National Unit Specification: general information

UNIT Geographical Methods and Techniques (Advanced Higher)

CODE DF4A 13

COURSE Geography (Advanced Higher)

SUMMARY

This Unit builds on the skills and methods developed progressively in the study of Geography from Standard Grade and Intermediate 1 and 2 to Higher Geography.

The aim of this Unit is to ensure that candidates develop a knowledge and understanding of a wide range of geographical methods and techniques. This knowledge and understanding can be developed by applying most, if not all, to fieldwork orientated activities. The Unit also considers the particular circumstances in which it is most appropriate to use these techniques. The methods and techniques studied relate to three skill areas: namely fieldwork, statistical awareness and the production and interpretation of maps. In particular, candidates will have to show:

- knowledge and use of one technique for gathering information about the physical environment.
- knowledge and use of one technique for gathering information about the human environment
- knowledge and exemplification of the use of one statistical technique to process and analyse geographical data
- knowledge and exemplification of the skill of analysing information displayed on maps or diagrams
- knowledge and use of one technique to present information using maps or diagrams

In each of the above cases the technique in which competence is demonstrated can be selected from the range of techniques which candidates are expected to know. Appendix 1 contains the skills and content which will be covered in this Unit and which will be sampled to provide the evidence required for the Unit.

Administrative Information

Superclass: RF

Publication date: February 2008

Source: Scottish Qualifications Authority

Version: 02

National Unit Specification: general information (cont)

UNIT Geographical Methods and Techniques (Advanced Higher)

Where the Unit is being studied as part of the Course at Advanced Higher candidates will, in the *Geography Study* Unit, be able to apply these methods and techniques to the specific research topics they are investigating.

OUTCOMES

a) Demonstrate knowledge, understanding and application of complex geographical methods and techniques (GMTs) for gathering information.
b) Use statistical techniques to analyse geographical data in order to identify relationships.
c) Present complex geographical information.
d) Analyse complex geographical information presented in the form of maps and associated data.

RECOMMENDED ENTRY

While entry is at the discretion of the centre, candidates will normally be expected to have attained one of the following or equivalent:

- the Course at Higher Geography
- One or more of the Units at Higher Geography
- The Course or Units in other social subjects at Higher or Advanced Higher level

CREDIT VALUE

1 credit at Advanced Higher (8 SCQF points at SCQF level 7*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

CORE SKILLS

This Unit gives automatic certification of the following:

Complete Core Skills for the Unit Numeracy Higher

National Unit Specification: statement of standards

UNIT Geographical Methods and Techniques (Advanced Higher)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to the Scottish Qualifications Authority.

OUTCOME 1

Demonstrate knowledge, understanding and application of complex geographical methods and techniques (GMTs) for gathering information.

Performance Criteria

a) Select an appropriate GMT for the type of information being gathered.
b) Apply the selected GMT in such a way that valid and reliable information is gathered.

OUTCOME 2

Use statistical techniques to analyse geographical data in order to identify relationships.

Performance Criteria

a) Accurately analyse the geographical data.
b) Draw conclusions to reveal positive, negative or no relationship.

OUTCOME 3

Present complex geographical information.

Performance Criteria

a) Choose a format appropriate to the type of information being presented.
b) Clearly and accurately present the information.

OUTCOME 4

Analyse complex geographical information presented in the form of maps and associated data.

Performance Criteria

a) Demonstrate a clear understanding of relationships within complex geographical information.
b) Analyse complex geographical information to reach a valid conclusion.

National Unit Specification: statement of standards (cont)

UNIT Geographical Methods and Techniques (Advanced Higher)

EVIDENCE REQUIREMENTS FOR THE UNIT

Evidence to demonstrate successful completion of this Unit should be gathered by candidates/centres as an ongoing assignment. The candidate will present a completed folder of work as evidence. This evidence must show competence in each of the three skill areas within the Unit, namely fieldwork techniques, statistical awareness and the production and interpretation of maps. As evidence is collected it should clearly demonstrate candidate ability in all the Outcomes and Performance Criteria related to these skill areas. The table below sets out the specific pieces of evidence required in the folder.

Skill area	**Specific evidence**	**Related Outcomes**
Fieldwork techniques	**one** technique associated with physical geography **AND** **one** technique associated with human geography	Outcome 1
Statistical awareness	**one** example showing application of statistical technique to process data	Outcome 2
Production and interpretation of maps and diagrams	**one** example of the production of a map or diagram **AND** **one** example of map interpretation based on a 1:25000 OS map and associated data, eg transects, overlays, tables	Outcome 3 Outcome 4

The areas in which the skills/techniques should be demonstrated are identified in Appendix 1.

