

## PROGRAMME SPECIFICATION



1	<b>Awarding Institution</b>	Newcastle University
2	<b>Teaching Institution</b>	Newcastle University
3	<b>Final Award</b>	BA /BSc Honours
4	<b>Programme Title</b>	Geography
5	<b>UCAS/Programme Code</b>	L701, F800
6	<b>Programme Accreditation</b>	Not applicable
7	<b>QAA Subject Benchmark(s)</b>	Geography
8	<b>FHEQ Level</b>	XXXXXX
9	<b>Date written/revised</b>	May 2007

### 10 Programme Aims

- A1 to enable students to develop their knowledge and understanding of the theoretical and empirical basis of the discipline of geography
- A2 to enable students to appreciate the relevance of geographical perspectives, concepts and techniques of analysis and enquiry in the analysis of real world problems
- A3 to facilitate the students' development of the intellectual, practical and transferable skills necessary for the acquisition, analysis, interpretation and understanding of geographical information
- A4 to prepare students for a career in a wide range of geographical and non-geographical professions or for further study
- A5 to promote the development of personal attributes that foster initiative, responsibility, decision-making and teamwork

### 11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have references to the benchmark statements for Geography.

#### **Knowledge and Understanding**

- On completing the programme students should have a knowledge and understanding of:
- A1 The dynamic and contested nature of geographical thought and practice and the inter-relationships between the discipline and the physical and natural sciences, the social sciences and humanities
- A2 The diversity of global environments and the operation of, and inter-relationships between physical and biological systems over a wide range of spatial and temporal scales
- A3 Patterns and processes of environmental change and their inter-relationships with human activities
- A4 Spatial patterns and relationships in human phenomena at a variety of scales
- A5 The geography of places and their constitution by environmental, economic, social and political processes, and the influence of places on these processes
- A6 The geographies of difference and inequality with particular reference to historical development, ethnicity, class, gender and the changing nature of urban and regional economy and policy
- A7 Contemporary debates about time-space relationships, globalization and global interconnections
- A8 The role of changes in technology, the nature of work and labour markets in influencing

<p>spatial patterns of economic activity</p> <p>A9 The theory and application of quantitative, visualization and other spatial techniques across a wide range of geographical contexts</p> <p>A10 The contribution of geography to development of environmental, political, economic and cultural agendas, policies and practices</p>
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**Teaching and Learning Methods**

Geographical knowledge and understanding (A1-10) is acquired throughout the curriculum via combinations of lectures, tutorials, staff and student-led seminars, workshops, practicals, fieldwork, guided independent study and teamwork.

A compulsory Stage 1 programme develops the main themes of the degree (A1-10) while an overview of disciplinary thought and practice (A1) is provided by compulsory Stage 2 modules. During Stages 2 and 3 students can follow particular pathways through the degree programme, specialising in physical geography (A2-3, 10), human geography (A4-10) or a combination of both.

**Assessment Strategy**

Knowledge and understanding (A1-10) is assessed by combinations of examinations (seen and unseen, including computer-aided assessments) and coursework (including essays, individual and group projects, dissertations, practical reports, oral presentations, poster presentations, portfolios and vivas).

Examinations are primarily intended to assess knowledge of core information while written and oral coursework places more emphasis on the development of critical analysis and understanding of the concepts within a wider geographical context. Poster presentations emphasise the collection and presentation of knowledge.

- Intellectual Skills**
- On completing the programme students should be able to:
- B1 Abstract and synthesise information from a variety of sources
  - B2 Assess and critically evaluate the merits of contrasting theories, explanations and policies
  - B3 Critically analyse and interpret data and text
  - B4 Develop reasoned arguments
  - B5 Solve problems and make reasoned decisions

**Teaching and Learning Methods**

Cognitive skills are introduced in Stage 1 modules and developed to advanced levels through Stage 2 and 3 modules. Seminars, projects and group work allow students to discuss and learn to evaluate arguments and evidence while fieldwork, and especially the dissertation, promotes development of problem solving skills.

**Assessment Strategy**

Cognitive skills are assessed by coursework essays and projects, case studies, reports, vivas and, to a lesser extent, via unseen written examinations. The dissertation provides a means of demonstrating all cognitive skills.

