BSc (Hons) Geological Hazards

Programme Specification

Primary Purpose

Course management and quality assurance.

Secondary Purpose

Detailed information for students, staff and employers. Current students should refer to the related Course Handbook for further detail.

Disclaimer

The University of Portsmouth has checked the information given in this Programme Specification. We will endeavour to deliver the course in keeping with this Programme Specification; however, changes may sometimes be required arising from annual monitoring, student feedback, review and update of units and courses. Where this activity leads to significant changes to units and courses, there will be prior consultation of students and others, wherever possible, and the University will take all reasonable steps to minimize disruption to students. It is also possible that the University may not be able to offer a unit or course for reasons outside of its control, for example; the absence of a member of staff or low student registration numbers. Where this is the case, the University will endeavour to inform applicants and students as soon as possible. Where appropriate, the University will facilitate the transfer of affected students to another suitable course.

Copyright

Contents

Course Details

1. Named Awards

BSc (Hons) Geological Hazards

2. Course Code (and UCAS Code if applicable)

C0952F (F611)

3. Awarding Body

University of Portsmouth

4. Teaching Institution

University of Portsmouth

5. Accrediting Body

Geological Society of London

6. QAA Benchmark Groups

Earth Sciences, Environmental Sciences and Environmental Studies

7. Document Control Information

July 2018

8. Effective Session

2018/2019

9. Author

Dr Carmen Solana

10. Faculty

Science

11. Department

School of Earth and Environmental Sciences

Curriculum

12. Educational Aims

- The course aims to equip students to work as applied geoscientists or within relevant alternative employment.
- To train scientists to have a sound knowledge and understanding of the nature of geological hazards.
- To develop an awareness of the particular strategies needed to work in the field of geological hazards.

- To train students of geological hazards with a specialist knowledge of specific aspects of applied geosciences, such as geomechanics, volcanology, seismology, landslide and slope instability assessment, disaster management and communication, computer-based techniques for hazard and risk assessment such as risk analysis, GIS and remote sensing.

In addition, and more generally, the course aims to:

- Provide a stimulating, wide ranging yet integrated programme in the applied geosciences.
- Develop critical, analytical, practical, professional, research and communication skills and prepare students for postgraduate study and / or professional qualifications.
- Develop the skills necessary for life-long independent learning and acquisition of knowledge
- Provide a challenging, stimulating and self-rewarding study environment.
- Develop a range of key skills by opportunities provided in the study units.
- Maximise student career potential by enabling them to develop knowledge, understanding and skills in their chosen subject area.

This course would be of interest to any students currently studying science subjects who have a vocational interest in understanding the relationship between earth systems, man's interaction with these systems and the management of geological hazards. Excellent employment possibilities in the UK and overseas make this pathway highly attractive to science students.

13. Reference Points

Programme Philosophy: The Geological Hazards programme is one of three degree courses in the Applied Geosciences. The programme is designed specifically to deal with an increasing awareness of the impact of a wide range of geological processes on society and its infrastructure. This is achieved by offering a sound education in the scientific study and analysis of geological hazards, backed-up with a good awareness of current issues and concerns in the applied geosciences. The programme is intended to provide a professionally accredited education that will help students find good quality employment on graduation, and provide the basis for a lifetime of learning.

Programme Rationale: The programme was designed at a point where there was increased awareness and concern about a wide range of geological hazards in the earth science community but there was virtually no undergraduate teaching provision in this area. It remains the only programme that combines detailed study of a broad range of geological hazards underpinned by a sound training in the applied geosciences.

