



Gauhati University

Syllabus for Four-Year Undergraduate Programme

Subject: Geography

Syllabus as per NEP 2020

Course effective from academic year 2023-24

Approved as per UGCCS in Geography held on 22-03-2023



GAUHATI UNIVERSITY Guwahati-781014

Four-Year Undergraduate Programme in Geography
Gauhati University

Eligibility Criteria of the programme, if any: For B.A. programme No Precondition, For B.Sc. programme 10 + 2 with Science

Sem ester	Course name	Major/Minor	Course code	Credits	Credit distribution of the course			Pre-requisites of the course (if any)	Intern al marks	External Marks
					L	T	P			
I	Introduction to Physical Geography	Major 1 & Minor1 (for Minor stream) & Minor 1 (For Major in other subjects)	GGY 0100104	4	4	0	0	No	40	60
II	Introduction to Human Geography	Major 2 & Minor2 (for Minor stream & Minor 2 (For Major in other subjects)	GGY 0200104	4	4	0	0	No	40	60
III	Geography as a Spatial Science	Major 3 & Minor3 (for Minor stream)	GGY 0300104	4	4	0	0	No	40	60
III	Geography of Disaster	Major 4 & Minor4(For Minor stream) & Minor 3 (for Major in other subjects)	GGY0300204	4	4	0	0	No	40	60
IV	Geomorphology	Major 5	GGY 0400104	4	3	0	1	No	30	T-45 P-25
	Geography of India	Major6 & Minor5 (for Minor stream) & Minor 4 (For Major in other subjects)	GGY 0400204	4	3	0	1	No	30	T-45 P-25
	Cartographic Techniques	(Major7)	GGY 0400304	4	3	0	1	No	30	T-45 P-25
	Population and Settlement Geography	Major 8 & Minor6 (for Minor stream)	GGY0400404	4	3	0	1	No	30	T-45 P-25

V	Climatology, Biogeography and Oceanography	Major 9 & Minor 7 (for Minor stream) & Minor 5 (For Major in other subjects)	GGY 0500104	4	3	0	1	No	30	T-45 P-25
	Quantitative methods in Geography	Major 10	GGY 0500204	4	3	0	1	No	30	T-45 P-25
	*Economic and Resource Geography	Major 11 & Minor 8(for Minor stream) *(Choose any one of these two papers)	GGY 0500304	4	3	0	1	No	30	T-45 P-25
	*Social, Cultural and Political Geography		GGY 0500404	4	3	0	1	No	30	T-45 P-25
	Internship		GGY 0500504	4				No		100
VI	Geography of Environment and Development	Major 12 & Minor 9 (for Minor stream)	GGY 0600104	4	3	0	1	No	30	T-45 P-25
	Introduction to Remote Sensing and GIS	Major13	GGY 0600204	4	3	0	1	No	30	T-45 P-25
	Urban Geography	Major14 & Minor 10 (for Minor stream)	GGY 0600304	4	3	0	1	No	30	T-45 P-25
	*Surveying Techniques	Major 15 & Minor 11(for Minor stream) & Minor 6 (For Major in other subject) *(Choose any one of these two papers)	GGY 0600404	4	3	0	1	No	30	T-45 P-25
	*Geography of North East India		GGY 0600504	4	3	0	1	No	30	T-45 P-25

Four Year Under-Graduate Programme

Subject: Geography

Semester: V

Course Name: **Climatology, Biogeography and Oceanography**

Course Code: GGY0500104

Course Level: Higher

Part I: Theory (3 Credits, 45 classes of one-hour duration)

Part II: Practical (1 Credit, 15 classes of two-hours duration)

100 Marks (Theory =45 Marks, Practical=25 Marks, Internal Assessment = 30 Marks)

Course Objective:

The main objective of the course is to sensitise the students towards global climatological, biogeographical and marine issues

Course Outcome:

1. Comprehend the structure and variations in the atmospheric composition, characteristics, climatic classifications and weather forecasting techniques
2. Understand and apply knowledge of Approaches to study biogeography, bio-energy cycles, and the significance of conservation of forest and wildlife, soil formation processes and soil types in India
3. Recognize the significance of physical and biological factors in biogeography, including concepts of biodiversity, ecology, and ecosystems.
4. Analyse the submarine topography of Ocean and oceanic currents.
5. Apply practical knowledge of Climatology, biogeography and Oceanography with the help of graphs, maps and diagrams.

