

## Geography and Resource Management

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### **Course Description**

(Unless otherwise specified, all are 3-unit term courses of three hours of lecture per week.)

#### GRM 1001

Resource Issues in the Age of Globalization

1st term

This course introduces students to the interactions of man and environment in a geographical context. Because of globalization, the growth of population, increasing need for use of resources, and in particular the dynamism of societies like Hong Kong, the course draws substantially on resource issues that are of most concern. The course focuses on the basic geographical concepts and modern techniques in resource development. The role of geography and resource management is emphasized on topical issues that affect lives in modern societies, particularly in this age of globalization. The course will help students broaden their views in understanding the importance of resource issues in dynamic societies like Hong Kong and the region at large. (Not for Geography and Resource Management Majors and Minors and students who have taken GEE 216E.)

#### GRM 1003

Understanding China through Travels

2 U; 2 Lect.

China is not only the most populous country in the world but also an ancient civilization endowed with plenty natural wonders, spectacular landscapes and cultural heritage sites. The occurrence and evolution of these features is both a reflection of the unique geography of the country as well as the people's interaction with the environment. Many of these features have become important tourist attractions yet their preservation is undermined by the rapid increase of visitors and sometimes inadequate management. Students are expected to improve their understanding of China by examining these features from the historical, geographical, cultural, ecological and economic perspectives. The ultimate objective, of course, is to bring out the important message of sustainability in China and to enable students to contribute to this objective. The lectures will be supplemented by abundant satellite images, slides and videos to enhance students' learning experience. (Not for Geography and Resource Management Majors and students who have taken GES 2050.)

#### GRM 1004

Environment Hong Kong: The X Files

3 U; 3 Lect.; 2nd term

This course attempts to encourage students to probe into the environmental challenges of Hong Kong through a number of case studies and field observations. The aim is to help students appreciate the complexity of environmental issues and to re-examine them in a critical and balanced manner so as to broaden their visions in analysing environmental problems and to develop their ability in problem-solving. (Not for Geography and Resource Management Majors and Minors and students who have taken GEE 218E.)

GRM 1014

Sustainable Development

3 U; 3 Lect.; 1st term

This course addresses some fundamental issues related to the increasingly popular idea of sustainable development. We shall begin by examining the historical development of the concept of sustainable development and its contradictions. This discussion serves as a background for latter topics explored in the course, including the relationship between population and environment, gender and development, trade and sustainability, as well as the opportunities offered by ecotourism and sustainable food production as alternatives to “traditional” practices. The role of important actors ranging from inter-governmental organizations (e.g. the United Nations and the World Bank), national governments, NGOs, civil organizations and society in pursuing sustainable development will also be studied. In addition to case studies pertaining to Hong Kong, examples from different parts of the world will also be illustrated to underline the tight inter-connections between processes in different regions and across geographical scales in the context of sustainable development. (Not for students who have taken GEE 217E.)

GRM 1023

Resources, Society and Environment

3 U; 2 Lect. 1 Tut.; 1st term

This serves as an introductory course to first-year geography students, integrating the various aspects of human and physical geography. It focuses on key issues related to resources, society and environment. A problem-oriented approach will be adopted, with a balanced emphasis between theory and practice. Case studies related to everyday life will be examined to highlight the integrative nature of selected local, regional and global problems, as well as the need of a multidisciplinary approach to their solutions.

GRM 1024

Geoinformatics and Information Technology

3 U; 2 Lect. 3 Tut.; 1st term

This course introduces recent development in geoinformatics and information technology. It discusses the background and use of Internet in geographical studies. It also discusses the nature of spatial data, methods to acquire them, techniques for interpretation and analysis; and presentation of spatial information using geoinformatics technologies, in particular geographic information systems and remote sensing.

GRM 1033

Development of Zhujiang Delta

Both terms

An introduction to the pattern and problems of development in the Zhujiang Delta region under the impetus of China’s open policy. An exploration of the intricate relationship between Hong Kong and the delta region in the wake of Hong Kong’s return to Chinese sovereignty. The course is both analytical and futuristic. (Geography and Resource Management Majors and Minors admitted in 2001-02 and thereafter are not allowed to take this course in their third year of attendance. Not for students who have taken GEE 212E.)