Benchmark Statement and Other Reference Elements:

The major reference points are:

- University of Portsmouth Curriculum Framework Document (2014)
- The scholarship, research and practical expertise of academic members of staff
- QAA Code of Practice for the Assurance of Academic Quality and Standards in Higher Education
- Framework for Higher Education Qualifications (FHEQ)
- National Qualifications Framework
- Accreditation requirements of the Geological Society of London
- Subject Benchmark Statements: Earth Sciences, Environmental Sciences and Environmental Studies (indicated [B] below)

14. General Learning Outcomes

Level 4

Certificates of Higher Education are awarded to students who have demonstrated:

- knowledge of the underlying concepts and principles associated with their area(s) of study, and an ability to evaluate and interpret these within the context of that area of study

- an ability to present, evaluate and interpret qualitative and quantitative data, in order to develop lines of argument and make sound judgements in accordance with basic theories and concepts of their subject(s) of study

Typically, holders of the qualification will be able to:

- evaluate the appropriateness of different approaches to solving problems related to their area(s) of study and/or work
- communicate the results of their study/work accurately and reliably, and with structured and coherent arguments
- undertake further training and develop new skills within a structured and managed environment

And holders will have:

- the qualities and transferable skills necessary for employment requiring the exercise of some personal responsibility

Level 5

Diplomas in Higher Education are awarded to students who have demonstrated:

- knowledge and critical understanding of the well-established principles of their area(s) of study, and of the way in which those principles have developed
- ability to apply underlying concepts and principles outside the context in which they were first studied, including, where appropriate, the application of those principles in an employment context
- knowledge of the main methods of enquiry in the subject(s) relevant to the named award, and ability to evaluate critically the appropriateness of different approaches to solving problems in the field of study
- an understanding of the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge

Typically, holders of the qualification will be able to:

- use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis
- effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively
- undertake further training, develop existing skills and acquire new competences that will enable them to assume significant responsibility within organisations

And holders will have:

- the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making

Level 6

Bachelors degrees/Bachelors degrees with honours are awarded to students who have demonstrated:

- a systematic understanding of key aspects of their field of study, including acquisition of coherent and detailed knowledge, at least some of which is at, or informed by, the forefront of defined aspects of a discipline
- an ability to deploy accurately established techniques of analysis and enquiry within a discipline
- conceptual understanding that enables the student:
  - to devise and sustain arguments, and/or to solve problems, using ideas and techniques, some of which are at the forefront of a discipline
  - to describe and comment upon particular aspects of current research, or equivalent advanced scholarship, in the discipline
- an appreciation of the uncertainty, ambiguity and limits of knowledge

- the ability to manage their own learning, and to make use of scholarly reviews and primary sources (for example, refereed research articles and/or original materials appropriate to the discipline)

Typically, holders of the qualification will be able to:

- apply the methods and techniques that they have learned to review, consolidate, extend and apply their knowledge and understanding, and to initiate and carry out projects
- critically evaluate arguments, assumptions, abstract concepts and data (that may be incomplete), to make judgements, and to frame appropriate questions to achieve a solution - or identify a range of solutions - to a problem
- communicate information, ideas, problems and solutions to both specialist and non-specialist audiences

And holders will have:

- the qualities and transferable skills necessary for employment requiring:
  - the exercise of initiative and personal responsibility
  - decision-making in complex and unpredictable contexts
- the learning ability needed to undertake appropriate further training of a professional or equivalent nature

15. Learning Outcomes

A. Knowledge and Understanding of:

A.1 The evolution, structure and composition of the Earth. [B]

A.2 The nature of Earth materials: minerals and rocks, including the mechanical behaviour of natural materials. [B]

A.3 Methods of geological data acquisition and analysis. [B]

A.4 The principles of stratigraphy and the relationships between rock bodies. [B]

A.5 The complexity and cycling of energy, water and materials in Earth systems. [B]

A.6 The processes that control the evolution of the Earth's crust at different temporal and spatial scales and their relationship to human activities [B]

A.7 The numerical assessment of geological hazard and risk and the communication of this hazard and risk to a 3rd party [B]

A.8 Research methods related to the understanding of geological hazard processes [B]

B. Cognitive (Intellectual or Thinking) Skills, able to:

B.1 Plan, conduct and report on a programme of original research at undergraduate level including the formulation and testing of hypotheses. [B]

B.2 Select and apply appropriate scientific, laboratory, mathematical and computer-based methods and principles in the analysis and solution of problems related to geological hazard processes.

