

GG1011 (*GG1012; GG1013) GEOGRAPHICAL TECHNIQUES 2008/2009

Course coordinator

Dr Xingmin Meng

Course lecturers

Dr David Lambert (DL)

Mr Adrian Machiraju (AM)

Dr Xingmin Meng (XM)

Dr Jay Mistry (JM)

Mr Don Thompson (DT)

Value:

1 course unit

Availability:

First and second terms

Assessment:

Assessment of coursework based on practical sessions (100%)

Structure

The course is divided into five modules:

Module A Physical Geography (JM)

Module B Information Resources for Geographers
(*Geography Librarian* Adrian Machiraju (AM) and XM)

Module C Human Geography (DL)

Module D Statistical Methods for Geographers (DT)

Module E Geographical Information Systems (XM)

** Please note:*

GG1011 is a one-course unit taken by Single Honours Geography students. It consists of all modules.

GG1012 is a half course unit taken by Joint Honours students (Geology/Geography). It consists of Modules A and D.

GG1013 is a half course unit taken by Joint Honours students (Geography/Politics & International Relations). It consists of Modules C and E.

This handout contains the following information:

- The aims of the course
- The course content
- The learning outcomes of the course
- The skills training involved in the course
- The lecture and practical structure of the course
- Assessment and assessment deadlines for the course
- Course regulations
- IT training
- The aims, learning outcomes and assessment for each module
- Course reading
- Timetable

Aims

This is an introductory course in the fundamental techniques of geographical data acquisition, analysis, interpretation and presentation. It aims to give new students a common foundation in both physical and human geography research techniques. It provides a grounding for further research-based courses, particularly GG1031 (the 1st year Spanish fieldtrip), GG2001 (2nd year fieldtrips) and GG3001 (final year dissertation).

Content

The course is divided into five sections concentrating in turn on: research techniques in physical geography (Module A); information resources for geographers (Module B); research techniques in human geography (Module C); statistical analysis (Module D); and geographical information technology (Module E).

This course addresses many of the areas of knowledge and understanding identified in the QAA Geography Benchmarking Statement (<http://www.qaa.ac.uk/crntwork/benchmark/benchmarking.htm>). It has particular relevance to the following: an understanding of the **representation** of the human and physical worlds in the form of maps, visual images and digital technologies (particularly GIS) (3.10); a firm grounding in the main methodologies used in the **analysis** and **interpretation** of geographical information (3.11); training in a range of analytical and **observational** research strategies (3.12); an emphasis on the practical nature of the discipline as a basis for an **informed concern** for the Earth and its people (3.13).

Learning Outcomes

By the end of the course students should:

1. be able to identify and critically assess appropriate techniques for different kinds of geographical research;
2. successfully use a wide range of techniques in human and physical geography;
3. understand and critically evaluate the methodological basis of the published research they encounter.

Skills Training

This is a wholly skills-based course. The emphasis of the course is on **discipline-specific skills**, and students are taught the following: surveying and mapping, vegetation sampling and identification, soil and water analysis, and past history interpretation; exploratory and inferential data analysis; questionnaire design, interviewing, visual and textual interpretation; use of the Internet and Geographical Information Systems (GIS). Nevertheless, the course also develops **intellectual skills** through analysing and problem-solving, interpreting data and text, and critically evaluating evidence. **Key skills** are also developed in learning and study, written communication, numeracy and computation, field and laboratory studies, information technology, information handling and retrieval, and interpersonal skills. Students should develop a range of **personal attributes** including motivation, ability to work autonomously and with others, and flexibility and adaptability.

Teaching

The course is taught through weekly sessions consisting of the following:

- i. a lecture on Monday afternoon (1:00-2:00pm) *and/or* a lecture on Wednesday morning (12:00am -1:00pm);
- ii. a practical during *either* Tuesday (2:00-6:00pm) *or* Thursday (2:00-6:00pm) afternoon.

You will be allocated to one of four groups (1-4) for practicals. **These groups will vary for each module so it is essential that you make sure which group you are in and attend at the appropriate time.** The module leader will make the list of new groups available at the start of each module. **Read the attached timetable carefully and ensure that you attend at the correct times on the required days in the specified rooms.**

Key to location of practicals (as indicated on timetable)

QLT = Queen's Lecture Theatre

MFox = Munro Fox Lab

Fieldsite = Coopers Hill Slopes, meeting point at Kingswood Hall Main Car Park

PC Lab = computer room to be announced by module leader

BL = Bedford Library, computer suite on ground floor

Assessment

GG1011 (one course unit)

100% assessment on the basis of the 5 modules undertaken throughout the year.

The modules are weighted as follows:

Modules A – 30% of the coursework mark

Module B – 5 % of the coursework mark

Module C – 30 % of the coursework mark

Module D – 15% of the coursework mark

Module E – 20 % of the coursework mark

GG1012 (half course unit)

100% assessment on the basis of Modules A and D. However Joint Hons. Geography/ Geology are welcome to attend other modules.

