

MSc Petroleum Geoscience

This document provides a definitive record of the main features of the programme and the learning outcomes that a typical student may reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities provided. This programme specification is intended as a reference point for prospective students, current students, external examiners and academic and support staff involved in delivering the programme and enabling student development and achievement.

Programme Information

Award(s)	MSc		
Associateship	Royal School of Mines		
Programme Title	Petroleum Geoscience		
Programme Code	F6UK		
Awarding Institution	Imperial College London		
Teaching Institution	Imperial College London		
Faculty	Faculty of Engineering		
Department	Department of Earth Science and Engineering		
Mode and Period of Study	1 academic year, full-time		
Cohort Entry Points	Annually in October		
Relevant QAA Benchmark Statement(s) and/or other external reference points	Master's Degrees in Engineering		
Total Credits	ECTS:	90	CATS: 180
FHEQ Level	Level 7		
EHEA Level	2 nd cycle		
External Accrator(s)	Geological Society of London		

Specification Details

Student cohorts covered by specification	2016/17 entry
Person responsible for the specification	Dr Gary Hampson, Director of MSc Petroleum Geoscience Course
Date of introduction of programme	October 1994
Date of programme specification/revision	October 2016

Description of Programme Contents

The purpose of the programme is to develop multi-skilled petroleum geoscientists for the modern petroleum industry. The programme is designed to provide:

- basic knowledge in the key subsurface petroleum exploration & production geoscience disciplines;
- specialist knowledge in sequence stratigraphy, sedimentology, structural geology, basin analysis, petroleum systems & reservoir geology;
- skills in state-of-the-art technologies (e.g. 3D seismic interpretation, formation evaluation, reservoir modelling & basin modelling);
- guidelines for the main E&P workflows (e.g. play fairway analysis, prospect evaluation, appraisal, development & reservoir management);
- multidisciplinary and transferable skills for working within integrated subsurface evaluation teams.

Term 1 is focused on Production Geoscience, notably reservoir rocks and fluids. It culminates in a major group project on the Wytch Farm Field. During this term you will have numerous learning opportunities from working alongside and sharing several joint courses with petroleum engineering students.

Term 2 is directed towards Exploration Geoscience, with emphasis on basin-scale geology. This term culminates in the Barrel Award Group Project. This is immediately followed by three week period of fieldwork studying carbonate and siliciclastic reservoir analogues, basin-scale sequence stratigraphy, and structure and petroleum systems in an exhumed salt basin.

The examinations are held in January and May. Immediately after the May examinations, students undertake a 3-month independent project throughout June, July and August. They complete the course in mid-September following the presentations of the independent projects.

Learning Outcomes

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial College degree programme. The Graduate Attributes are available at: www.imperial.ac.uk/students/academic-support/graduate-attributes

Knowledge and Understanding

- Students develop advanced skills and competency in the core petroleum geoscience technical disciplines, notably in geology (i.e. basin analysis, sedimentology and sequence stratigraphy, structural geology, tectonics and reservoir geology) and in geophysics (i.e. basic petroleum geophysics, seismic data acquisition and processing and 2D/3D seismic interpretation).
- Students are provided essential knowledge of the key allied petroleum geoscience and engineering disciplines (i.e. geostatistics, petrophysics, reservoir engineering, well testing and reservoir simulation) and to appreciate their relationship and inter-dependency with the core petroleum geoscience subjects.

Intellectual Skills

- Students apply these skills to the full spectrum of hydrocarbon exploration and production activities (i.e. play fairway analysis, prospect evaluation, appraisal, field development planning and reservoir management) through classroom study, field work, integrated team projects and independent research.

- Students present modern petroleum industry methods and practices including demonstration and hands-on use of industry-standard software and hardware systems for 2D/3D seismic interpretation, basin modelling, petrophysics, structural restoration and 3D reservoir geological modelling.
- Students promote the ethos of synergy within integrated, multidisciplinary teams of geoscientists and petroleum engineers in the exploration and development of oil and gas resources.

