earth Sciences marks are allocated to the practical paper.

You can take an approved NST calculator (see Section 9) plus appropriate writing and drawing equipment into the examination. You cannot take in any reference material, although a reference booklet is provided for Q2 of the practical exam.

Although there is no continuous assessment, the high proportion of marks attached to the practical exam means that you need to attend and make the most of the practical classes that we offer. It is difficult to get a good grade overall without doing well in the practical.

The IA Earth Sciences marking is done by a panel of four examiners, not necessarily staff who have taught the course in that year. Given the 60%/40% ratio of theory to practical marks, each theory question is effectively scored out of 12% and each section of the practical exam out of 10% of the total marks. No marks are awarded for missed questions. The raw total mark out of 100% is used to rank candidates by order-of-merit. The raw marks are then scaled ('norm-referenced') such that approximately 25% of candidates get a First Class (scaled mark  $\geq 70$ ), 65% get a Second ( $\geq 50$ ) and 10% get a Third ( $\geq 40$ ) or Fail ( $< 40$ ). The overall mark in IA NST is totaled using these norm-referenced unrounded subject marks, ensuring comparability between different subject combinations. Your College Director of Studies receives a breakdown of your marks into a theory and practical score for each subject.



## 8. Marking Criteria for answers in Earth Sciences Written Papers

Earth Sciences is one of the subjects in IA NST that requires you to write answers in the form of short scientific notes for the theory paper. Guidelines on what is expected are provided in the document ‘*Writing Answers to Earth Sciences Questions*’.

%	Class	Criteria
90-100	1	Brilliant answer. Exceptional understanding of subject and relevant literature. Outstanding critical analysis, full of insight Excellent organized, expressed and illustrated
80-89		Excellent understanding of subject. Answer goes well beyond lectures. Effective critical analysis and grasp of relevant literature Well organized, expressed and illustrated.
70-79		Very good understanding of course material. Sound evidence of outside reading. Some critical analysis. Well organized, expressed and illustrated.
60-69	2.1	Sound to good understanding of course material. Limited use of extra-course material. May contain minor factual errors or omissions. Well organized, coherent and adequately illustrated.
50-59	2.2	Based entirely on course material. Lacks some detail in content. Contains significant factual errors or omissions. Some deficiencies in organization, style or illustration.
40-49	3	Based imperfectly on course material. Contains numerous factual errors or omissions Answer has merit but lacks a sound structure. Concepts poorly expressed and illustrated..
30-39	Fail	Inadequate content, some maybe irrelevant. Poorly organized, expressed and illustrated
20-29		An attempt at the question, but lacking most relevant content.
10-19		An answer with only isolated glimpses of relevant content.
0-9		A nearly worthless or irrelevant answer.
<i>Expectations of appropriate ‘critical analysis’ and ‘relevant literature’ will vary from year to year of the Tripos</i>		

## 9. NST Approved Calculators

For Natural Sciences Tripos examinations Parts IA, IB, II and III (where a calculator is allowed), you will be permitted to use only the standard University calculator: CASIO fx 115 (any version, CASIO fx 570 (any version) or CASIO fx 991 (any version). Each such calculator must be marked in the approved fashion.

Approved calculators for the Natural Sciences Tripos can be purchased from the following locations (Note: these will be marked in the approved fashion):

Department of Chemistry  
Department of Physics, Bragg Building, Cavendish Laboratory

Approved calculators bought elsewhere will need to have the approved marking applied by the relevant Department.

You are strongly advised to purchase a calculator at the beginning of term.

## 10. Feedback Processes and Complaint Procedures

### Feedback processes

- **Online course questionnaires** are issued via Moodle at the end of each part of the course for you to assess the various components; lectures, practicals and supervisions pertaining to that subject. **Please take the time to fill them in.** They are evaluated by the course coordinator, who suggests improvements to individual lecturers or practical organizers or passes on comments on more strategic issues to the Department's Teaching Committee. Positive and negative feedback are both useful to us in assessing the effectiveness of courses.
- **A student representative** from each NST course taught by the Department sits on the Teaching Liaison Committee along with members of the Teaching Committee. Your representative will be appointed and introduced to your class before the end of the Michaelmas Term. The Teaching Liaison Committee discusses general teaching issues such as re-organisation of whole courses, provision of teaching resources, and co-ordination of University and College teaching. It passes recommendations on to the Teaching Committee, which has the central role in undergraduate teaching matters in the Department.
- **Feedback** on supervisions should be directed primarily through your College system. Concerns about your supervision arrangements should be voiced to your subject Director of Studies (i.e. in Earth Sciences or possibly Physical Sciences) or to your NST Director of Studies. Your Tutor may be able to advise you, if there are personal as well as academic issues involved. However, issues of supervision content and style are most effectively raised directly with supervisors themselves. Supervisions are meant to be individually tailored, and supervisors expect you to say if you are not getting the best value from them.
- **College questionnaires** provide another route for commenting on the supervision system. The Department will try to resolve major issues concerning supervisions, if College structures have failed to do so. Problems in particular Colleges can be dealt with by the Teaching Liaison Committee, although sensitive issues involving individual supervisors may be best discussed with the Chair of the Teaching Committee.
- If none of these routes seems satisfactory, please feel free to contact the Part IA Course Coordinators, Professor Nick Tosca ([njt41@cam.ac.uk](mailto:njt41@cam.ac.uk)) or Dr Daniel Field ([djf70@cam.ac.uk](mailto:djf70@cam.ac.uk)), the Teaching Support Manager, Helen Averill (Room N14, [hpd20@cam.ac.uk](mailto:hpd20@cam.ac.uk)) or the Director of Teaching, Dr Alex Copley (Bullard Labs, [acc41@cam.ac.uk](mailto:acc41@cam.ac.uk)).