Module A counts for 60%, and Module D 40%.

Full details of the assessment for each module will be supplied by the module leader.

Plagiarism

Please refer to the Undergraduate Handbook and Safety Instructions - 5.3 Plagiarism (page 26-27).

Assessed work deadlines

All assessed work must be submitted to the Departmental office before **12:15pm** on the days specified below. Work will not be accepted at any other times and/or other days without the authority of Dr Meng. Marks will be posted on the First Year Board two weeks after the submission date (marks for modules handed in at the end of term will be given back on the first day in the following term).

Module	Work	Submission date
A	Physical geography assessments	Tuesday 25 th November 2008
B	Annotated bibliography	Tuesday 2 nd December 2008
C	Human geography project proposal	Wednesday 14 th January 2009
D	Portfolio: 2 practical exercises + report	Wednesday 4 th March 2009
E	GIS project	Friday 27 th March 2009

Course regulations

Attendance at all practical sessions is **compulsory**. Repeated absences without adequate documented reason may result in failure and a mark of zero for this course. All written medical or other evidence must be given to the course coordinator in advance of the coursework deadline for the relevant module. It is the student's responsibility to lodge medical or other evidence with the course coordinator as well as the department. Failure in this course could seriously affect your chances of progressing into the second year of the degree.

Safety regulations require that **laboratory coats** must be worn for all practicals in Module A based in the labs (Sessions A₃-A₅). These will be provided during the practicals. Students will not be allowed to participate in these practicals unless they comply with the regulations.

University regulations require students to sign hazard forms for practicals in Module A based in the field (Sessions A₁-A₂). Students are advised to wear appropriate clothing for the fieldwork, particularly comfortable, walking shoes, and waterproofs.

Students must submit their assessments **in person** on the dates indicated in this handout. Assessments will receive zero marks if not accompanied by a **relevant signature** on the submission record, or if handed in **after the appropriate deadline** (unless an extension has been granted).

Decisions on missed practicals and extensions can only be made by Dr Meng. **No other member of staff has the authority.**

IT Training for First Year Geography Students

Details of IT Training Sessions, which are provided by the Computer Centre, can be found in the booklet *On Course!* This is available from Information Services.

Advice and Registration will be available at the Computer Centre. Details of the location will be given during the registration process.

The Geography Department recommends that you give consideration to the following IT training sessions, which generally last 60-90 minutes. The assessment will be expected to be word-processed and basic understanding of PC use and spreadsheets will be needed for GG1011.

STRONGLY RECOMMENDED:

IS121	Creating effective documents using Word
IS124	Formatting techniques using Word
IS221	Introduction to Information retrieval
IS324	Working with spreadsheets using Excel
IS326	Presenting data graphically using Excel

MODULE A PHYSICAL GEOGRAPHY (JM)

Aims

1. To introduce a range of techniques for mapping, vegetation analysis, soil studies, water analysis and past history interpretation.
2. To develop skills in collecting data both in the field and in the laboratory.
3. To develop skills in basic data presentation and interpretation.

Learning outcomes

By the end of the module when you have submitted your work you should:

1. have a basic familiarity with the range of techniques used to study the physical geography of a study site.
2. be able to identify the appropriate techniques for different kinds of physical geographical research.
3. be able to present and critically comment on data collected.

Assessment

Assessment of the Module will be based on the five practicals. Handouts will be given for each practical, and should be used as the basis for completing the assessment sheets. The front page of each assessment sheet clearly indicates what is required. Marks will be based on the following criteria:

- clear and correct completion of data tables (practicals A₁ to A₄).
- clear and correct graphical representation of data and completion of paper exercise (practicals A₁ and A₅).
- quality of critical interpretation of results (practicals A₂ to A₅).
- general standard of presentation (spelling, grammar, etc.)

Assessment sheets that meet acceptable standards for all of these criteria will be given a mark of B+ (in the range 65-69%). Higher marks (ie first class marks) will be awarded for assessment sheets that excel in the quality of commentary provided and/or presentation of data.

Handouts and assessment sheets will be given for each practical. However, if for any reason you need further copies, these can be downloaded from the Geography homepage at:

<http://www.gg.rhul.ac.uk/mistry/teaching.html>

MODULE B INFORMATION RESOURCES FOR GEOGRAPHERS (AM /XM)

Aims

1. To introduce a range of sources and techniques for information retrieval and organisation.
2. To develop skills in independent information retrieval and organisation.
3. To demonstrate and discuss the use of proper bibliographic conventions.