B.3 Be creative and innovative in the analysis and solution of problems in the applied Geosciences.

B.4 Work with confidence from basic principles and apply essential applied Geoscience techniques to unfamiliar situations.

B.5 Estimate and scope the scale of common geological hazards and their potential consequences.

B.6 Integrate and evaluate relevant information from a variety of sources and recognise legal, moral, ethical and other social issues. [B]

B.7 Contribute to topical debate on environmental issues relating to geological hazards and use specialist knowledge to propagate informed views. [B]

C. Practical (Professional or Subject) Skills, able to:

C.1 Plan, conduct and report on geological hazard investigations, including the use of secondary data. [B]

C.2 Collect record and analyse data using appropriate techniques in the field and laboratory. [B]

C.3 Undertake field and laboratory investigations in a responsible and safe manner, paying due attention to risk assessment, rights of access, relevant health and safety regulations, and sensitivity to the impact of investigations on the environment and stakeholders. [B]

C.4 Reference work in an appropriate manner. [B]

C.5 Identify and work towards targets for personal, academic and career development. [B]

C.6 6. Develop an adaptable and flexible approach to study and work. [B]

C.7 Develop the skills necessary for self-managed and lifelong learning. [B]

D. Transferable (Graduate and Employability) Skills, able to:

D.1 Communicate appropriately to a variety of audiences in written, verbal and visual forms, using information from a variety of sources. [B]

D.2 Appreciate issues of sample selection, accuracy, precision and uncertainty during collection, recording and analysis of data in the field and laboratory. [B]

D.3 Use the Internet critically as a means of communication and a source of information. [B]

D.4 Identify individual and collective goals and responsibilities and perform in a manner appropriate to these roles. [B]

D.5 Recognise and respect the views of others and evaluate performance as an individual and a team member. [B]

D.6 Solve numerical problems using both computer and non-computer based techniques. [B]

16. Learning and Teaching Strategies and Methods

Student knowledge and understanding is developed by a variety of strategies and methods in the programme:

- Blended learning using combinations of formal lectures, seminars, problem based workshops are used to provide core knowledge and to develop the major themes, theories, concepts, issues and evidence in a given area of study [A1, A2, A4, A5, A6, A8]
- Experiential learning using practical laboratory, computer-based and field exercises enables students to investigate concepts and advance their learning [A3 & A8]
- Knowledge and understanding is advanced and consolidated during work for the final-year project [A7]

Intellectual skills are developed through:

- Problem based and experiential learning strategies [B2, B3, B4]
- Seminar and group discussions [B6, B7]
- Structured tutorials at Levels 4 and 5 [B1, B7]
- Student-centred activities such as reviews, case studies and independent research for the final-year project [B1, B2, B3, B4, B5]

All of these emphasise the importance of independent learning and reflection.

Practical and professional skills are developed through a combination of:

- Laboratory and field classes [C1 - C3] are a feature of many units
- Structured tutorial programme at Levels 4 and 5 [C4 - C5]

- Personal development programme through the Moodle e-portfolio is embedded into the tutorial programme at all levels [C6 & C7]
- The 20 credits Level 5 unit 'Professional Skills for Applied Geoscientists' embeds professional skills into the curriculum [C1 - C7]

The development of transferable and key skills is embedded in every aspect of the programme ranging from:

- Structured tutorial programme at Levels 4 and 5 [D3, D4, D5]
- The 'Professional Skills for Applied Geoscientists' unit at Level 5 [D1, D3]
- Extensive field, laboratory and computer-based elements of teaching in many units [D2, D6]
- The guided independent work for the final-year project. [D1 - D4, D6]

17. Assessment Strategy

Assessment of the knowledge base and subject understanding is through a combination of:

- Unseen examination and in-class tests [A1, A2, A4, A5, A6, A8]
- Assessed coursework that takes the form of technical reports, coursework reports, fieldwork reports, laboratory reports and presentations appropriate to particular units [A3, A7]
- At Level 6 the project is a key element in the assessment of knowledge and understanding. [A1 to A8]

Assessment of the cognitive skills is through a combination of:

- Integrated technical reports where students have to solve complex Geoscience problems primarily in Level 5 and 4 [B1, B3, B4]
- Formal examinations require time-limited intellectual responses [B2, B3, B4]
- Final year projects that require longer periods of intellectual reflection [B1 – B7]
- Presentations where intellectual ideas have to be translated into visually attractive images and explanations [B1 – B7]

Assessment of the practical and professional skills is through a combination of:

- Coursework and fieldwork tasks and reports appropriate to particular units [C1-C7]
- The final-year project report and presentations [C1-C7]

Transferable and key skill assessment is embedded in the formal assessment of units through:

- Examinations [D1, D6]
- A variety of coursework elements comprising computer-based exercises [D3, D6], problem solving exercises [D6], laboratory and field exercises [D2, D4, D5] and group work [D1, D4, D5].
- Many transferable and key skills are assessed in work for the final-year project [D1, D2, D3, D4]

18. Course Structure, Progression and Award Requirements

See Unit Web Search[1] for full details on the course structure and units

Overview

This is a taught three year programme and includes the formulation, planning and execution of an independent research project in Level 6. The programme is offered in the full-time mode.

- The programme consists of core units only with no options offered.
- At Level 4, 100% of the year comprises 6 long thin Units rated at 20 credits each.
- At Level 5 the year consists of two short fat 20 credit units and four 20 credit point units operating in the 'long thin' mode.

[1] www.port.ac.uk/unitwebsearch

- At Level 6 there are two long thin 20 credit point units and two long thin 20 credit point units. The final year project is rated at 40 credits.
- There are two points of progression, at the end of Level 4, at the end of Level 5.
- The number of credits required to achieve the degree and exit awards are as follows: 120 credits: Cert HE Geological Hazards; 240 credits: Dip. HE Geological Hazards; 300 credits: BSc Geological Hazards, 360 credits: BSc (Hons) Geological Hazards.

19. Employability Statement

Students graduating from this course will be equipped to find employment in a wide range of areas in the applied geosciences primarily in the Insurance, Aid NGO's, Civil, Mining, and Offshore sectors. They will also be equipped for roles in other areas of science as well as the opportunities open to graduates of any degree.

The School has strong links with industry and students professional and career development skills are supported by an Industrial Liaison Officer (ILO), who is responsible for liaising with industrial partners and alumni with regards to site and office visits, guest speakers, paid summer placements, research projects and graduate employment opportunities, in addition, the dissertation thesis allows students to engage with industry and potential employers during their research project. The ILO, in conjunction with the Programme Manager, also supports students in the preparation of CV and application forms/letters. PDP is embedded in the Personal Tutor System at all.

As the degree offered is vocational in nature, graduate employability has always been embedded as a matter of course. The main aspects of the curriculum that addresses this important aspect of student learning are as follows:

- PDP is integrated into the tutorial programme at Levels 4, 5 and 6. Students are also encouraged to consider work experience, career opportunities and working environments in the L5 unit Professional Skills for Applied Geosciences and L6 unit Research and Professional Practice in Geohazards.
- Throughout the academic year professionals from industry give either evening lectures or lectures as part of specific Units. This enables students to gain first hand exposure to professionals in their chosen field and to engage in one-to-one discussions regarding career opportunities. Many of these speakers are University of Portsmouth Alumni.
- CV writing, interview techniques (mock interviews), and letter writing skills are embedded into the Professional Skills for Applied Geosciences Unit at Level 5.
- Team work skills are developed throughout the curriculum through activities such as group fieldwork exercises, group laboratory work (Soil Mechanics Unit as an example), group problem based learning exercises. Through the team work exercises leadership skills are understood through the role as team leader.
- Writing skills are developed through the production of reports and portfolios as part of the assessment strategy. For instance, Technical report writing is addressed as course work in several Units across degree pathways (for instance Technical Report – Introduction to Geomechanics Unit). This develops key skills in structures writing, accurate spelling, grammar and punctuation, referencing to Harvard APA, research skills and proof reading work (for instance – Research Article in GIS and Hazard Modelling Unit and in Final Year Project).
- Independent research, oral communication skills and technical writing skills are developed during their 40 credit final year project (Level 6) where the students have to undertake an independent piece of fieldwork and work this into a coherent applied Geoscience project. This also develops their study and self management skills together with their problem solving skills both in a practical sense (organising field work) and technical (solving a complex problem).
- Oral communication skills are developed throughout the curriculum with students required to present work orally as an assessed piece of work (example – Research and professional practice in Geohazards - Level 6).
- Numeracy and IT skills are embedded into the curriculum through the use of professional software applications such as ArcGIS. The numerical analyses of problems are covered in many

of the Geological Hazards Units for instance, GIS and Hazard Modelling, Introduction to Geomechanics, Landslides and Slope Stability, Hazard and Risk Analysis.

- The level 5 overseas study tour and the separate Level 6 optional Study Tour introduces the students to professional work place normally in an overseas location. Students have the opportunity of meeting professionals working in their field of interest actually in situ. Students can therefore gain insights and learning into the world of work, reflect on their graduate and employability skills and discuss these with professionals in a work environment. The opportunity to enhance cultural awareness, language skills and international perspectives is also developed through the Study Tour together with other overseas field trips (Tenerife for example).

Course Management

20. Support for Student Learning

- The programme is managed by a Course Leader.
- Extensive induction programme introduces the student to the University and their course.
- Each student has a personal tutor, responsible for pastoral support and guidance.
- Pre-entry information is available from the University's pre-entry web site.
- Personal Development Planning is embedded into the Tutorial System at all Levels.
- Student Learning is supported by fully equipped laboratories for analysing the behaviour of soil and rock, optical mineralogy laboratory, research laboratories equipped with Scanning Electron Microscopy, X-ray diffractometer, sequential x-ray fluorescence spectrometer, Nuclear Instrumentation, atomic absorption spectrophotometer, Inductively-coupled plasma mass spectrometer.
- University support services include - careers, financial advice, housing, counselling and health.
- A new Student Centre incorporates Student Services and the Student's Union.
- The University provides an Academic Skills Unit and Maths Café to assist students in their studies and in particular in developing their key skills.
- The Students handbook provides information about course structure, local regulations and Departmental details.
- Electronic versions of all of the unit descriptors are available to all students.
- Key Skills opportunities are incorporated into all units.
- Written feedback is provided for all assessments.
- Study skills are covered and developed within the structured 1st year tutorial programme.
- The programme has access to a wide range of specialist laboratories and facilities and their support staff.
- The University Library provides reference support to the programme with a wide range of written, electronic and audio-visual material, and has a dedicated subject librarian.
- The University of Portsmouth has consistently been awarded an excellent rating for student support and guidance in a number of Quality Assurance Agency inspections

21. Admissions Criteria

A. Academic Admissions Criteria

- Students are normally expected to have GCSE Maths and English at grade B or above, or equivalent.
- Admission offers are usually made between 104-120 points, which may be derived from A2-levels, AS-levels, vocational A-levels, and other point rated qualifications. For A-level students, this must include achievement at A2 standard or equivalent in two subjects including at least one relevant science subject.

- Key skills qualifications will be considered, particularly those relating to numeracy and IT skills.
- IELTS Grade 6.0 or equivalent is required for international students where English is not their first language.
- Students will be admitted if they have completed a recognised appropriate Access course.
- Professional skills and experience will be recognised.
- Other qualifications and experience will be considered on an individual basis.
- Current University policy on RPL and RPEL is applied on an individual basis.
- Applications from experienced and international students are encouraged.