- Practical Skills**
- On completing the programme students should be able to:
- C1 plan, design, execute and report geographical research both individually and as part of a team
  - C2 undertake effective laboratory and field work (with due regard for safety and risk assessment)
  - C3 employ a variety of technical and laboratory-based methods for the analysis and presentation of spatial and environmental information (e.g. GIS, water chemistry, etc)
  - C4 collect, interpret and synthesise different types of quantitative and qualitative geographical data
  - C5 recognise the ethical issues involved in geographical debates and enquiries

<b>Teaching and Learning Methods</b>	
Subject-specific and professional skills are introduced and developed in dedicated compulsory Stage 1 and 2 modules, and are developed to an advanced level in optional modules and the dissertation. Teaching and learning methods include lectures, seminars, IT and laboratory practicals, fieldwork.	
<b>Assessment Strategy</b>	
Subject-specific and professional skills are assessed by means of essays, oral and poster presentations, fieldwork and laboratory reports and written and computer-aided examinations. All skills (C1-5) are assessed in Stage 3 by means of the dissertation.	
<b>Transferable/Key Skills</b>	
D1	learn in familiar and unfamiliar situations, both independently and in groups
D2	communicate effectively (in writing, verbally and through graphical presentations)
D3	apply numerical and computational skills to geographical information
D4	use information technology effectively (including use of spreadsheet, database and word processing programmes; Internet and e-mail)
D5	identify, retrieve, sort and exchange geographical information using a wide range of sources (including on-line computer searches)
D6	work as part of a team and to recognise and respect the viewpoints of others
D7	manage their time and organise their work effectively
<b>Teaching and Learning Methods</b>	
An introduction to all (D1-7) key skills is taught formally in Stage 1 and developed further throughout the programme in a range of class, practical and fieldwork-based sessions. Communication skills (D2) are developed in written coursework and exams, projects, oral and poster presentations and via the dissertation. Specific modules support numerate skill development (D3) and the retrieval and use of information sources (D4-5). Self-management (D7) is promoted through a strict coursework and assessment timetable. The dissertation provides an opportunity for the development of a range of key skills, (D1-5, 7), particularly the ability to work independently (D1), while fieldwork provides opportunities to learn in unfamiliar situations (D1) and develop teamworking skills (D6).	
<b>Assessment Strategy</b>	
Key skills are assessed by a combination of examination and coursework assignments, including essays, project and practical reports, portfolios, oral and poster presentations and computer-aided assessments. A wide range of key skills are typically assessed within the dissertation.	

## **12 Programme Curriculum, Structure and Features**

### **Basic structure of the programme**

The programme is studied over three years full-time and is undertaken in three stages (one for each year of study). Each stage is arranged in two 15 week semesters. The programme is divided into study units called modules with credit values of 10, 20 or 40 credits. Each 10 credits of module weight represents approximately 100 hours of student learning, activity and assessment including up to a maximum of 36 hours teaching. Each stage has an equivalent of 120 credits.

Stage 1 of the programme aims to provide a foundation in skills and methods appropriate to the study of Geography, as well an introduction to the key themes of physical and human geography developed in Stages 2 and 3. All students follow a compulsory module programme totalling 100 credits at Stage 1; a further 20 credits must be chosen from cognate disciplines elsewhere in the School or University with the approval of the Degree Programme Director. Compulsory modules at Stage 2 focus on the different philosophical traditions of geography and develop advanced techniques and research skills so as to provide the basis for independent dissertation study in the third year. During stages 2 and 3 students are free to construct their degree from a wide range of optional modules in order to provide a focused programme of study that is both coherent as a geography degree and tailored to individual interests, abilities, and future employment. Students are progressively engaged with cutting edge theory and research and optional modules at Stage 3 directly reflect staff research activity. Further development of work-based skills is facilitated by optional (external) modules in student tutoring and learning from work.

The structure of the degree is given below.