### **Complaint procedures**

If you are unhappy with the experience you have received from the department, faculty, service or staff member, the University has a Student Complaint Procedure for you to use in order to try and resolve the situation. All information regarding the Student Complaint Procedure can be found on the [Student Complaints web page](#).

At a local level if any issues arise which need action details should be passed on to the Teaching Support Manager or discussed with your Director of Studies in the department.

### **Examination review procedure**

The University has robust policies in place to ensure that all examination results are accurate. However, something unusual may have taken place in the examination and you may want to check that the examiners were aware of the circumstances and that they have been taken into account. If you have any concerns about examination results you can request a review using the Examination Review Procedure, details of which can be found on the [Examination reviews web page](#).

## 11. Earth Sciences and Disability

The Department of Earth Sciences feel it essential that our courses throughout the three or four years of the NST should be accessible to all students as far as possible. If you have any disability that might have an adverse effect on your ability to follow the Earth Sciences course or take the examinations, then it would help us to know at an early stage in the year.

The most direct route is through your College Director of Studies or Supervisor in Earth Sciences, probably in consultation with your Tutor. They will discuss with the course organisers the appropriate ways in which you can be helped to get the most out of the teaching. For instance, if you are colour-blind, you may need help with strategies for identifying rocks and minerals or in interpreting geological maps. If you are dyslexic you may need more time to complete practical exercises, and would qualify for this in the exams.

The department has helped a number of students with a range of disabilities to succeed in Earth Sciences. You should not assume that Earth Sciences courses in second and later years would be inappropriate for you because you might have difficulty with one of their components, such as field work.

## 12. Department of Earth Sciences: Plagiarism Statement

(This is a shortened and more subject-specific version of the University statement, the full version of which can be found on the [University website](#)).

### Definition and scope

*Plagiarism is defined as submitting as one's own work, irrespective of intent to deceive, that which derives in part or in its entirety from the work of others without due acknowledgement.*

Plagiarism is the unacknowledged use of the work of others as if this were your own original work. It is always wrong and a breach of academic integrity, whether in supervision exercises, project reports, exam answers or published papers. The University regards plagiarism as a serious offence. The penalties for plagiarism may be severe and may lead to failure to obtain your degree. The University reserves the right to check any submitted work for plagiarism, and can do so with increasingly sophisticated software.

*The golden rule is that there should be no doubt as to which parts of your work are your own original work and which are the rightful intellectual property of someone else.*

Plagiarism may be due to copying (using another person's language or ideas as if they are your own) or collusion (where collaboration is concealed to gain unfair advantage).

### Methods and media

Methods of plagiarism include:

- Quoting directly another person's language, data or illustrations without clear indication that the authorship is not your own and without due acknowledgement of the source.
- Paraphrasing the critical work of others without due acknowledgement. Changing words or their order does not avoid plagiarism, if you are using someone else's original ideas without acknowledgement.
- Using ideas taken from someone else without reference to the originator.
- Cutting and pasting from the Internet to make a pastiche of online sources.
- Colluding with another person, including another candidate (other than as explicitly permitted for joint project work).
- Submitting as your own work research that has been contributed by others to a joint project.
- Submitting work that has been done in whole or in part by someone else on your behalf (such as commissioning work from a professional agency);
- Submitting work that you have already submitted for a qualification at another institution or for a publication without declaring it and clearly indicating the extent of overlap.
- Deliberately reproducing someone else's work in a written examination.

Plagiarism can occur with respect to all types of sources and in all media:

- not just text, but also figures, photographs, computer code etc,
- not just material published in books and journals, but also downloaded from websites or drawn from other media,

- not just published material but also unpublished works, including lecture handouts and the work of other students.

### **Avoiding plagiarism**

The conventions for avoiding plagiarism in the Earth Sciences are as follows:

- When presenting the views and work of others, cite the source in ways such as ‘...as shown by Jones (1938)’.
- If quoting a secondary source, to which you have not gained access, make this clear in ways such as ‘...Hailstone (1802) as discussed by Marr (1916, p. 176).’
- If quoting text verbatim, use quotation marks or indented text and a citation; e.g. “Many of the great movements above described, appear to have been produced by an action both violent and of short duration.” (Sedgwick 1836).
- If using an exact or redrawn copy of a figure from another work, cite the work in the figure caption; e.g. ‘redrawn from Hughes (1866).’
- If incorporating data into a figure from another source, cite the source in the figure caption; e.g. ‘orientation data taken from Whittington (1938).’
- Collaboration with staff or other students during project research may arise during, for instance, Part II or Part III projects. If there is likely to be any doubt as to who contributed which parts of submitted work, make this clear in the text wherever necessary; e.g. ‘Prof. I.N. McCave supplied the comparative data on contourites in table 3.’
- Wherever a source is cited, the full bibliographic reference – including title, journal, volume and page numbers – must be given at the end of the report or essay, except in an essay done in exam conditions. Candidates are not required to make full citations in written examinations but should reference where appropriate.

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