Subject Summary document reviews for Earth Sciences

From: https://www.natsci.tripos.cam.ac.uk/students/fourth/subjsumm

Part IA
Earth Sciences
The course is an introduction to the whole field of Earth and planetary sciences. It covers the nature and properties of the Earth, particularly of the mantle and the crust; observed and deduced processes of change both of the Earth's interior and also in its oceans and atmosphere; biological, physical, and chemical methods of dating to establish rates of geological and global environmental change; and major economic considerations. Emphasis is placed on practical and field work including general identifications and interpretation of rocks, interpretation of geological maps of large areas, and the use of fossils, sediments and rocks in determining internal and external changes.

Much of the course is concerned with application of principles of physics, chemistry, and biology to gain an understanding of the behaviour of Earth and the planets, so that a school background in some of these subjects is necessary. Previous knowledge of geology is not necessary. Fieldwork is carried out in the Easter Vacation, and is an essential part of the course. For more details, please see: https://www.esc.cam.ac.uk/admissions/undergraduate-prospectus.pdf

Part 1B
Earth Sciences
The Department of Earth Sciences teaches two complementary courses which lead to Part II Earth Sciences. The courses are, however, independent and self-contained and each may be combined with other appropriate subjects in Part IB, such as Physics A, or biological subjects and also lead to Part II Earth Sciences. Part IA Earth Sciences is a pre-requisite for either of the IB Earth Sciences courses.

*Earth Sciences* A concentrates on the surface environments of the Earth - the atmosphere, hydrosphere, and biosphere - together with their geological products. It encompasses the fields of sedimentology, palaeontology, geophysics and oceanography. This course also covers tectonics on scales from lithospheric plates down to hand specimens, emphasising the processes that form and deform sedimentary basins.

*Earth Sciences* B deals with the Solid Earth and examines the subsurface processes associated with the lithosphere and asthenosphere. It focuses on igneous and metamorphic rocks, but includes the study of mineralogy, geophysics and geochemistry relevant to the deep Earth and solar system. This course also includes the tectonics of mountain belts in relation to their thermal and chemical evolution, and volcanic activity in a variety of tectonic settings.

Practical work and map analysis are emphasised in both courses and there is a combined field course in the Easter Vacation, which is an essential part of both courses.
**Part II**
**Earth Sciences**

Part II Earth Sciences provides a rounded geological education either for students intending to complete their undergraduate training in three years, or for those planning to continue to Part III Earth Sciences.

Students completing their studies after three years qualify for the B.A. Degree. Graduating after three years is most suited to students wanting to pursue a career or further training outside Earth Sciences, whilst providing a fully accredited honours Earth Sciences degree for entry to professional careers or further geological training.

Most students use Part II Earth Sciences as a precursor to Part III Earth Sciences (fourth year) which offers a full geological education up to the active research level. The B.A. Degree is earned after passing Part II, and the M.Sci. (Master of Natural Sciences) degree after Part III. The four-year route is intended for students planning a career, further training or research within Earth Sciences, or for students wanting the intellectual challenge of an advanced course in this field.

Part II Earth Sciences will have taught cores on the scientific and technical fundamentals of the subject in the first term, followed by a choice of options in the second and third terms covering a wide spectrum of the subject. Fieldwork is an essential part of the course. Project work (essentially a field mapping project) is carried out in the long vacation preceding the Part II year and during the first term.

Whilst there is no minimum exam class required for entry to Part II Earth Sciences, entry to Part III Earth Sciences will depend on getting at least a 2.1 in Part II Earth Sciences. More details can be found at [www.esc.cam.ac.uk/teaching](http://www.esc.cam.ac.uk/teaching).

**Part III**
**Earth Sciences**

This course offers a full geological education up to the active research level. It is intended for students planning a career, further training or research within Earth Sciences, or for other students wanting the intellectual challenge of an advanced course in the Earth Sciences.

Part III will have a core in the form of departmental seminars based on topical research areas in the subject. In the second term there will be a choice of options across a wide spectrum of the subject. Field-based training during the Easter break is an essential part of the course.

There will be a research project carried out in the first term which may be based on fieldwork or Industry placements (typically conducted during the preceding long vacation), or laboratory work and/or data analysis.

More details of the coursework and course requirements can be found at [http://www.natsci.tripos.cam.ac.uk/subject-information/pIII-folder/earthsci](http://www.natsci.tripos.cam.ac.uk/subject-information/pIII-folder/earthsci)