Part I

Unit I: Climatology

1. Atmospheric Composition and Structure; and their variation with altitude, latitude and season.
2. Atmospheric temperature; horizontal and vertical distribution of temperature.
3. General Circulation, Jet Streams
4. Atmospheric Moisture – Evaporation, Humidity, Condensation, Fog, Precipitation,
5. Climatic classification of Koppen and Trewartha; Monsoon - Mechanism of development, distribution of monsoons, Trajectories and Irregularities, Effects of El-Nino, Walker oscillation.
6. Cyclones and anticyclones; Tropical Cyclones, anticyclones and Extra-Tropical Cyclones.
7. Air masses and Fronts: Characteristics, types, Origin and modification of air masses.
8. Techniques of weather forecasting: conventional and modern

Unit II: Biogeography

1. Role of physical and biological factors and distribution of plants and animals, Biomes and Biodiversity hotspots of the world.
2. Bio-energy cycles and food-chain
3. Concept of Bio-diversity; Conservation of forest and wildlife
4. Ecology and Ecosystem, Structure and functioning of the ecosystem
5. Soil as a component of the environment, soil formation process and factors, soil composition and horizon, Soil types and their distribution in India

Unit III: Oceanography

1. Submarine topography and configuration of Pacific, Atlantic and Indian Ocean floors.
2. Ocean temperature and salinity. Currents, tides, tsunamis. Ocean deposits. Coral reefs.

Part II

Unit I: Practical Works (16 marks) (Two questions of 8 marks each)

1. Interpretation of Indian Weather map for Monsoon and non-monsoon seasons/months based on various weather symbols depicted on maps. (2 Assignments)
2. Preparation of weather reports of Indian subcontinent by analyzing the weather satellite images of at least three consecutive days (e.g. INSAT 3D, NOAA satellite). (3 Assignments)
3. Preparation of rainfall-temperature graphs; hythergraph, climograph and ergograph taking data from India/N.E. India/Assam (3 Assignments)
4. Calculation of average annual rainfall and variability of annual rainfall and preparation of rainfall distribution and variability maps (using isopleths). (2 Assignments)
5. Mapping of protected areas (National park, biosphere reserve and wildlife sanctuary) of Assam/N.E. India/India. (3 Assignments)
6. Mapping of phytogeographic and zoogeographic regions of the world. (2 Assignments)
7. Mapping of Biodiversity hotspots of the world. (1 Assignment)
8. Mapping of Soil types of Assam/N.E. India and Soil horizons. (2 Assignments)

Unit II: Practical Note-Book and Viva-voce (9 Marks)

3. Evaluation of Practical Note-Book (5 marks)
4. Viva-voce (4 marks)

Reading List

1. Barry R. G. and Carleton A. M., 2001: Synoptic and Dynamic Climatology, Routledge, UK.
2. Barry R. G. and Corley R. J., 1998: Atmosphere, Weather and Climate, Routledge, New York.
3. Critchfield H. J., 1987: General Climatology, Prentice-Hall of India, New Delhi
4. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: The Atmosphere: An Introduction to Meteorology, Prentice-Hall, Englewood Cliffs, New Jersey.
5. Oliver J. E. and Hidore J. J., 2002: Climatology: An Atmospheric Science, Pearson Education, New Delhi.
6. Trewartha G. T. and Horn L. H., 1980: An Introduction to Climate, McGraw-Hill.
7. Gupta L. S. (2000): Jalvayu Vigyan, Hindi Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya, Delhi
8. Lal, D. S. (2006): Jalvayu Vigyan, Prayag Pustak Bhavan, Allahabad
9. Vatal, M. (1986): Bhautik Bhugol, Central Book Depot, Allahabad
10. Singh, S. (2009): Jalvayu Vigyan, Prayag Pustak Bhawan, Allahabad
11. Raj, Manideep Soil and Biogeography, Kalyani Publishers.,
12. Cox, C. B., Moore, P. D. and Ladle, R., 2016. Biogeography: an ecological and evolutionary approach. John Wiley & Sons.

Theory Credit : 3

Practical Credit: 1

No. of Required Classes : 60

No. of Contact Classes: 40

No. of Non-Contact Classes : 20

Particulars of Course Designer (Department of Geography, Gauhati University, geography@gauhati.ac.in)

Four Year Under-Graduate Programme

Subject: Geography

Semester: V

Course Name: Quantitative methods in Geography (Optional)

Course Code: GGY0500204

Course Level: Higher

Part I: Theory (3 Credits, 45 classes of one-hour duration)

Part II: Practical (1 Credit, 15 classes of two-hours duration)

100 Marks (Theory =45 Marks, Practical=25 Marks, Internal Assessment = 30 Marks)

Course Objective:

The paper Quantitative Methods in Geography throws light on the importance of data in geography. It deals with the methods and techniques of data collection, data tabulation, data interpretation and analysis through the application of some basic statistical measures. This paper provides an understanding of the pure and applied nature of geography along with the key elements in the discipline.