GRM 1121

Field Studies I

1 U; 1st term

Field teaching is an integral part in the study of geography, which gives students an opportunity to understand the real-world situations and to supplement what they have learnt from the

lectures. This course is designed for year one students, in the format of a local field camp to be held in December during their first year of attendance. The objectives are three-fold: 1) to introduce students to different techniques in the collection of field data; 2) to help students identify, understand, and explain the geographical problems of a region; and 3) to provide an opportunity for students to work as a team in problem-solving. Students are required to participate actively in all activities throughout the field camp and to submit an individual report afterwards.

GRM 2001

China's Mega-projects in New Millennium

3 U; 3 Lect.; 2nd term

As the most populous country in the world, China is confronted by the problems of over-population, desertification, land degradation, drought, floods, pollution and loss of biodiversity. Since 1978 the economy has grown rapidly and as of to date, it has become a rising economic power of the world. However, environmental pollution and ecological degradation have reached a point whereby sustainable growth is jeopardized. The conflict between development and conservation will intensify with China's plan to develop the west and accession to the World Trade Organization. To maintain the momentum of growth, China has implemented and planned for several mega-projects of far-reaching repercussions, the scale of which is unmatched in the history of mankind. They range from multi-purpose water conservancy projects to biological engineering projects and inter-provincial railway construction. These projects have been conceived for decades yet highly controversial and expensive to build. The course gives students a general background of these mega-projects, the problems they attempt to resolve, benefits as well as their impact on the environment. After taking this course, students should have a comprehensive understanding about the occurrence, nature and possible solutions of the various environmental problems China is facing. Lectures will be supplemented with slides and videos from time to time. (Not for students who have taken GEE 215E.)

GRM 2101

Computer Cartography

3 U; 2 Lect. 3 Lab.; 1st term

This course introduces principles of map production and basic methods for computer-assisted mapping. Topics include: map language, map projection, map design, thematic maps, hardware and software for mapping.

GRM 2102

Statistical Analysis in Geography

3 U; 2 Lect. 1 Tut.; 1st term

This course emphasizes fundamental concepts of statistical methods which are applicable to geographic analysis. Topics covered include elementary probability theory, hypothesis testing, analysis of variance, correlation analysis, simple and multiple regression analysis.

GRM 2103

Research Methods

3 U; 2 Lect. 1 Tut.; 2nd term

This course emphasizes the fundamentals of geographical research design. Topics covered include problem formulation, data source, sampling methods, data collection, data analysis and report writing.

GRM 2104

Remote Sensing of Environment

3 U; 2 Lect. 3 Lab.; 2nd term

This course discusses the principles of remote sensing and basic techniques of manual (visual) image interpretation. The use of aerial photographs and satellite imagery as data for acquiring geographic information and its implications for geographic research are introduced.

GRM 2105

Geographic Information Systems

3 U; 2 Lect. 3 Lab.; 2nd term

This course discusses the principles, structure and applications of geographic information systems. It emphasizes on the use of GIS to organize and manage spatial data, and how to perform spatial analysis with GIS. Topics include: hardware/software components, raster and vector data structures, spatial database, spatial analysis and application issues.

GRM 2121

Field Studies II

1 U

While field teaching is an integral part in the study of geography, students would benefit more if they have the opportunity of conducting field study in an overseas country. This course is designed for year two students, in the format of a study trip outside Hong Kong. It will be held during the summer vacation, under the supervision of one or more faculty members. The objectives of this course are three-fold: 1) to broaden students' horizon and knowledge base through exposure to a new environment outside Hong Kong; 2) to enable students to make comparative studies between Hong Kong and other countries/regions; and 3) to provide an opportunity for students to interact with overseas students and scholars of the same discipline. Students are required to participate actively in all activities throughout the trip and to submit an individual report afterwards.