**Degree structure for BA and BSc (Honours) Geography.**

**Stage 1**

*Core modules*

Code	Module and credit value	
GEO1005	Environmental Issues	20
GEO1007	Geographical Imaginations	20
GEO1010	Interconnected World	20
GEO1011	Introduction to Geographical Analysis	20
GEO1096	Geographical Study Skills	20

*Optional modules*

Code	Module and credit value	
GEO1012	Introduction to Earth Sciences	20

**Stage 2**

*Core modules*

Code	Module and credit value	
GEO2044	Advanced Study Skills	20
<i>either</i>		
GEO2043	Key Methods for Human Geographers	20
<i>or</i>		
GEO2048	Field & Lab Techniques in Physical Geography	20

*Optional modules*

Code	Module and credit value	
GEO2098	Human Geography Fieldcourse: UK	20
GEO2036	Globalisation, Economy and Culture	20
GEO2037	Physical Geography Fieldcourse (Ireland)	20
GEO2042	Aquatic Pollution	20
GEO2045	Economic & Social Change Field Course (Greece)	20
GEO2046	Social Exclusion and Spatial Justice	20
GEO2047	Political Geography	20
GEO2051	Quaternary Environments	20
GEO2052	Physical Geography Field Course (Iceland)	20
GEO2094	Economic & Social Change Field Course (UK Based)	20

**Stage 3**

*Compulsory*

Code	Module and credit value	
GEO3099	Dissertation	40

*Optional*

Code	Module and credit value	
GEO3041	Geography of Commodities	20
GEO3044	Africa in the Politics of Development	20
GEO3057	Quaternary Palaeoclimatology	20
GEO3060	Erasmus Student Exchange	30

GEO3061	Ethnodevelopment	20
GEO3063	Militarism: Space & Society	20
GEO3064	Research Methods in Environmental Pollution	20
GEO3065	Race, Place & Nation	20
GEO3066	Local & Regional Development	10
GEO3067	Geoarchaeology	10
GEO3069	River Management	10
GEO3070	Glacial Meltwater Processes and Products	10
GEO3071	The Oceans: Past & Present	10
GEO3072	Quaternary Palaeoclimatology	10
GEO3073	Ice Age Earth	10
GEO3100	Health: Geographical Perspectives	10
GEO3101	Cities and Gender	20
GEO3102	Geopolitical Thought and Practice	20
GEO3103	Geographies of Money	20
GEO3104	Tectonic Geomorphology	10

#### **Key features of the programme (including what makes the programme distinctive)**

- The programme provides a broad foundation in the discipline while allowing students the option of specialising in human geography, physical geography or a combination of both
- A compulsory dissertation provides students with first-hand experience of conducting and reporting original geographical research
- The curriculum is strongly linked to leading geographical research conducted by staff
- All students have the opportunity to undertake fieldwork in both the UK and abroad, including trips to Greece, Poland, Ireland and Iceland
- Students may opt to study abroad for one semester (via the Erasmus Programme)

#### **Programme regulations (link to on-line version)**

<http://www.ncl.ac.uk/regulations/>

### **13 Criteria for admission**

#### *Entry qualifications*

GCSEs required

No special requirement

#### A-Level Subjects and Grades

School/college leavers

Generally 3 A levels required for entry at ABB, including A at Geography.

Under the new post 16 arrangements in England:

6 credit vocational A level accepted as one of the three A levels.

Applicants with 12 credit vocational A levels will be considered on their merits

2 As levels will be accepted instead of one of the A levels

Skills qualifications will not be included in offers

#### Scottish Highers

ABBB

BTEC

Each case is considered on its merits.

#### *Admissions policy/selection tools*

The main criteria for admission is that the student should be capable of achieving the learning outcomes of the degree. This is assessed from evidence of previous examination successes. All students who are offered a place will be invited to an Open Day

#### *Non-standard Entry Requirements*

Each case is considered on its merits. Appropriate overseas qualifications will be considered, as well as A levels, while relevant work experience is also useful.

#### *Additional Requirements*

#### *Level of English Language capability*

## **14 Support for Student Learning**

### *Induction*

During the first week of the first semester students attend an induction programme. New students will be given a general introduction to University life and the University's principle support services and general information about the School and their programme, as described in the Degree Programme Handbook. New and continuing students will be given detailed programme information and the timetable of lectures/practicals/labs/ tutorials/etc. Meetings with personal tutors (as tutorial groups) give students the opportunity to draw their tutor's attention to special learning needs. The International Office offers an additional induction programme for overseas students (see

[http://www.ncl.ac.uk/international/coming\\_to\\_newcastle/orientation.phtml](http://www.ncl.ac.uk/international/coming_to_newcastle/orientation.phtml))

In addition to Stage induction programmes, all modules induct their students using a combination of lecture-based introductory material and written guides outlining the module structure, content, assessment, reading and teaching arrangements. Most modules have also adopted the University's web-based teaching and learning support system (Blackboard); Stage 1 students are inducted into this system through the compulsory tutorial programme.

