Programme Specification[1]

1. Programme Title(s) and Code(s):

Programme Title	*UCAS Code*	*GU Code*
BSc Honours in Earth Science	F600	F600-2208

2. Academic Session:

2019-20

3. SCQF Level (see Scottish Credit and Qualifications Framework Levels):

10

4. Credits:

480

5. Entrance Requirements:

Please refer to the current undergraduate prospectus at: http://www.gla.ac.uk/undergraduate/prospectus/

Please refer to the current graduate prospectus at: http://www.gla.ac.uk/postgraduate/prospectus/

6. ATAS Certificate Requirement (see Academic Technology Approval Scheme):

ATAS Certificate not required

7. Attendance Type:

Full Time

8. Programme Aims:

Earth Science is one of the broadest of the sciences, being the study of the Earth and the way it works, its properties and materials, its history and evolution, its natural processes and the ways in which the planet and its inhabitants interact.

[1] This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if full advantage is taken of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each course can be found in course handbooks and other programme documentation and online at www.gla.ac.uk/

The accuracy of the information in this document is reviewed periodically by the University and may be checked by the Quality Assurance Agency for Higher Education.

The aims of the Earth Science programme encompass a detailed understanding of all aspects of Earth Science, and their synthesis into a comprehensive view of the Earth. The BSc programme builds from an introduction to Earth Science into a broader and deeper understanding in the Honours courses – the programme involves theoretical study and practical work in the laboratory and field.

Specific Aims of the Programme:

The programme aims are to:

- address all the main issues considered desirable in an Honours Earth Science syllabus by the subject Benchmarking statement ;
- enable students who will not normally possess any prior knowledge of Earth Science to begin to understand the geology of the Earth and the other planets;
- develop to the fullest possible extent students' knowledge of the Earth and the applications of this knowledge to the solution of Earth Science problems;
- enable students to develop their capacity to learn and, in particular to develop their:
  - ability to synthesize a wide range of Earth Science data and to apply the synthesis to Earth Science problems;
  - descriptive, observational, interpretational and communication skills;
  - problem-solving capacities and reasoning skills in theoretical, laboratory and field situations;
- provide students with the knowledge-base, transferable skills and employability skills that they will require in further study and graduate employment.

9. Intended Learning Outcomes of Programme:

The programme provides opportunities for students to develop and demonstrate knowledge, understanding and skills in the following areas.

Knowledge and Understanding

At the end of the programme students should be able to:

• Demonstrate advanced theoretical and practical knowledge and understanding of the central facts, concepts and terminology of Earth Science, and of major Earth Science paradigms.

• Demonstrate detailed theoretical and practical knowledge of the core areas: Sedimentary, Igneous and Metamorphic Geology; Mineralogy; Palaeontology; Stratigraphy; Geochemistry; Isotope Geology; Structural Geology; Geological Maps; Geophysics; Applied and Economic Geology; Remote Sensing; Global Tectonics; Major Earth Processes; Geomorphology; Geological Fieldwork.

• Demonstrate detailed theoretical and practical knowledge and advanced understanding of a range of Earth Science option material

Skills and Other Attributes

Subject-specific/practical skills

• Apply information technology skills to the analysis and presentation of field and laboratory data, the solution of geological problems, and the writing of scientific reports.

• Plan, conduct and report investigations, collect, record and analyse data in the field and in the laboratory.

• Demonstrate competence in safety techniques and the assessment of risks for field and laboratory work.

Intellectual skills

• Recognize and apply Earth Science theories and principles.

• Acquire the spatial and temporal framework required for Earth Science investigations.

• Analyse, synthesize and summarize information and use evidence to formulate and test hypotheses.

• Evaluate information using qualitative and quantitative techniques and methods.

Transferable/key skills

• Apply logical analysis to problem solving.

• Present results of Earth Science research orally incorporating various audio-visual techniques, and in written reports.

• Appreciate, understand, summarise and report the key aspects of Earth Science problems.