Learning outcomes

By the end of the module when you have submitted your work you should be able to:

1. access and operate a range of information sources (including CD-Roms, Web of Science, Web search engines, library catalogues) and information gateways relevant to study and research in Geography.
2. use those information sources to find information and references on a given topic.
3. present your references in an effective, consistent bibliography.
4. comment critically on the sources of information used.

Assessment

Assessment of your bibliography will be based on the following criteria:

- use of proper bibliographic conventions
- demonstration of collection of information resources from a range of different kinds of source (e.g. from books, edited collections, academic journals, newspapers, web pages etc.) It is recommended that the bibliography contains at least 40 items.
- quality of critical reflection on information sources.
- general standard of presentation of bibliography (use of proper fonts, spacing etc.)

Bibliographies that meet acceptable standards for all of these criteria will be given a mark of B+ (in the range 65-69%). Higher marks (ie first class marks) will be awarded for bibliographies that excel in either the number and range of references provided, or in the quality of commentary provided.

MODULE C HUMAN GEOGRAPHY (MD)

Aims

1. To introduce a range of qualitative research methods in human geography.
2. To develop skills in qualitative research methodologies.
3. To develop skills in choosing appropriate qualitative research techniques for different kinds of research projects and in devising research methodologies for research based coursework.

Learning outcomes

By the end of the module when you have submitted your work you should be able to:

1. understand the strengths and limits of different kinds of qualitative research methods.
2. choose appropriate research methods for different kinds of research projects.
3. apply qualitative research skills.
4. comment critically on your use of qualitative research techniques and assess the methodological basis of other research.

Assessment

The assessment of this module takes the form of a research project proposal. Marks are awarded for

- producing a summary of the project with clear aims
- outlining the sources for the project
- describing the methods you have chosen to use
- giving details of how you will use them
- evaluating the strengths and limits of these methods for the aims of your project.
- quality of presentation

Full details of the assessment will be given at the start of the module.

MODULE D STATISTICAL METHODS FOR GEOGRAPHERS (DT)

Aims

1. To introduce methods of numerical data description and statistical inference and develop understanding of the assumptions and appropriate applications of statistics.
2. To develop skills in assessing data requirements for answering research questions and choosing appropriate statistical methods with which to analyse datasets.
3. To introduce and develop skills in the use of the Minitab statistical analysis application.

Learning outcomes

By the end of the module, and with the skills developed in the practicals, you should be able to:

1. use appropriate methods, both numerical and diagrammatic, to describe a data set.
2. to formulate suitable *hypotheses* regarding your data.
3. choose appropriate statistical tests to analyse *differences* between data sets and to quantify *relationships* between variables.
4. be aware of the assumptions underlying *parametric* and *non-parametric* statistical tests and to be able to choose the appropriate type of test following data description.
5. make use of the Minitab application to carry out basic data description and statistical inference.
6. to comment critically on the outcome of a statistical test and present the material effectively.

Assessment

Assessments, making use of the data sets and techniques introduced in the practicals, will be set at the end of each practical. Marks will be awarded on the basis of the following criteria:

- correct choice of appropriate statistical tests (eg. Parametric, non-parametric etc.).
- understanding of the assumptions underlying the statistical tests utilized.
- numerically correct answers.
- quality of critical reflection on the results obtained.
- standard of presentation.

The marks available for each practical assessment question will be indicated on the practical sheets.

MODULE E INFORMATION TECHNOLOGY FOR GEOGRAPHERS (XM)

Aims

1. To introduce the range of geographical applications of new technology to students.
2. To develop awareness and understanding of the basic principles and uses of GIS.
3. To develop hands-on skills in the basic use of Geographic Information Systems (GIS).

Learning outcomes

By the end of the module when you have submitted your work you should:

1. have an initial familiarity with the range of hardware and software used in geographical research, particularly GIS.
2. Be able to use the basic facilities of the ArcView GIS, including asking spatial queries.
3. be able to present the results of your GIS analyses, and to submit it as an electronic attachment.
4. understand the basic principles of a GIS system, particularly in terms of the combination of spatial and attribute data.

Assessment

You will be asked to produce one or more maps using ARC-view, in response to particular spatial queries. These maps will be accompanied by a commentary, and will be based upon existing datasets.

Your work will be submitted electronically, and will be judged on the basis of the following criteria:

- appropriate selection of data and scale to address the particular spatial query.
- fluency and appropriateness of accompanying commentary
- quantity of presentation, including scale, appropriate detail, annotation, and shading scheme

Course reading

This is primarily a course based on learning practical skills. However, additional reading is also *essential* and will considerably improve your achievements and enhance your skills. The following list contains books which may be useful for this course. Most should be either in the Bedford Library (**BL**) or in the Reading Room (**RR**).

Module A

Recommended reading is the following:

Watts, S. and Halliwell, L. (1996). (eds). *Essential Environmental Science. Methods and Techniques*. Routledge. London. **BL**

This has various chapters on surveying, soil analysis, water analysis and ecological methods.