### *Study skills support*

Students will learn a range of Personal Transferable Skills, including Study Skills, as outlined in the Programme Specification. Some of this material, e.g. time management is covered in the appropriate Induction Programme. Two Stage 1 modules, Geographical Study Skills and Introduction to Geographical Analysis, develop student study skills and provide a foundation for independent learning. Lectures and workshop classes are supported by small group sessions and tutorials with individual staff members where students can discuss their skills in finding information, reading statistics, time management, essay writing and referencing. Study skills are further developed by the compulsory Stage 2 Advanced Study Skills and either Key Methods for Human Geographers or Field and Laboratory Techniques modules.

### *Academic support*

The initial point of contact for a student is with a lecturer or module leader, or their tutor (see below) for more generic issues. All staff encourage students to make appointments to discuss their work directly or via e-mail. Thereafter the Degree Programme Director or Head of School may be consulted. In Stages 2 and 3 students are assigned a personal supervisor (Stage 2) and mentor (Stage 3) to guide the development and execution of their dissertation research. Issues relating to the programme may be raised at the Staff-Student Committee, and/or at the Board of Studies.

### *Pastoral support*

All students are assigned a personal tutor whose responsibility is to monitor the academic performance and overall well-being of their tutees. Details of the personal tutor system can be found at <http://www.ncl.ac.uk/undergraduate/support/tutor.phtml>. Students may also consult the Senior Tutor in Geography. The Stage 1 Geographical Study Skills module is administered via the personal tutorial system and ensures weekly tutorial activities during the

first year of study. During Stages 2 and 3 tutors meet with their tutees four times per year; meetings focus on module choices, academic performance (including discussion of mark feedback), preparation for exams and reflection on personal development and career aspirations. In addition the University offers a range of support services, including the Student Advice Centre, the Counselling and Wellbeing team, the Mature Student Support Officer, and a Childcare Support Officer, see <http://www.ncl.ac.uk/undergraduate/support/welfare.phtml>

#### *Support for students with disabilities*

The University's Disability Support Service provides help and advice for disabled students at the University - and those thinking of coming to Newcastle. It provides individuals with: advice about the University's facilities, services and the accessibility of campus; details about the technical support available; guidance in study skills and advice on financial support arrangements; a resources room with equipment and software to assist students in their studies. For further details see <http://www.ncl.ac.uk/disability-support/>

#### *Learning resources*

The University's main learning resources are provided by the Robinson and Walton Libraries (for books, journals, online resources), and Information Systems and Services, which supports campus-wide computing facilities, see <http://www.ncl.ac.uk/undergraduate/support/acfacilities.phtml>

All new students whose first language is not English are required to take an English Language test in the Language Centre. Where appropriate, in-session language training can be provided. The Language Centre houses a range of resources for learning other languages which may be particularly appropriate for those interested in an Erasmus exchange. See <http://www.ncl.ac.uk/undergraduate/support/facilities/langcen.phtml>

Discipline-specific resources provided by the School include the following:

- laboratory space and equipment supporting a wide range of analytical facilities (including grain size, water and sediment geochemistry and microfossil analysis) appropriate to physical geography modules and dissertation study, including a dedicated teaching room, fully refurbished geomorphology laboratory and a microscope room (with a dedicated computer and image processing and analysis software) in the Daysh Building. Laboratory facilities are supported by two technicians.
- physical geography fieldwork equipment appropriate for sediment coring, sampling and analysis, field survey (including levels, theodolites and GPS sets), hydrological analysis and water sampling and assessment. Two inflatable boats (with appropriate safety equipment) facilitate extraction of lake sediment and water samples. Additional field survey equipment may be obtained on loan from the School of Civil Engineering and Geosciences

#### **Careers advice**

Careers advice is an integral part of induction programmes for new and returning students, while students have access to the Careers Service and are encouraged to use it throughout their degree programme. See <http://www.careers.ncl.ac.uk/>

Careers advisors may be consulted via an appointment system and students are also encouraged to attend employer sessions and careers workshops at the University.

## **15 Methods for evaluating and improving the quality and standards of teaching and learning**

#### *Module reviews*

All modules are subject to review by questionnaires which are considered by the Board of Studies. Changes to, or the introduction of new, modules are considered at the School Teaching and Learning Committee, the Geography Teaching and Learning Committee and at the Board of Studies. Student opinion is sought at the Staff-Student Committee, both School and Geography Teaching and Learning Committees and the Board of Studies. New modules

and major changes to existing modules are subject to approval by the Faculty Teaching and Learning Committee.