• Apply team-working and team leadership skills to addressing complex problems.

• Demonstrate a range of employability skills.

• Apply the skills necessary for self-managed and lifelong learning.

10. Typical Learning and Teaching Approaches:

Learning and teaching are effected by the following methods:

Lecture Format: Lectures, IT instruction, Video/DVD-presentations, Database use, Lecture-demonstrations.

Practical and Field Format: Laboratory work, Project work, Reports, Group discussion, Seminar instruction and presentations, Skills workshops (laboratory/field), Research project, Field mapping project, Team-working skills, Problem-solving work, Library work, Report/technical/site report writing instruction. Small group work.

Private study.

11. Typical Assessment Methods:

Assessment is carried out in three ways:

Written degree examinations

- Including essay format and practical testing

Formal continuous assessment of coursework (formative and summative)

- Formal continuous assessment of coursework includes:

  Essays, seminars, research project reports, laboratory reports, field reports, mapping project report, rock and thin section descriptions, map-based exercises, problem-solving/teamwork reports.

Informal continuous assessment of coursework

- Including:

  Verbal feedback on description and interpretation of rocks and their geological relationships in the laboratory and field.

12. Programme Structure and Features:

The B.Sc. programme in Earth Science is fulltime over four years and contains a minimum of 480 credits, 240 of which must be awarded for Honours courses. The four years of study are divided into two pre-Honours years in which introductory courses are followed and each year is worth 120 credits. These years are followed by two Honours years in which students specialise in Earth Science, each year again being worth 120 credits.

Earth Science may be taken as part of a combined Honours degree with Archaeology and with Environmental Chemistry (Environmental Biogeochemistry). The degree is governed by the regulations of the College of Science and Engineering, and progress regulations will normally operate.

Year 1

Earth Science 1X and Earth Science 1Y (20 credits each)

Level 1 course in a second subject (40 credits)

Level 1 course in a third subject (40 credits)

Exit point: Certificate of Higher Education

Year 2

Earth Science 2P (20 credits)

Earth Science 2Q (10 credits)

Earth Science 2R (10 credits)

Earth Science 2U (20 credits)

Level 2 courses in a second subject (60 credits)

Exit point: Diploma of Higher Education

Year 3

3H Single Earth Science (120 credits), comprising:

Sedimentary Geology (10 credits), Metamorphic Petrology (10 credits), Igneous Petrology & Geochemistry (10 credits), Tectonic Geomorphology 1 (10 credits), Structural Geology (10 credits), Isotope Geology (10 credits), Stratigraphy (10 credits), Earth Science Geological Field Skills (20 credits) plus 3 specialised Earth Science option courses. Students will choose option courses (10 credits each) from a list offered including many of the

following: Economic Minerals; Engineering Earth Science; Hydrogeology and Environmental Earth Science; Digital Geoscience; Macrogeomorphology; Palaeoclimatology; Micropalaeontology; Coastal Processes; Coastal Environments and Management; Hydrology; Managing River Catchments, Glacial Processes.

Exit point: Designated Degree in Earth Science

Year 4

4H Single Earth Science (120 credits), comprising:

Geophysics (10 credits), Major Earth Processes (10 credits), Earth Science Independent Geological Mapping (30 credits), Earth Science Independent Research Project (30 credits) plus 4 specialised Earth Science option courses. Students will choose option courses (10 credits each) from a list offered including many of the following: Economic Minerals; Engineering Earth Science; Hydrogeology and Environmental Earth Science; Digital Geoscience; Macrogeomorphology; Palaeoclimatology; Micropalaeontology; Coastal Processes; Coastal Environments and Management; Hydrology; Managing River Catchments, Glacial Processes.

Earth Science 1X and Earth Science 1Y are beginners' courses. No prior knowledge of Earth Science is required to join these courses.

Progress Requirements

In addition to the general requirements of Science:

Year 1 to Year 2: Earth Science 1X and Earth Science 1Y both at grade D3 or better and normally a Grade Point Average of 12 or better in these courses.