GRM 2126

Methods for Resource Evaluation and Planning

3 U; 2 Lect. 1 Tut.

This course introduces the basic methods for resource evaluation and planning. Topics covered include principles of resource evaluation and management, concept of sustainable development, optimal use and allocation of resources, monitoring of resources and resource strategy.

GRM 2201

Geomorphology

3 U; 2 Lect. 3 Lab.; 1st term

Geomorphology is the scientific study of landforms and the processes that create them. The course covers basic concepts and methods of geomorphology, mineral and rocks, weathering and associated landforms, slope processes and landforms, fluvial geomorphology and coastal geomorphology.

GRM 2203

Soil and Environment

3 U; 2 Lect. 1 Field.; 1st term

This course examines the properties and characteristics of soils, and their relationship with the environment, with special emphasis on humid tropical soils of South China and Hong Kong. The formation, use, degradation, amelioration and sustainable management of soils will be discussed. Both theory and application are emphasized. Field trips and laboratory practicals are required.

GRM 2221

Weather and Climate

3 U; 2 Lect. 1 Tut.; 1st term

This is a physical geography course about the atmosphere, weather and climate. The course provides students with knowledge of the atmosphere, the atmospheric processes as the driving forces of weather and climate, the weather systems and finally the world climates and their changes. Illustration of weather elements and the related fundamental physical principles and ideas, as well as their applications in studying weather and climate, will be emphasized. Major concepts and principles of meteorology and climatology constitute the core of this course. Weather systems and climate will be examined from a global perspective, yet with a regional focus on China and East Asia.

GRM 2302

Behavioral Geography

3 U; 2 Lect. 1 Tut.; 1st term

This course studies the nature and process of human response to environmental stimuli. Contents of the course include: 1) the perception of environmental elements and the formation of mental maps; 2) the effect of mental maps on the decision-making process; and 3) the nature of human spatial behaviour. Both theoretical and methodological issues will be covered. Emphasis will be placed more on human behaviour in an urbanized environment.

GRM 2303

Urban Geography

3 U; 2 Lect. 1 Tut.; 2nd term

This course provides a general survey of the characteristics of urban processes and patterns, perspectives on urbanization, urban systems and structure, and problems of urban land use, urban housing and urban poverty.

GRM 2305

Geography of China

3 U; 2 Lect. 1 Tut.; 2nd term

This course is a systematic analysis of topics related to the geography of contemporary China, both physical and human aspects of China's geography are discussed, including topography, climate, resource, populations and settlement, agriculture, industries and transport.

GRM 2321

Globalization and Development

3 U; 2 Lect. 1 Tut.; 2nd term

Globalization refers to the rapidly increasing levels of political, economic and cultural interconnectedness among the world's separately constituted states, societies and economies. This phenomenon has introduced new meanings and forms of development. How does globalization affect the level of development in different parts of the world, and to different groups of the world population? This course provides an overview to the concepts of globalization and development, and explores how the two processes are manifested across space. Topics investigated include the gender perspective of development in the age of intensified globalization, political ecology of development, disease and health, third world debt problems, impact of structural adjustment programmes, network economies, multinational corporations and knowledge-based economy. The course will end with a critique to the concept of development and explore alternative versions of globalization and development.

GRM 2324

Population and Resources

3 U; 2 Lect. 1 Tut.; 1st term

This course will examine the complicated relations between population growth, distribution, migration and resources. The course will cover the basic concepts and methods in spatial population analysis and various population issues. Topics discussed include population growth and regulation, demographic transition and population ageing, internal and international migration, population and resources.

GRM 3021

Final-year Thesis I

2 U

Students are required to undertake individual projects using an integrative approach and produce theses in any field of geography and resource management under the guidance of their instructors. Study topics of students' interests and choices are not geographically limited to Hong Kong, but topics of local and regional relevance are encouraged. Part I concentrates on the formulation of a research problem, proposal writing, research design and data collection. Part II aims at data analysis/laboratory experiments, interpretation of analytical/experimental results and thesis writing.