#### *Programme reviews*

In addition to module questionnaires (above), students also complete Stage Questionnaires. The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Teaching and Learning Committee.

#### *External Examiner reports*

External Examiner reports are considered by the Board of Studies. The Board responds to these reports through Faculty Teaching and Learning Committee. External Examiner reports are shared with institutional student representatives, through the Staff-Student Committee.

#### *Student evaluations*

All modules, and the degree programme, are subject to review by student questionnaires (see Module and Programme reviews above). Informal student evaluation is also obtained at the Staff-Student Committee, both School and Geography Teaching and Learning Committees and the Board of Studies. The National Student Survey is sent out every year to final-year undergraduate students, and consists of a set of questions seeking the students' views on the quality of the learning and teaching in their HEIs. Further information is at [www.thestudentsurvey.com/](http://www.thestudentsurvey.com/)

With reference to the outcomes of the NSS and institutional student satisfaction surveys actions are taken at all appropriate levels by the institution.

#### *Mechanisms for gaining student feedback*

Feedback is channelled via the Staff-Student Committee and the Board of Studies.

#### *Faculty and University Review Mechanisms*

The programme is subject to the University's Internal Subject Review process, see [http://www.ncl.ac.uk/aqss/qsh/internal\\_subject\\_review/index.php](http://www.ncl.ac.uk/aqss/qsh/internal_subject_review/index.php)

#### *Accreditation reports*

n/a

#### *Additional mechanisms*

## **16 Regulation of assessment**

#### *Pass mark*

The pass mark is for Undergraduate programmes is 40.

#### *Course requirements*

Progression is subject to the University's Undergraduate Progress Regulations (<http://www.ncl.ac.uk/calendar/university.regs/ugcont.pdf>) and Undergraduate Examination Conventions (<http://www.ncl.ac.uk/calendar/university.regs/ugexamconv.pdf>). In summary, students must pass, or be deemed to have passed, 120 credits at each Stage. Limited compensation up to 40 credits and down to a mark of 35 is possible at each Stage and there are resit opportunities, with certain restrictions.

#### *Weighting of stages*

The marks from Stages 2 and 3 will contribute to the final classification of the degree  
The weighting of marks contributing to the degree for Stages 2 and 3 is one-third / two-thirds.

#### *Common Marking Scheme*

The University employs a common marking scheme, which is specified in the Undergraduate Examination Conventions, namely

	<b>Honours</b>	<b>Non-honours</b>
<40	Fail	Failing



40-49	Third Class	Basic
50-59	Second Class, Second Division	Good
60-69	Second Class, First Division	Very Good
70+	First Class	Excellent

*Role of the External Examiner*

Three External Examiners, all distinguished members of the Geography academic community, are appointed by Faculty Teaching and Learning Committee, after recommendation from the Board of Studies. The External Examiners are expected to:

- See and approve examination papers
- Moderate examination and coursework marking
- Attend the Board of Examiners
- Report to the University on the standards of the programme

In addition, information relating to the programme is provided in:

The University Prospectus (see <http://www.ncl.ac.uk/undergraduate/>)

The School Brochure (contact [enquiries@ncl.ac.uk](mailto:enquiries@ncl.ac.uk))

The University Regulations (see <http://www.ncl.ac.uk/calendar/university.regs/>)

The Degree Programme Handbook

Please note. This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if she/he takes full advantage of the learning opportunities provided. The accuracy of the information contained is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