Year 2 to Year 3: Earth Science 2P, 2Q, 2R, 2U all at grade D or better, participation in the residential field excursion in Earth Science 2U and a Grade Point Average of 12 or better.

Year 3 to Year 4: Entrants must have attained an average grade D3 or better in the Level 3H courses.

Weighting of the marks for the final degree follows a 40:60 ratio (3H:4H) over the two honours years.

13. Programme Accredited By:

14. Location(s):

Glasgow

15. College:

College of Science and Engineering

16. Lead School/Institute:

Geographical and Earth Sciences [REG30400000]

17. Is this programme collaborative with another institution:

No

18. Awarding Institution(s):

University of Glasgow

19. Teaching Institution(s):

20. Language of Instruction:

English

21. Language of Assessment:

English

22. Relevant QAA Subject Benchmark Statements (see Quality Assurance Agency for Higher Education) and Other External or Internal Reference Points:

This Programme Specification is informed by the QAA Benchmark Statement for Earth Sciences, Environmental Sciences and Environmental Studies (ES3): http://www.qaa.ac.uk/academicinfrastructure/benchmark/honours/default.asp

and by the SCQF Level descriptors: http://www.scqf.org.uk/levels.asp

The ES3 Benchmark states that typical holders of Honours degrees in Earth Sciences will have demonstrated:

Earth system science

An holistic view of the present and past interactions between components of the Earth system and the effects of extra-terrestrial influences on these interactions Understanding of the cycling of matter and the flows of energy into, between and within the solid Earth, hydrosphere, atmosphere and biosphere The chemistry, physics, biology and mathematics that underpin our understanding of Earth structure, materials and processes.

Major geoscience paradigms

Uniformitarianism: the present is the key to the past The extent of geological time Evolution: the history of life on Earth Plate tectonics.

Temporal and spatial scales

Geological time, including the principles of stratigraphy, radiometric dating, the stratigraphic column, rates of Earth processes, major events in Earth history, and the evolution of life as revealed by the fossil record The study of structures, materials and processes ranging in scale from atoms to planets.

Earth structure, materials and processes

Degree programmes in the Earth sciences will encompass studies of the structure and composition of the solid Earth (core, mantle, crust, asthenosphere, lithosphere etc.), the hydrosphere, the atmosphere, the cryosphere and the biosphere and the processes operating within and between them. The relative coverage of these 'spheres' will vary between courses in geology, Earth sciences, oceanography, meteorology, climatology etc.

Terminology, nomenclature and classification and practical knowledge

Earth science terminology, nomenclature and classification of rocks, minerals, fossils, and geological structures. The identification of rocks, minerals, fossils, and geological structures. Collection and documentation of geological information in the field, including the production and interpretation of geological maps. Surveying and measurement both in the field and laboratory, and using qualitative, quantitative and instrumental techniques.

Awareness and informed concern of Earth science issues

The exploration for, and the development and exploitation of, Earth resources Geological aspects of human impacts on the environment. Geohazards and their impacts on human societies. Earth science perspectives on sustainability and social awareness (e.g. renewable versus non-renewable resources, climate change, the history of life and biodiversity).

23. Additional Relevant Information (if applicable):

Support for students is provided by the Postgraduate/Undergraduate Adviser(s) of Studies supported by University resources such LEADS (www.gla.ac.uk/myglasgow/leads/), Counselling & Psychological Services (www.gla.ac.uk/services/counselling/), the Disability Service (www.gla.ac.uk/services/studentdisability/) and the Careers Service (www.gla.ac.uk/services/careers/).

Further information for intending students is available on the Department of Geographical and Earth Sciences website at: http://www.ges.gla.ac.uk

Current students should consult the Course Guides for the relevant years of the course at: http://www.ges.gla.ac.uk:443/degrees/undergraduate/earthscience

24. Online Learning:

No

25. Date of approval:	21/09/2018