GRM 3022

Final-year Thesis II

2 U

Same as GRM 3021.

GRM 3023

Hong Kong Geographical Issues

3 U; 2 Sem. 1 Exer.

This is an advanced course organized in a seminar format. Emerging geographical issues in Hong Kong related to land and water resources, transport and infrastructure development, housing and population policies, urban renewal, decentralization, etc., will be selected for discussion and debate. The issues discussed will change from time to time in response to the changes in Hong Kong. Students are required to submit a report at the end of the course.

GRM 3104

Satellite Image Analysis

This course discusses the application of digital image processing techniques in analysing digital remote sensing data. Topics include: image preprocessing, image enhancement, image classification and accuracy verification.

GRM 3105

GIS Workshop

3 U; 2 Lect. 2 Prac.; 2nd term

This course emphasizes on hands-on experience of GIS. Lectures will cover the concepts of software engineering, GIS design methods, analysing system and case analysis. Students are required to design a GIS to tackle specific geographical problems. Prerequisite: GRM 2105.

GRM 3121

Field Studies III

1 U

While field teaching is an integral part in the study of geography, no two places are the same in the world. This course is designed for third-year students, in the format of a study trip outside Hong Kong yet the place of visit shall be different from Field Studies II. It will be held during the summer vacation, under the supervision of one or more faculty members. The objectives of this course are four-fold: 1) to further broaden students' horizon and knowledge base through exposure to a new environment outside Hong Kong; 2) to provide an opportunity for students to interact with overseas students and scholars of the same discipline; 3) to enable students to make comparative studies between Hong Kong and other countries/regions; and 4) to serve as an acid test of what students have learnt from the discipline. Students are required to participate actively in all activities throughout the trip and to submit an individual report afterwards.

GRM 3202

Environmental Management

3 U; 2 Lect. 2 Tut.; 1st term

This course critically examines the interrelations between human activities and the environment, analyses the nature and roots of environmental problems, evaluates various environmental management options and discusses the complexities of environmental policy-making.

GRM 3203

Urban Environmental Problems

3 U; 2 Lect. 3 Lab.; 2nd term

This course examines the nature of noise, air and water pollution in cities and discusses the effects of these pollution problems on the urban population. Particular emphasis is placed on the use of pollution prediction models to assist environmental impact assessment and planning.

GRM 3204

Applied Geomorphology

This course is concerned with the practical use of geomorphology in situations where humans wish to alter landforms and/or earth surface processes. It includes the study of geomorphic processes that affect and are affected by human activities, the analysis of problems where humans have disturbed these processes, and the use of geomorphology in environmental management.

GRM 3206

Landscape Ecology

3 U; 2 Lect. 1 Field; 2nd term

The course examines how ecosystems in South China and Hong Kong are structured, functioned and changed with time. The ecological rehabilitation of degraded lands caused by erosion, quarrying, deforestation, fire and infrastructure development will be discussed, followed by an examination of urban forestry, woodland transformations and nature conservation in Hong Kong. Field trips are compulsory.

GRM 3208

Applied Climatology

3 U; 2 Lect. 3 Prac.; 2nd term

This course concentrates on applications of climatology and climatic water budget to a variety of environmental analyses, such as climatic classification, weather indices, agriculture, air pollution urban planning, transportation and human health. It also includes a simple way to calculate the components of water budget on either a monthly or daily basis from readily available climatic data. (Students are advised to take GRM 2221 before taking this course.)

GRM 3211

Environmental Monitoring

3 U; 2 Lect. 2 Prac.; 1st term

This course covers: 1) concepts - including recognition of environmental change; and spatial and temporal components of change; 2) approaches to monitoring (supported by selected case studies) - including general purpose, background monitoring; impact measurement; exposure based monitoring; continuous recording (in situ; satellite); and sampling (practices, reliability, replicability); and 3) management of monitoring programmes - including environmental data bases; pollution modelling; and decision-making.

