

NATIONAL UNIVERSITY



Fourth Year Syllabus Department of Geography and Environment

Four Year B.Sc. Honours Course
Effective from the Session : 2013-2014

National University
Subject: Geography and Environment
Syllabus for Four Year B.Sc. Honours Course
Effective from the Session: 2013-2014

Year wise Paper, Marks and Credit distribution

FOURTH YEAR

Paper Code	Paper Title	Marks	Credits
243201	Geographical Thoughts and Concepts	100	4
243203	Oceanography	100	4
243205	Geography of Disasters	100	4
243207	Political Geography	100	4
243209	Agricultural Geography	100	4
243211	Geography of South Asia	100	4
243213	Urban Geography	100	4
243215	Principles of Remote Sensing and Geographic Information System	100	4
243216	Practical-IV	100	4
243218	Viva-voce	100	4
	Total =	1000	40

Detailed Syllabus

Paper Code	243101	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Geographical Thoughts and Concepts			Exam Duration: 4 Hours

1. Definition of Geography: Changing nature of geographical concepts and ideas; scope and its subject matter.
2. Geography in pre-modern times: Brief study of Pre-Greek, Classical (Greek-Roman), Dark and Arab (Medieval) periods. Impacts of exploration and discoveries
3. Modern Geographical Thought: Founders of modern geographical thought: Alexander Von Humboldt, Carl Ritter
4. Schools of Geography:
The German School of Geography,
The French School of Geography,
The British School of Geography, The American School of Geography,
The Former Soviet and Chinese School of Geography
5. Dichotomies in Geography: Regional versus Systematic Geography; Determinism versus Possibilism; Theoretical versus Applied geography
6. Geography in 20th century: Quantitative Revolution, Spatial Analysis, Paradigms, System Analysis and Models in Geography
7. Introduction to major approaches in Geography: Regional Approach; Cultural Landscape and Ecological approach
8. Development of geography in South Asian with special reference to Bangladesh.

Suggesting Readings

Lahiri-Dutta, Kuntala, 1999. Development of Geographical Thoughts, Kolkata, India (in Bangla)

James, Preston E. 1972, All Possible World: A history of Geographical Ideas. USA.

Holt-Jensen A. 1980: Geography: Its history & concepts: A students Guide. Harper & Row Publishers, London.

Adhikair, Sudepta, 1999. Fundamentals of Geographical Thought. Allahabad: C B House.

Husain, Majid, 1997: Evolution of Geographical Thought. Rawat, India.

Dikshit, R.D. 2001. Geographical Thought, New Delhi: Prentice Hall.

Ahmad N (Translated by Islam N & Khan J): Bhugol Biggeyane Musolnumder Obodan, Bangla Academy, Dhaka.

Islam M.A. 1992: Bhugol: Dristi Bhongi o Dorshon: Department of Geography, Dhaka University.

Singh, Savindra, 1995: Environmental Geography, India.

Paper Code	243103	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Oceanography			Exam Duration: 4 Hours

1. Oceanography: Introduction, definition, branch and scope, relation with other subjects.
2. Distribution of oceans over the Globe.
3. Relief of the Ocean: Continental shelves & slope, ocean floor, coral reef, relief of the Atlantic, Pacific and Indian Ocean, coastal morphology.
4. Ocean Sediments: Source of sediments, types, characteristic, depositional environments.
5. Ocean temperature: Temperature change, cause, vertical and horizontal distribution, Implication.
6. Salinity: Salinity change, cause, distribution and implication.
7. Ocean Currents: Causes, types, ocean current in Atlantic, Pacific and Indian Ocean.
8. Tide: Tide generating forces, time of tide, types of tide, tidal bores, and impact of tides.
9. Waves: Components and characteristics, classification of waves, causes of wave.
10. The study of the Bay of Bengal and the marine resources of Bangladesh.

Suggesting Readings

Gross, M.G. 1987: Oceanography: A view of the Earth, New Jersey: Prentice Hall, USA.
Doxbury and Doxbury, 2004. Introduction to World Ocean. Wiley: New York.
King, C.A.M., Oceanography for Geographers, Edwin Arnold Publishers Ltd. London.
Sharma, R.C. and Vatal, M. Oceanography for Geographers, Chaitanya Publishing House, Allahabad, India
Oliver, J.E., Physical Geography, Duxbury Press, London.
Das, Sc. 2010. Modern Oceanography, Dhaka: (in Bangla)

Paper Code	243105	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Geography of Disaster			Exam Duration: 4 Hours

1. Definition and concept of natural hazard and disaster.
2. Terms and concepts used in hazard and disaster studies/management
3. Typology or classification of hazards and disasters:
 - 3.1 Natural: extra terrestrial, geological/seismic, meteorological, atmospheric or climatic, hydro meteorological, biological, etc.
 - 3.2 Human induced (anthropogenic): war, fire, industrial pollution, HYV, accidents, industrial, technological, etc.
 - 3.3 Mixed (natural and human induced together): bird-flu, water logging, landslide, etc.
4. Genesis, nature, spatial distribution and consequences of major hazards.