## Mapping of Intended Learning Outcomes onto Curriculum/Modules

Module	Type	Intended Learning Outcomes			
		A	B	C	D
<b>GEO1005</b>	<b>Core</b>	1,2,3,4,5,10	1,2,3,4,5	5	1,2,4,5,7
<b>GEO1007</b>	<b>Core</b>	1,2,3,4,5,6,7,8,9,10	1,2,3,4,5	5	1,2,4,5,6,7
<b>GEO1010</b>	<b>Core</b>	1,4,5,6,7,8,10	1,2,3,4,5	4,5	1,2,4,5,7
<b>GEO1096</b>	<b>Core</b>	1,2,3,4,5,6,7,8,9,10	1,2,3,4		1,2,4,5,6,7
<b>GEO1011</b>	<b>Core</b>		1,2,3,4,5	1,3,4	1,2,3,4,5,6,7
GEO1012	Optional	1,2,3,4	1,2,3,4,5	2,3,4	1,2,4,5,6,7
<b>GEO2043</b>	<b>Core</b>	1,4,9	1,2,3,4,5	1,4,5	2,3,4,5
<b>GEO2044</b>	<b>Core</b>	1,9	1,2,3,4,5	1-5	1,2,3,4,5,7
GEO2098	Optional	1,4-7,10	1,2,3,4,5	1,2,4,5	1,2,4,5,6,7
GEO2036	Optional	1,4-8,10	1,2,3,4,5	1,4,5	1,2,4,5,6,7
GEO2046	Optional	1,4-8,10	1,2,3,4,5	1,2,4,5	1,2,4,5,6,7
GEO2047	Optional	1,4-7,10	1,2,3,4,5	1,2,4	1,2,4,5,6,7
GEO2094	Optional	1,4-8,10	1,2,3,4,5	1,2,4,5	1,2,4,5,6,7
GEO2045	Optional	1,4-8,10	1,2,3,4,5	1,2,4,5	1,2,3,4,5,6,7
<b>GEO2048</b>	<b>Core</b>	1-3,9	1,2,3,4,5	1,2,3,4	1,2,3,4,5,6,7
GEO2051	Optional	1-3,9	1,2,3,4,5	1,2,3,4	1,2,3,4,5,6,7
GEO2042	Optional	1-3,9	1,2,3,4,5	1,2,3,4	1,2,3,4,5,6,7
GEO2052	Optional	1-3,9	1,2,3,4,5	1,2,3,4	1,2,3,4,5,6,7
GEO2037	Optional	1-3,9	1,2,3,4,5	1,2,3,4	1,2,3,4,5,6,7
<b>GEO3099</b>	<b>Compulsory</b>	1,2,3,4,5,6,7,8,9,10	1,2,3,4,5	1,2,3,4,5	1-5,7
GEO3037	Optional	1,2,3,9	1,2,3,4,5	4,5	1,2,3,4,5,6,7
GEO3060	Optional	1,2,3,4,5,6,7,8,9,10	1,2,3,4,5	4,5	1,2,3,4,5,6,7
GEO3044	Optional	1,4,5,6,7,9,10	1,2,3,4,5	4,5	1,2,4,5,6,7
GEO3041	Optional	1,4,5,6,7,8,10	1,2,3,4,5	4,5	1,2,4,5,6,7
GEO3103	Optional	1,4,5,6,7,8,10	1,2,3,4,5	4,5	1,2,4,5,6,7
GEO3102	Optional	1,4,5,6,7,10	1,2,3,4,5	4,5	1,2,4,5,7
GEO3066	Optional	1,4,5,6,7,8,10	1,2,3,4,5	4,5	1,2,4,5,6,7
GEO3063	Optional	1,4,5,6,7,10	1,2,3,4,5	1,2,4,5	1,2,4,5,6,7
GEO3065	Optional	1,4,5,6,7,10	1,2,3,4,5	4,5	1,2,4,5,7
GEO3061	Optional	1,4,5,6,7,10	1,2,3,4,5	4,5	1,2,4,5,6,7
GEO3067	Optional	1,2,3,4,5,9,10	1,2,3,4,5	4	1,2,3,4,5,6,7
GEO3069	Optional	1,2,3,10	1,2,3,4,5	2,3,4	1,2,3,4,5,6,7
GEO3073	Optional	1,2,3	1,2,3,4,5	4	1,2,3,4,5,6,7
GEO3070	Optional	1,2,3	1,2,3,4,5	4	1,2,3,4,5,6,7
GEO3071	Optional	1,2,3,10	1,2,3,4,5	4	1,2,3,4,5,6,7
GEO3072	Optional	1,2,3,10	1,2,3,4,5	4	1,2,3,4,5,6,7
GEO3064	Optional	1,2,3,10	1,2,3,4,5	2,3,4	1,2,3,4,5,6,7
GEO3104	Optional	1,2,3	1,2,3,4,5	2,3,4	1,2,3,4,5,6,7
GEO3100	Optional	1,2,3,4,5,6,9,10	1,2,3,4,5	3,4	1,2,3,4,5,7