Candidates should also complete a checklist (ratified by their tutor) which should be kept with their folder as the assignment evidence is gathered. This should show the techniques for which they have gathered the necessary evidence. The NAB for this Unit provides an example of an appropriate approach to the assessment of this Unit.

National Unit Specification: support notes

UNIT Geographical Methods and Techniques (Advanced Higher)

This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

This Unit is one of three mandatory Units which together make up the Course in Advanced Higher Geography. The other Units are the *Geographical Study* and *Geographical Issues*. Within this Unit candidates have to work on three skill areas, namely:

- fieldwork methods and techniques
- statistical awareness
- production and interpretation of maps and diagrams

The Unit aims to ensure that candidates have a knowledge, understanding and the ability to use a wide range of geographical methods and techniques, by building on the skills developed at other levels in the geography hierarchy of Units and Courses. To adequately cover the range of techniques it is very likely that this Unit will involve candidates in direct fieldwork activity. Although the Unit *Geographical Methods and Techniques* only requires candidates to demonstrate awareness of, and ability to use, a limited range of methods and techniques, the wide range of skills developed in this Unit is vital to the successful completion of tasks associated with the production of a geographical study in the *Geographical Study* Unit. Indeed, centres may consider it useful to teach some candidates methods and techniques beyond those listed in the *Geographical Methods and Techniques* Unit to allow them to maximise the scope of their study in the *Geographical Study* Unit.

Appendix 1 contains the skills and content which will be sampled to provide the evidence required for the Unit.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Teaching order
If candidates are studying for the Course at Advanced Higher, it is recommended that centres teach the *Geographical Methods and Techniques* Unit first. The *Geographical Study* Unit and *Geographical Issues* Unit provide opportunities to develop further and apply further the skills specified in the *Geographical Methods and Techniques* Unit.

Methodology
The methodology used by teachers/lecturers will be built on existing good practice. Teacher/lecturer exposition and note-taking from textbook, information sheets and a wide variety of other resources may form the basis of class work in this Unit. The nature of the Unit is such, however, that other teaching strategies may be considered. Many of the methods and techniques could be taught in a single classroom based activity using a resource such as the 'Flexible Learning Resource Pack' and 'Geographical Methods and Techniques: Statistical Awareness – Staff Briefing and Student Notes' published by Learning and Teaching Scotland and distributed to centres in 2002.
These support materials are available on the website **www.LTScotland.org.uk/nq**.

On the other hand fieldwork could be used as a focus for much of the learning and teaching. A centre might devise a series of fieldwork exercises which give candidates practical experience in gathering data and then follow this up by processing this in the classroom by the use of appropriate statistical and mapping/presentation techniques. Some of this could then be used as a basis for work candidates undertake for their geographical study in the *Geographical Study* Unit.

Skills and learning experiences
The Unit is also a focus for the teaching of skills associated with the interpretation of 1:25000 Ordnance Survey maps and use of atlases. Centres may be able to provide maps of this scale for their own area and give candidates the opportunity to use them in familiar circumstances. In most cases work on map reading, interpretation and analysis will focus on areas with which candidates are unfamiliar. Work on these skills should require candidates to study land use, actual and in some cases proposed, and relate this to additional information provided about the area under study. Map interpretation and analysis should contain examples from a variety of urban and rural contexts. This particular skill contributes 30 out of the 60 marks in the examination paper. If centres are studying this Unit as part of the Course they are advised to programme their teaching plan to ensure that adequate time is devoted to the development of these skills.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

The evidence for Unit assessment samples the range of techniques with which candidates become familiar. This evidence can consist of five quite separate tasks which have been selected from the candidate's work during the Unit and that show competence in the related Outcome. Alternatively, centres might choose to construct a class exercise in which candidates conduct a piece of research and follow this through by processing data obtained, and then by presenting this in the form of maps and/ or diagrams. Where such a strategy is adopted it will be necessary to ensure that the techniques used are contained in the list of methods and techniques in this specification. Care will also have to be taken by the centre to ensure the authenticity of the work presented by candidates. It is quite acceptable for candidates to work in groups to collect information but the evidence retained for assessment ought to clearly be the candidate's own work. This also applies for evidence related to the other skill areas. Centres may wish to consider using some of the extra 40 hours available for assessment in the Course to set up a controlled situation when candidates produce their personal evidence.