5. Interactions between hazard, disaster, risk and vulnerability.
6. Natural hazards in Bangladesh: type, nature, geographical extent, intensity and impacts.
7. Disaster management: conceptual framework, objectives and scope.
8. Disaster management systems in Bangladesh.

Suggesting Readings

1. Abbott, PL, 2013 *Natural Disasters*, London: McGrawhill.
2. Alexander, D. 1993. *Natural Disasters*, London: UCL Press limited.
3. Bangladesh Open University 2004, ELEC 3619 Disaster Management, the Commonwealth of Learning, Vancouver.
4. Coppola, DP, 2011. *Introduction to International Disaster Management* (2nd edition), Burlington: Elsevier.
5. Islam, MA.1995. *Environment, Land use and Natural Hazards in Bangladesh*, Dhaka: Dhaka University.
6. Elahi KM, John RR and Rogge JR.1990. Riverbank erosion, flood and population displacement in Bangladesh: A report on the riverbank erosion impact study, Dhaka: Riverbank Erosion Impact Study (REIS), Jahangirnagar University (JU).
7. Nizamuddin, K. (ed.), (2000), *Disaster in Bangladesh: Selected Readings*, Disaster Research Training and Management Centre, University of Dhaka.
8. Moniruzzaman, M et al. Fundamentals of Disaster Management, Metropolis Publishing, Dhaka.

Paper Code	243107	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Political Geography			Exam Duration: 4 Hours

1. Introduction to political geography.
 Definition, Scope, Nature and objective of political geography.
 Historical Development of political geography.
 Approaches to political geography.
2. Concept of geopolitics and geostrategy.
 Ancient and Modern Thinkers.
 Power concepts, great power spatial relationship.
 The Balance of power and power conflicts and current affairs.
 Geo-strategic pacts Mac kinder Heartland and Spikeman's Rimland Theory.
 Geopolitical importance of Bangladesh.
3. Concept of state.
 Definition and Elements of state.
 Territorial concept of the state.

- Location, Shape
- Size, Boundary
- Administrative structure, government system and local government.
- Election and Transfer of power
- The capital and core
- 4. Frontiers and Boundaries.
 - Definition delineation and Demarcation
 - Deference between Frontiers and Boundaries
 - Classification and Explain of Boundaries
 - enclaves, Refugee Problems, Ocean Economic zone and Buffer zone/state.
 - Boundary Problems and solution
- 5. International Co-Operation
 - EU, Commonwealth, Non Aligned Movement, SAARC, ASEAN, OIC,
 - NAFTA, CIRDAP, BIMSTEC, WTO, APEC
 - Military Alliances.
- 6. The United Nations and the world peace.
 - The formation and organization of the UNO.
 - Objective of the UNO.
 - Inter governmental organizations related to UNO.
 - Conflict Resolution and the world peace of the UNO.

Book Recommended:

1. Pounds, Norman J.G. 1972, Political Geography, McGraw Hill, USA.
2. Dikshishit, A.D, 1982, Political Geography. Tata-McGraw-Hill publishing Limited, New Delhi.
3. Adhikari, Sundeepta, 2002, Political Geography, Rawat publication, New Delhi.
4. Taha , M.A, 1988, Political Geography, Rajshahi University , Rajshahi .(in Bangla)
5. Haq. Lutful 2000, Goshthi Dondo O Manob Bhabitobbo Bhougolic Prekkhapote Bishwo Rajnitte. Naclia prokashoni, Dhaka.

Paper Code	243109	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Agriculture Geography			Exam Duration: 4 Hours

1. Agricultural Geography: Definition, Scope and Significance.
2. Origin, Development and Diffusion of Agriculture: Major Theories.
3. Agricultural Systems of the world: Whittlesey's Classification; Classification of world agriculture
4. Models of Agricultural Regionalization: Methodology for Agricultural Regionalization; Crop Combination Regions (Weaver Model).
5. Agriculture in Bangladesh: Issues and Challenges.
6. Land Utilisation, Cropping pattern and cropping intensity in Bangladesh.
7. Food grain production, supply and diversification: constraints and potentials.

8. Food security in Bangladesh: problems and prospects. The National food Policy-2006 and National Food Policy Plan of Action (2008-2015).