GRM 3221

Hydrology and Water Resources

3 U; 2 Lect. 1 Prac.; 2nd term

This course aims to offer students a broad exposure to the basic concepts and principles of hydrological science and thus to help them understand various technical and policy issues in water resources management. Focus is placed on all components of hydrologic cycle and the integration of hydrologic processes for understanding run-off generation mechanisms at the hillslope and watershed scales. The concept and analysis of water balance are emphasized throughout the course. Principles and techniques of water resources management are also introduced along with case studies in mainland China and Hong Kong.

GRM 3222

EIA Workshop

3 U; 2 Lect. 2/week, 2/2 Prac.; 2nd term

Through actual examples and practicals, this course provides hands-on experiences of the EIA practice. Particular emphasis is placed on the basic concepts and methods of environmental assessment and the major steps of the EIA process in Hong Kong including collection of background information, baseline monitoring, computer modelling, report production, public consultation and post-decision monitoring and audit. (Prerequisite: GRM 3203 or ENS 4240.)

GRM 3223

Leisure and Eco-Tourism

3 U; 2/week Lect., 1/week Tut. 1 field trip; 1st term

This course explores the attitudes and ideas of leisure, as well as the methodologies behind leisure activities in a global perspective. Specifically, it attempts to integrate the continuum of leisure and ecotourism over a range of spatial and temporal scales. The potential development of ecotourism in Hong Kong to meet recreation demand, conserve the natural environment and generate economic benefits will be examined and compared with the same in an underdeveloped economy, where appropriate. A problem-based approach will be adopted and students are expected to learn from project work which involves the design and management of ecotourism in the local environment. Field trips will be provided to enhance students' learning experiences.

GRM 3224

Recreation Planning and Management

3 U; 2/week Lect., 1/week Tut. 1 Field Trip; 2nd term

This course aims to provide students with a general understanding of recreation and leisure in our society. Individualized topics include: 1) history and philosophy of recreation and leisure; 2) recreation resource management; 3) commercial recreation (tourism and resort management); 4) recreation and wilderness resources; 5) park design, planning and management; and 6) community systems and leisure services.

GRM 3305

Transport and Logistics

3 U; 2 Lect. 1 Tut.; 2nd term

The course provides a general survey of the nature and characteristics of the transport system, and analyses the impacts of transportation on socio-economic development from a spatial perspective. Taken into account the changes in production systems, this course also introduces the key concepts and developmental trends of modern logistics.

GRM 3310

Third World Development

3 U; 2 Lect. 1 Tut.; 1st term

This course studies development of the Third World as the periphery of the world economy. It focuses on the patterns and processes of modernization and development in Latin America, Africa and Asia. It will also introduce major theories of development and underdevelopment that may help students understand the creation and perpetuation of the Third World underdevelopment.

GRM 3321

Planning and Governance for Sustainable Development

3 U; 2 Lect. 1 Tut.; 2nd term

Sustainable development has become an internationally agreed-upon vision for the future. This utopian approach to development should not only generate economic growth, but also distributes its benefits equitably, regenerates the environment rather than destroying it, as well as empowers men and women rather than marginalizing them. Sustainable development depends much on effective planning and good governance. In this course, we shall discuss key issues related to planning and governance for sustainable development in different geographical contexts. Key theoretical themes explored include the concepts of sustainable development and good governance, as well as the significance of public (especially female) active participation in achieving sustainable development. Careful studies of empirical examples of sustainability projects from different parts of the world serve as a foundation for students to practise planning and governance through role-play exercises.

GRM 3322

Geography of Advanced Economies

3 U; 2 Lect. 1 Tut.; 2nd term

A world of differences exists behind the term "advanced economies". This course addresses commonalities and differences among the advanced economies in North America, Western Europe and Asian regions. The course begins with a general discussion regarding development that divides the world into the "advanced economies" or the so-called "developing world" or "third world". Brief introduction of the different regions (using regional geography approach) will follow before the course turns to examine in more details important issues that are shared in many advanced economies, including ageing population, structural economic changes, geopolitical changes, natural resource use and environmental concerns.