Practical Skills

- Students are exposed to advanced concepts and research developments in the core geoscience disciplines that could provide work opportunities within research (universities, industry technical centres, government laboratories, etc.), technology development (e.g. software vendors, consultancies, etc.) or with industry service companies (e.g. seismic data acquisition and processing, well logging, mud logging, etc.).
- Students are trained in best current industry workflows and work practices, in order to be able to work effectively, either independently or as a member of an integrated team.

Transferable Skills

- Students develop transferable skills including communication (oral, written and aural), team work, decision making, risk analysis, time and project management, and work ethics.
- Students get equipped with the knowledge and experience needed to select career opportunities and subject areas that are most appropriate to their individual capabilities, aptitudes and interests.

Entry Requirements

Academic Requirement	<p>Minimum Upper Second Class Honours (2:1) degree in an Earth Science based subject from a UK university or its equivalent.</p> <p>Graduates with other closely related Earth/Environmental Science degrees (Physical Geography or Oceanography, for example) will also be considered.</p> <p>Professionals with different qualifications but with relevant industrial experience are also encouraged to apply.</p>
Non-academic Requirements	None
Applicants may be invited to attend an interview.	
English Requirement	IELTS 6.5 with a minimum of 6.0 in each element or equivalent.

The programme's competency standards document can be found at:
<http://www.imperial.ac.uk/engineering/departments/earth-science/prosp-students/pg-courses/programme-specifications/>

Learning & Teaching Strategy

Scheduled Learning & Teaching Methods	<ul style="list-style-type: none"> • Lectures • Practical classes • Workshops • Fieldwork • Group projects
E-learning & Blended Learning Methods	<ul style="list-style-type: none"> • On-line lecture materials
Project and Placement Learning Methods	<ul style="list-style-type: none"> • Group projects • Independent project (often via industry placements)

Assessment Strategy

Assessment Methods	<ul style="list-style-type: none"> • Written Examination • Oral and poster presentations • Reports • Fieldwork exercises
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Academic Feedback Policy

Feedback is ongoing; it happens during practical classes, in workshops, in lectures, in tutorials and in almost any part of your learning. During fieldwork feedback is provided up to 12 hours each day, and there are other areas where students and staff provide feedback. Feedback is intended to extend your knowledge, skills and learning in a variety of ways.

If there is written feedback on submitted coursework, it is provided within two weeks of submission (minor pieces of coursework) or six weeks (major pieces of coursework – Wytch Farm and Barrel Award group projects, independent project). Some staff choose to give verbal feedback on coursework at the start of the next teaching session, others give written feedback. Not every course will be the same. If feedback is not provided by staff within two weeks of submitting written work and you have not been notified of a delay, we ask students to notify the Course Director by e-mail.

Where practical, and in some cases this will not be practical, staff will give feedback to the entire student group on the examinations assessment. Staff are normally extremely willing to give individual feedback to students, either their personal tutees or in class as the needs arise.

Re-sit Policy

The College's Policy on Re-sits is available at: www.imperial.ac.uk/registry/exams/resit

Students who fail examinations will be provided with the opportunity for one re-sit, with the next cohort in the following academic year. Students who need to re-sit examinations/resubmit their final report may be required to pay a re-sit fee.

Mitigating Circumstances Policy

The College's Policy on Mitigating Circumstances is available at: www.imperial.ac.uk/registry/exams

Assessment Structure

Marking Scheme

Distinction: to be awarded where a candidate has achieved an aggregate mark of 70% or greater across the programme as a whole, including a mark of 70% or greater in each of the three elements of the course (i.e. coursework, examinations and independent project).

Merit: to be awarded where a candidate has achieved an aggregate mark of 60% or greater across the programme as a whole including a mark of 60% in each of the three elements of the course (i.e. coursework, examinations and independent project).

Pass: to be awarded where a candidate has achieved an aggregate mark of 50% or greater across the programme as a whole.