Course Outcome:

1. Understand quantification and its role in geographical studies along with merits and limitations of quantitative methods
2. Apply measures of central tendency and dispersion in analyzing geographical data 3. Comprehend the need for sampling and its types in the context of geography
3. Be able to classify geographical data by scale of measurement and understand the source and nature of such data
4. Perform Time Series Analysis and Correlation and Regression Analysis for geographical data.

Part I

Unit I:

Quantification and its significance in geographical study; advantages and limitations of quantitative methods in geography. (4classes)

Unit II:

Geographical Data: Nature, types and sources; scale of measurement (nominal, ordinal, interval and ratio). (4classes)

Unit III:

Measures of central tendency (mean, median and mode) and dispersion (range, quartile deviation, mean deviation, standard deviation and coefficient of variation) and their applications in geographical data analysis. (8classes)

Unit IV:

Sampling techniques: meaning of sampling and its need; types of sampling (simple random and stratified random). (6classes)

Unit V:

Time series analysis and its applications in geographical studies; Basic techniques of time series data analysis (semi-average, moving average and 1eastssquares).(6classes)

Unit VI:

Correlation and Regression Analysis: Meaning of correlation; Bi-variate coefficient of correlation (Spearman's rank correlation and Pearson's product-moment correlation); linear regression analysis; and their applications in geographical data analysis. (12 classes)

Part II:**Unit I: Practical Works (16 marks) (Two questions of 8 marks each)**

1. Tabulation/Grouping of geographical data for making frequency distribution table; Preparation of Histogram, Frequency Polygon and Frequency Curve. (1+1 assignments)
2. Computation of mean, median and mode for ungrouped and grouped data relating to geographical phenomena; Determination of median and mode using graphical methods; Determination of the location of spatial mean centre of settlements (using centographic measure). (2+1+1 assignments)
3. Computation of the values of standard deviation and coefficient of variation of ungrouped and grouped data relating to some geographical phenomena (rainfall, landholding, income, production, etc) for comparison of distribution patterns. (1+1 assignments)
4. Analysis of time series data of some geographical phenomena (rainfall, production, export value, import value, etc) using moving average and least squares methods. (2 assignments)
5. Computation of coefficient of correlation between two logically associated geographical phenomena using Spearman's rank correlation and Pearson's product-moment correlation formulae; Preparation of scatter diagram and fitting the line of linear regression of Y on X for any set of bi-variate data relating to meaningful geographical phenomena.

Unit II: Practical Note-Book and Viva-voce (9 Marks)

5. Evaluation of Practical Note-Book (5 marks)
6. Viva-voce (4 marks)

Reading List

1. Hammond P. and McCullagh P. S., 1978: Quantitative Techniques in Geography: An Introduction, Oxford University Press.
2. Sarkar, A. (2013) Quantitative Geography. techniques and presentations. Orient Black Swan Private Ltd., New Delhi.
3. Yeates M., 1974: An Introduction to Quantitative Analysis in Human Geography, McGrawHill, New York. 26
4. Mathews, J.A., 1987: Quantitative and Statistical Approaches to Geography: A Practical Manual Pergamon, Oxford.
5. Mahmood, A., 1999: Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
6. Elhance, D.N., 1972: Fundamentals of statistics, Kitab Mahal, Allahabad
7. Monkhouse, F.J. Wilkinson, H.R., 1989: Maps Diagrams, B.I. Publications, New Delhi
8. Gregory, S., 1963: Statistical Methods and Geographers, Longman, London.

Theory Credit : 3

Practical Credit: 1

No. of Required Classes : 60

No. of Contact Classes: 40

No. of Non-Contact Classes : 20

Particulars of Course Designer (Department of Geography, Gauhati University, geography@gauhati.ac.in)

Four Year Under-Graduate Programme

Subject: Geography

Semester: V

Course Name: **Economic and Resource Geography (optional)**

Course Code: GGY0500304

Course Level: Higher

Part I: Theory (3 Credits, 45 classes of one-hour duration)

Part II: Practical (1 Credit, 15 classes of two-hours duration)

100 Marks (Theory =45 Marks, Practical=25 Marks, Internal Assessment = 30 Marks)

Course Objective:

This paper intends to introduce students to the principles of economic geography and associated patterns and processes of major economic activities in the world. It seeks to develop new in-sights among students on the relevance of economic geography and associated economic issues in contemporary times.