B. Disability

The University makes no distinction in its admissions policy with regard to disability and will endeavour to make all reasonable adjustments in order to make it possible for students to study at Portsmouth on a course of their choice.

22. Evaluation and Enhancement of Standards and Quality in Learning and Teaching

A. Mechanisms for Review and Evaluation

- Course Leader's Annual Standards and Quality Evaluative Review
- Head of Department's Annual Standards and Quality Evaluative Review
- Unit and Course Level student feedback considered at Board of Studies
- Unit Assessment Board consideration of student performance for each programme
- Annual Standards and Quality Reports to Board of Studies, including consideration of Subject and Award External Examiner Reports
- Periodic Programme Review
- Student Representatives and Student/Staff Consultative Committees
- National Student Survey
- National Postgraduate Taught Experience Survey
- Staff Performance and Development Review
- Peer Review and Development Framework
- Faculty Learning and Teaching Committee

B. Responsibilities for Monitoring and Evaluation

- Unit Co-ordinators for unit content and delivery
- Course Leader for day-to-day running of course
- Board of Studies with overall responsibilities for operation and content of course
- Head of Department
- Associate Dean (Academic)
- Associate Dean (Students)
- Quality Assurance Committee
- Unit, Award and Progression Board of Examiners

C. Mechanisms for Gaining Student Feedback

- Student Representation on Board of Studies
- Student Staff Consultative Committees
- Unit and Course level student feedback questionnaires
- University participates in external student surveys, e.g. National Student Survey (NSS), and International Student Barometer (ISB)

D. Staff Development Priorities

- Academic staff undertake activities related to research, scholarship, teaching and learning and student support and guidance
- Annual staff performance and development reviews match development to needs
- Managers undertake a variety of management development programmes
- New academic staff required to undertake appropriate University of Portsmouth learning and teaching programmes
- All academic staff encouraged to seek Higher Education Academy membership
- Academic staff undertake initial and continuing professional development within the Academic Professional Excellence Framework (APEX) programme which is aligned with the Higher Education Academy (HEA)'s UK Professional Standards Framework (UKPSF)
- Support staff are encouraged to attend short courses in areas such as minute taking, and specific IT packages

23. Assessment Regulations

The current University of Portsmouth academic regulations will apply to this programme (*see Assessment and Regulations*[2]).

24. Role of Externals

Subject External Examiners who will:

- Oversee unit assessment and usually attend Unit Assessment Boards
- Review unit assessment strategy
- Sample assessment artefacts
- Present report to Unit Assessment Boards

Award External Examiners (usually also a Subject External Examiner) who will:

- Oversee and attend Award/Progression Boards
- Scrutinise and endorse the outcomes of assessment
- Ensure that the standard of the award is maintained at a level comparable with that of similar awards elsewhere in the United Kingdom

25. Indicators of Standards and Quality

A. Professional Accreditation/Recognition

Full accreditation by the Geological Society of London.

B. Periodic Programme Review (or equivalent)

Periodic Programme review was held 21 January 2016 – the fitness of purpose of curriculum was confirmed.

C. Quality Assurance Agency

QAA Higher Education Review, March 2015, judgements about standards and quality meet UK expectations (*for full report see Higher Education Review of the University of Portsmouth, March 2015*[3]).

[2] www.port.ac.uk/departments/services/academicregistry/qualitymanagementdivision/assessmentandregulations/

[3] www.qaa.ac.uk/en/ReviewsAndReports/Documents/University%20of%20Portsmouth/University-of-Portsmouth-HER-15.pdf

D. Others

None.

26. Further Information

Further information may be found in:

- Student Handbook
- University of Portsmouth Curriculum Framework Document
- University of Portsmouth Prospectus
- University of Portsmouth[4] and School[5] websites

[4] www.port.ac.uk/

[5] www.port.ac.uk/school-of-earth-and-environmental-sciences/