Suggesting Readings:

1. Alim. A. Agriculture of Bangladesh.
2. Chowdhury, S.I 1995: Arthonitic Bhugol: Bissho O Bangladesh: Dhaka University, Dhaka (in Bangla).
3. Husan, Majid. 1998: Systematic Agricultural Geography, Rawat Publication, New Delhi.
4. Singh, J. and Dhillon, S.S. 1998: Agricultural Geography; Tata McGraw Hill Publishing Company, New Delhi, India.
5. Symons, L. J. 1978: Agricultural Geography, Bell and Hyman Limited: London.
6. Ahmed, R., Haggblade, S., Chowdhury, T.E. eds, 2000. Out of the Shadow of Famine. Landon: IFPRI.
7. MoFDM, 2012. National Food Policy Plan of Action and Country Investment Plan Monitoring Report- 2012, Food Division, GoB.
8. Hossain, M. and Bayes, A., 2010. Rural Economy and Livelihoods-insight from Bangladesh. Dhaka: A H Publishing.

Paper Code	243111	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Geography of South Asia			Exam Duration: 4 Hours

1. History of south Asia and geographical regions.
 - 1.1 Geographical Location
 - 1.2 Member countries: National Boundaries, Basic Demographic and Socio-Economic Data Bases
2. Physical Environment setting of South Asia: geomorphic features, drainage system, soil, vegetation
3. Cultural Environment of South Asia
 - 3.1 Population Dynamics and distribution
 - 3.2 Economy: Types of Economy, economic activities, Per capita and GDP
 - 3.3 Agriculture: Agriculture system , Major crop productions, Geographical distribution
 - 3.4 Industry : Large scale industry, small Scale Industry, Distribution of Large scale Industries, Industrial policies.
 - 3.5 Settlement: Rural settlement, Urban settlement,
 - 3.6 Transportation and communication
 - 3.7 Trade and commerce: Internal and External Trade.
4. Regional connectivity and its prospect
5. Major problems and co-operation of south Asia: Water sharing, energy resource and SAARC.
6. Bangladesh and status of South Asia.

Suggesting Readings

1. Abbasi, Bushra Afzal, 1991 Geography of south Asia, Sang-Meel Publication , Lahore.

2. Dutt, Ashok K and Margaret M. Geils, 1987. Atlas of S.A Westview Press, London.
3. Spate, O.H.K & A.T.A Lermouth , 1967, India and Pakistan , Methuen & Co. London.
4. Spate, O.H.K & et. Al. 1967: India, Pakistan and Ceylon, the Regions, Methuen & Company London.

Paper Code	243113	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Urban Geography			Exam Duration: 4 Hours

- 1. Introduction to Urban Geography:** Definition, scope and methodology; Concept of urbanization, urbanism, urban centre, city, central place. metropolis, egalopolis.
- 2. Origin and History of Urbanization:** Urbanization in the ancient period; urbanization in the middle ages; Modern urbanization; Contemporary urbanization.
- 3. Urbanization and Urban Growth (Macro System):** Level of urbanization; Factors of urbanization and urban growth; Process of urbanization; Systems of cities/Central Place Theory/Urban hierarchy, Ranks size rule; Urbanization and urban growth in Bangladesh.
- 4. Urbanization --The City System (Micro System):** Factors of city/urban growth; Stages and processes in urban/city growth; Internal structure of city (Land use and transport network; Central Business District (CBD); Location of retail business, residential and manufacturing areas in a city; Sub-urban and urban fringe area)
- 5. Economic Base of Cities:** Basic non-basic concept; Formal/informal sector.
- 6. Classification of Cities:** Needs and purposes; Early examples of classification: Harris, Nelson and Smales; Classification of Bangladesh cities.

Selected Readings:

Mayer H. M. And C. F. Kohn, 1978: Readings in Urban Geography, London.
Hortshorne, H. H. 1991: Urban Geography.
Crter, Harold, : Urban Geography, NY
Gibbs, J.P.: Urban Research Method, NY
Jones, Emerys, Readings in Social Geography
Yeates and Gamer, North American Cities,
Knox, Paul 1998: Social Geography
Elahi, KM and Rumi, SRA (eds.) 2013. Urban Geography- Recent Trends (in Bangla)
Islam, N. and Baqee A. (edited) 1996: Nogorayone Bangladesh, Urban Studies Program, Centre for Urban Studies, Dhaka (in Bangla)
Islam, N. 2001. Urbanization, Urban Planning and Development and Urban Governance.
Murtaza, G. (2013) A Glossary of Terms of Urban, Rural and Regional Planning Dhaka: Centre for Urban Studies

Paper Code	243115	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Principles of Remote Sensing and Geographic Information System			Exam Duration: 4 Hours