Fail: results when a candidate has achieved an aggregate mark of less than 50% or across the programme as a whole, and/or has failed to pass each of the three elements of the course.

All candidates must pass at least **three** of the five examinations papers.

Recommendations for final degree results are at the discretion of the Examinations' Board.

Year Weightings			
Element	Coursework (25%)	Examinations (50%)	Independent Project (25%)
7.50 ECTS	Reservoir Characterisation Fieldtrip & Group Project	Production Geoscience*	Independent Project (100%)
7.50 ECTS	Exploration Geoscience Group Project ("Barrel Award")	Petrophysics & Structural Geology	
7.50 ECTS	Synthesis Fieldwork	Petroleum Basin Analysis	
7.50 ECTS		Applied Sedimentology	
7.50 ECTS		Exploration Geoscience**	
	22.5 ECTS	37.5 ECTS	30 ECTS

* Production Geoscience comprises: Development Geology, Geostatistics, Petroleum Engineering, Hydrocarbon Reserves, Faults and Fractures, North Somerset Fieldtrip.

** Exploration Geoscience comprises: Petroleum Systems, Seismic Interpretation, Derbyshire Fieldtrip, Resource Plays, Play Fairway Analysis.

Module List												
Code	Title	Core/ Elective	Year	L&T Hours	Ind. Study Hours	Place- ment Hours	Total Hours	% Written Exam	% Course -work	% Practical	FHEQ Level	ECTS
F663PRGEO	Production Geoscience	CORE	4	72	115.5	0	187.5	100%	0%	0%	7	7.5
F663PSG	Petrophysics & Structural Geology	CORE	4	51	136.5	0	187.5	100%	0%	0%	7	7.5
F663PBA	Petroleum Basin Analysis	CORE	4	54	133.5	0	187.5	100%	0%	0%	7	7.5
F663APSED	Applied Sedimentology	CORE	4	60	127.5	0	187.5	100%	0%	0%	7	7.5
F663EXGEO	Exploration Geoscience	CORE	4	129	58.5	0	187.5	100%	0%	0%	7	7.5
F663CWK	Reservoir Characterisation Fieldtrip & Group Project	CORE	4	139	48.5	0	187.5	0%	100%	0%	7	7.5
F663CWK	Exploration Geoscience Group Project ("Barrel Award")	CORE	4	114	73.5	0	187.5	0%	100%	0%	7	7.5
F663CWK	Synthesis Fieldwork	CORE	4	108	79.5	0	187.5	0%	100%	0%	7	7.5
F663FPROJ	Independent Project	CORE	4	450	300	0	750	0%	100%	0%	7	30

Supporting Information

The Programme Handbook is available at:

<http://www.imperial.ac.uk/engineering/departments/earth-science/current-student-staff-info/msc/>

Module descriptions are available in the Programme Handbook (link above).

The College's entry requirements for postgraduate programmes can be found at:

<http://www.imperial.ac.uk/study/pg/apply/requirements/>

The College's Quality & Enhancement Framework is available at:

www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance

The College's Academic and Examination Regulations can be found at:

<http://www3.imperial.ac.uk/registry/proceduresandregulations/regulations>

Imperial College is an independent corporation whose legal status derives from a Royal Charter granted under Letters Patent in 1907. In 2007 a Supplemental Charter and Statutes was granted by HM Queen Elizabeth II. This Supplemental Charter, which came into force on the date of the College's Centenary, 8th July 2007, established the College as a University with the name and style of "The Imperial College of Science, Technology and Medicine". Further details can be found at:

<http://www.imperial.ac.uk/admin-services/secretariat/college-governance/charters-statutes-ordinances-and-regulations/>

Imperial College London is regulated by the Higher Education Funding Council for England (HEFCE). Further details can be found at:

<http://www.hefce.ac.uk/reg/of/>

Modification

The name of the module F663CWK 'US Field Trip' to 'Synthesis Fieldwork'

Programmes Committee

21 March 2017

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