Bannister, A., Raymond, S. and Baker, R. (1998). *Surveying*. 7th Edition. Longman. Harlow. (and other editions).**BL**

Batey, T. (1988). *Soil husbandary. A practical guide to the use and management of soils*. Soil and Land Use Consultants Ltd. Aberdeen. **Chapter 3 available in RR. BL**

Chapman, D (ed). (1996). *Water quality assessments: a guide to the use of biota, sediments and water in environmental monitoring*. 2nd Edition. E & FN Spon. London. (see Chapters 3, 6 and 7). **Chapter 3 available in RR. BL**

Davie, T. (2002). *Fundamentals of Hydrology*. Routledge. London. **BL**

Gerrard, J. (2000). *Fundamentals of Soils*. Routledge. London. **BL**

Gray, N. F. (1994). *Drinking water quality: problems and solutions*. John Wiley and Sons, Chichester. (see Chapters 2 and 4). **BL**

Kent, M. and Coker, P. (1992). *Vegetation description and analysis. A practical approach*. Belhaven Press. London. **BL**

McRae, S.G. (1988). *Practical pedology. Studying soils in the field*. Ellis Horwood Limited. Chichester. (see particularly Chapters 1 and 2). **Chapter 2 available in RR. BL**

Moore, P., Webb, J.A. and Collinson, M.E. (1991). *Pollen Analysis*. 2nd Edition. Blackwell Scientific Publications. Oxford. **RR BL**

Richie, W., Wood, M., Wright, R. and Tait, D. (1988). *Surveying and mapping for field scientists*. Longman. Harlow. (see Chapter 2). **BL**

Rowell, D.L. (1994). *Soil science: methods and applications*. Longman Scientific & Technical. Harlow. (see particularly Chapter 1). **Chapter 1 available in RR. BL**

WHO (1993). *Guidelines for drinking water quality. Vol.1. Recommendations*. 2nd Edition. WHO, Geneva, Switzerland. **BL**

Module B

Harner, J.L. (2000). *On Compiling an Annotated Bibliography*. New York: The Modern Language Association of America.

Ikeda, A. (2002). *Writing Annotated Bibliographies*.
Claremont, California: Claremont Graduate University Writing Center.
<http://www.cgu.edu/pages/836.asp>.

Robert E. Kennedy Library. (2001). *Writing an Annotated Bibliography*.
San Luis Obispo, California: California Polytechnic State University.
<http://www.lib.calpoly.edu/research/guides/bibliography.html>.

Stacks, G. and Karper, E. (2001). *Annotated Bibliographies*.
West Lafayette, Indiana: Online Writing Lab (OWL) at Purdue University.
http://owl.english.purdue.edu/handouts/general/gl_annotatedbib.html.

<http://www.crk.umn.edu/library/links/annotate.htm>

<http://www.library.cornell.edu/olinuris/ref/research/skill28.htm>

Module C

Flowerdew, R. and Martin, D. (eds) (1997). *Methods in Human Geography: A Guide for Students Doing Research Projects*. Longman. Harlow. **RR BL**

Denscombe, M. (1998). *The good research guide: for small-scale social research projects*. Open University Press. Buckingham. **RR BL**

Hoggart, K. Lees, L. and Davies, A. (2002). *Researching Human Geography*. Arnold. London. **RR**

Limb, M and Dwyer, C. (eds) (2001). *Qualitative Methodologies for Geographers: Issues and Debates*. Arnold. London. **RR**

May, T. (1997). *Social research: issues, methods & process*. Open University Press. Milton Keynes. **BL**

Miles, M. B. and Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. (Second Edition). Sage. London. **BL**

Module D

Ebdon (1985) *Statistics in Geography*. Blackwell. Oxford. **RR BL**

Norcliffe (1978) *Inferential Statistics for Geographers*. Hutchinson. London. (Chapters 2,3,4,8,9). **RR**

Hammond & McCullagh (1978) *Quantitative Techniques in Geography*. Oxford University Press. Oxford. (Chapters 5,6). **RR BL**

Rowntree, D. (1981). *Statistics without tears*. Penguin. **BL**

Walford (1995) *Geographical data analysis*. Wiley. (Chapters 1-6). **RR**

Module E

Bernhardsen, T. (1999). *Geographic information systems : an introduction*. Wiley. New York. **BL**

Clarke, K. C. (2001). *Getting started with geographic information systems*. Upper Saddle River, N.J., Prentice Hall. London. **BL**

Delaney, J. (1999). *Geographical information systems: an introduction*. Oxford University Press. Melbourne, Oxford. **BL**

Heywood, I. (2002). *An introduction to geographical information systems*. Upper Saddle River, N.J., Prentice Hall. London. **BL**

Korte, G. B. (1997). *The GIS book*. OnWord Press. Santa Fe. **BL**