A. Remote Sensing (RS)

1. Introduction of Remote Sensing: historical development; Fundamental Consideration, Electromagnetic Energy and interaction with surface, Sensors / platform system; Active and passive.
2. Earth resource satellites operating in the optical Spectrum: Introduction, early history of imaging, Landsat satellite program, spot satellite program, Indian resource satellites, meteorological satellite, Ocean monitoring satellites, earth observing system ERS program; thermal Infrared Remote Sensing and Active and passive Microwave & LIDAR RS, Quick bird. Currently orbiting satellites.
3. Remote sensing for terrain interpretation and resource: introduction to geologic and geomorphologic assessment.
4. Remote sensing data for agriculture; Land use and Land cover, water resource, Forest resources assessment Remote Sensing for Urban Landscape
5. Remote sensing application in Bangladesh

B. Geographic Information Systems (GIS)

6. Introduction to GIS: Definition, components, history and application
7. Nature and sources of spatial data; spatial data structures and data base management
8. GIS data input, editing, analysis, analytical modeling and output
9. Types and sources of errors of GIS data
10. Introduction to contemporary software
11. Issues in GIS: handling spatial data; data quality; GIS project design and management etc.
12. Applications of GIS in Bangladesh

Suggesting Readings

Craeknell, A & Hays L. Introduction to Remote Sensing, Taylor & Francis, London.
Curran, Paul, J. Principle of Remote sensing, ELBS (Longman)
Lillesand , T.M. and Kiefer R.W. Remote Sensing and Image Interpretation John Wiley & sons, Inc. 1994.
Burrough, P A and McDonnell, RA, 2000. Principles of Geographical Information Systems. New York: Oxford.
Demers, MN 2002. Fundamentals of Geographic Information Systems. New York: Wiley.

Paper Code	243116	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Practical-IV			Exam Duration: 6 Hours

Section I: Land Use and Socio-economic Study (Marks- 50)

1. Land use survey:
 - 1.1 Definition, historical background and objective & types
 - 1.2 Methods of land use survey
 - 1.3 Some examples of successful major land use projects: land utilisation survey of Great Britain, TVA of USA
 - 1.4 Concept of land use capability & suitability survey and land cover survey
2. Data collection from the field
 - 2.1 Land use data collection through fractional code method
 - 2.2 Socio-economic data collection
3. Preparation of various physical and land use map,
4. Analysis of data and report preparation

Mark Distribution	
Examination (duration 6 hours)	30
Field Report and Records	20
Total	50

Suggesting Readings

1. Walford, R. (ed) (1997), Land-Use UK: A Survey for the 21st Century. Sheffield: Geographical Association.
2. Stamp, L.D. (1948), The Land of Britain: Its Use and Misuse. London: Longmans, Green and Co.
3. Coleman, A. (1961). "The second land-use survey: Progress and prospect". Geographical Journal 127: 168–186.
4. Fuller, R.M.; Sheail, J.; Barr, C.J. (1994). "The Land of Britain, 1930-1990: A Comparative Study of Field Mapping and Remote Sensing Techniques". Geographical Journal 160 hrs. (2): 173–184.
5. Lynn, I. et.al., 2009. Land Use Capability Survey (3rd edition). Hamilton: AgResearch Ltd.
6. **Manakos**, Ioannis and **Braun**, Matthias (Eds.) 2014. Land Use and Land Cover Mapping in Europe: Practices and Trends, Springer Publications
7. Fieldwork techniques, Manual of Royal Geographical Society, London,
<http://www.rgs.org/OurWork/Schools/Fieldwork+and+local+learning/Fieldwork+techniques/Fieldwork+techniques.htm>

Section II: GIS Practical (Marks-50)

1. Introduction to hardware and software of GIS

2. Basic Components of GIS Software: Views, Theme, data table, layout etc.
3. Data entry technique in GIS: Scanner, digitizer, key board, mouse etc.
4. Digital Mapping elements: Adding legend, Scale, Charts, Table, north line in map
5. Handling primary and secondary GIS data available in Bangladesh.
6. Integration and Geo-processing of GIS data
7. Analysis of GIS data: Coverage and attribute
8. Analysis of RS data: Hard image and digital image
9. Project work based on GPS data or other available field data sources

Suggesting Readings

1. Burrough, P A and McDonnell, R A 2000. Principles of Geographical Information Systems. New York: Oxford.
2. Demers, M N 2002. Fundamentals of Geographic Information Systems. New York: Wiley.

Mark Distribution	
Examination (3 hours)	35
Projects/lab work (3 hours)	15
Total	50

Paper Code	243118	Marks: 100	Credits: 4
Paper Title:	Viva-Voce		