Where the checklist or technique has not been completed satisfactorily the candidate should be given an opportunity for reassessment. This could involve them in either reworking the original checklist/technique or completing a different one.

The pieces of work which demonstrate competence in the Outcomes for each Unit could also demonstrate a level of achievement equivalent to a grade C in the Course. The same piece of work may be assessed against the Grade Descriptions for the relevant part of the external Course assessment to ascertain whether an A or B can be recorded as a Course estimate or as evidence in the case of an appeal. For details of the Grade Descriptions for external assessment, refer to the Course Specification.

National Unit Specification: support notes (cont)

UNIT Geographical Methods and Techniques (Advanced Higher)

CANDIDATES WITH DISABILITES AND/OR ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for this Course. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* **(www.sqa.org.uk)**.

APPENDIX 1

The skills and content sampled to show candidates have achieved the Outcomes are identified below.

Skill area — fieldwork survey/measurement and recording techniques

Candidates should undertake fieldwork in at least **two** of the following areas, **one from each list**. Evidence of competences in these two methods and techniques will be required for Unit assessment. These techniques can be used and further developed to aid research in the geographical study.

List of skills:

a) Physical topics

- morphological mapping
- vegetation sampling
- slope analysis
- stream analysis
- soil profiles and characteristics
- pebble analysis — size, shape and rock type

b) Human topic

- rural land use mapping
- urban land use mapping
- traffic, pedestrian and environmental quality surveys
- questionnaire design and implementation
- use of secondary sources
- Reilly's gravity law
- nearest neighbour analysis (area, linear, clustered)

If candidates intend to sit the Course assessment, they will require to be aware of the type of data which could be collected by all of the fieldwork methods and techniques and the factors affecting the gathering, processing and analysis of the data. They may be required to process and analyse this data in the written paper. They will also be expected to demonstrate a range of these skills in their geographical study.

Skill area — statistical awareness

Candidates require to be able to carry out calculations involving appropriate statistical techniques from the list below.

List of skills/techniques:

- sampling — random, systematic, stratified
- handling different data types — nominal, ordinal, interval, ratio
- graphical presentation of data — systems diagrams, logarithmic, kite and scatter graphs, polar and triangular graphs, dispersion diagrams, bipolar analysis
- descriptive statistics — measures of central tendency — mean, median, mode
  — measures of dispersion — standard deviation
- introductory statistical testing — nearest neighbour, chi squared, Spearman's rank correlation coefficient, Pearson's product moment correlation coefficient, linear regression

APPENDIX 1 (cont)

Calculations should always be checked and answers given to the appropriate degree of accuracy. Where possible, centres should make use of appropriate software packages. For the purposes of Unit assessment they should retain evidence of the application of one of these techniques.

If candidates intend to sit the Course assessment they will require to have an understanding of each of the statistical techniques as they may be required to use these to analyse data in a question in Section B of the written paper. They will also be expected to demonstrate some of these skills in their geographical study.

Skill area — production and interpretation of maps and diagrams

Candidates should be able to present and analyse information using a variety of maps and diagrams. The suggested techniques they should be able to demonstrate are listed below.

For Unit assessment they are required to retain one piece of evidence which shows the production of maps or diagrams **and** one piece of evidence showing their ability to interpret maps.

List of skills/techniques:

- design and layout of maps — principles of lettering, line work and shading, dot maps, isoline maps, choropleth maps, proportional symbols, divided proportional symbols and flow maps
- interpretation of Ordnance Survey (OS) maps and related data
- topographic analysis based on Ordnance Survey (OS) maps — cross-sections, belt transects and river profiles

If candidates intend to sit the Course assessment they will require to have a working knowledge of each of these techniques as they may be required to use these to analyse data in a question in Section A of the written paper. They will also be expected to demonstrate some of these skills in their geographical study. The geographical issues essay is also likely to require the use of these skills to evaluate sources and viewpoints.

The lists of methods and techniques above indicate those which could be examined in the Course assessment. It is possible that some candidates will extend their knowledge of geographical methods and techniques beyond those given in these lists. This might occur where candidates wish to collect particular types of data for their geographical study, eg meteorological, or where another statistical technique is more appropriate to analyse their data than those given in the list.