**GRM 3323**

Urban and Regional Planning

3 U; 2 Lect. 1 Tut.; 1st term

The course introduces the development and application of planning theories, concepts and practices in the field of urban and regional planning in developed and developing societies. Special emphasis is given to how these are applied in Asia, mainland China and Hong Kong.

**GRM 4041**

Geography Project of Hong Kong

3 U; STOT; 2nd term

Students will be required to undertake individual projects in any field of geography under the guidance of their instructors. The topics of the project will be decided by the individual student and instructors concerned. (For students admitted in 2000-01 and before.)

### Study Scheme

*I. Major Programme*

Students are required to complete a minimum of 64 units of courses as follows:

- |      |   |          |
|------|---|----------|
| (i)  | 13 Required Courses:<br>GRM 1023, 1024, 1121, 2102, 2103, 2121, 2201,<br>2221, 2305, 2324, 3021, 3022, 3121 | 31 units |
| (ii) | 11 Elective Courses:  | 33 units |

Total: 64 units

There are altogether six plans recommended for students to concentrate on according to their interests and goals. Each plan consists of 13/14 courses, 12/13 of which are listed below. The only course not listed below is GRM 3023, which is an integrative course of the discipline. Students are advised to study 11 out of the 13/14 courses in order to make up 33 elective units. Three 1000 level courses, GRM 1002\*, GRM 1014 and GRM 1033<sup>a</sup> are not included in the plan, but can be counted as students' Major elective courses.

**(a) Concentration in Applied Geo-informatics and Geography**

Geographical Techniques	Physical and Environmental Systems	Urban and Regional Systems
GRM2101	GRM3203	GRM2303
GRM2104	GRM3221	GRM3323
GRM2105	GRM3222	
GRM2126	GRM3224	
GRM3104		
GRM3105		

\* Course offered in 2001-02 and before.

<sup>a</sup> Geography and Resource Management Majors and Minors are not allowed to take GRM 1033 in their third year of attendance.

## (b) Concentration in Resource Management

Geographical Techniques	Physical and Environmental Systems	Urban and Regional Systems
GRM 2104	GRM 2001	GRM 2302
GRM 2105	GRM 2203	GRM 3321
GRM 2126	GRM 3203	
GRM 3105	GRM 3206	
	GRM 3221	
	GRM 3223	
	GRM 3224	

## (c) Concentration in Urban and Regional Studies

Geographical Techniques	Physical and Environmental Systems	Urban and Regional Systems
GRM 2105	GRM 3202	GRM 2303
GRM 2126	GRM 3206	GRM 2321
	GRM 3223	GRM 3310
	GRM 3224	GRM 3321
		GRM 3322
		GRM 3323

## (d) Concentration in Physical Geography

Geographical Techniques	Physical and Environmental Systems	Urban and Regional Systems
GRM 2101	GRM 2001	GRM 2303
GRM 2105	GRM 2203	GRM 3322
	GRM 3202	
	GRM 3204	
	GRM 3206	
	GRM 3208	
	GRM 3221	
	GRM 3223	
	GRM 3224	

## (e) Concentration in Human Geography

Geographical Techniques	Physical and Environmental Systems	Urban and Regional Systems
GRM 2101	GRM 2001	GRM 2302
GRM 2105	GRM 2203	GRM 2303
	GRM 3203	GRM 2321
		GRM 3305
		GRM 3310
		GRM 3321
		GRM 3322
		GRM 3323

(f) **Concentration in Environmental Management**

Geographical Techniques	Physical and Environmental Systems	Urban and Regional Systems
GRM 2104	GRM 2001	GRM 3321
GRM 2105	GRM 2203	
GRM 3104	GRM 3202	
GRM 3105	GRM 3203	
	GRM 3206	
	GRM 3211	
	GRM 3221	
	GRM 3222	

2. *Minor Programme*

Students are required to complete a minimum of 18 units of courses.