Course Outcome:

1. Understand the scope and approaches of economic geography and resources.
2. Recognize and classify various economic activities and analyze the role of production systems.
3. Examine and compare the agricultural sector and models of agricultural location worldwide.
4. Appraise industrial location factors using Weber's theory and understand the distribution and production of various industries globally
5. Evaluate the modes of transport, its influence on development and role in resource mobilization and economic development

Part I

Unit I:

Meaning, scope and Approaches of Economic Geography and Resources

Unit II:

Economic activity: meaning and classification; Production system: Role of land, labour and capital.

Unit III:

Agriculture sector: Factors influencing agriculture; types of agriculture; Von Thunen's model of agricultural location; Factors influencing cultivation of wheat, rice, coffee and tea, and their distribution and production in different parts of the world.

Unit IV:

Manufacturing sector: Factors influencing industrial location; Weber's theory of industrial location; Classification of industry; Factors, distribution and production of iron and steel, cotton textile and IT industries in the world; Special economic zones and technology parks

Unit V:

Transport system: Modes of transport, factors influencing transport development and role of transport in resource mobilization and economic development.

Unit VI:

Trade: Factors influencing trade in different countries of the world; Trade relations of India with USA, Russia and Japan.

Part II:**Unit I: Practical Works (16 marks) (Two questions of 8 marks each)**

1. Trend of rice, wheat and iron & steel production in the world/USA/India using moving average and least squares methods. (4 assignments)
2. Trend of production of wheat, rice, maize and barley in the world/USA using Band-graph. (2 assignments)
3. Trend of balance of trade relations (export and import value) of India with USA, China and Japan in respect of major commodities using Bar-graph. (2 assignments)
4. Regional variation in fertilizer consumption and agricultural productivity in rice, wheat and barley in selected countries of the world using Bar-graph. (1 assignment)
5. Inter-state/Inter-nation volume of movement of selected commodities and Inter-city movement of traffic/bus in N.E. India through flow cartogram. (2 assignments)

Unit II: Practical Note-Book and Viva-voce (9 Marks)

1. Evaluation of Practical Note-Book (5 marks)
2. Viva-voce (4 marks)

Reading List

1. Hartshorn, T.A. and Alexander J. W., 2004: Economic Geography, Prentice-Hall Inc., New Delhi
2. Coe N. M., Kelly P. F. and Yeung H. W., 2007: Economic Geography: A Contemporary Introduction, Wiley-Blackwell.
3. Hodder B.W. and Lee Roger, 1974: Economic Geography, Taylor and Francis.
4. Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton University Press.
5. Wheeler J. O., 1998: Economic Geography, Wiley..
5. Bagchi-Sen S. and Smith H. L., 2006: Economic Geography: Past, Present and Future, Taylor and Francis.
6. Willington D. E., 2008: Economic Geography, Husband Press.
7. Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. 2000: The Oxford 9. Saxena, H.M., 2013: Economic Geography, Rawat Publications, Jaipur.

Theory Credit : 3

Practical Credit: 1

No. of Required Classes : 60

No. of Contact Classes: 40

No. of Non-Contact Classes : 20

Particulars of Course Designer (Department of Geography, Gauhati University, geography@gauhati.ac.in)
Four Year Under-Graduate Programme

Subject: Geography

Semester: V

Course Name: **Social, Cultural and Political Geography (Optional)**

Course Code: GGY0500404

Course Level: Higher

Part I: Theory (3 Credits, 45 classes of one-hour duration)

Part II: Practical (1 Credit, 15 classes of two-hours duration)

100 Marks (Theory =45 Marks, Practical=25 Marks, Internal Assessment = 30 Marks)

Course Objective:

To appreciate the social and political dimensions of geographic phenomena. Understand how geography influences political issues and their spatial dimensions.

Course Outcome:

1. Identify, understand, and analyze the concepts in Social Geography and its significance to human development.
2. Comprehend and analyze various types of cultures, the role of cultural diffusion, and the attributes of cultural landscapes.
3. Evaluate social well-being levels and compose ternary diagrams to represent social composition.
4. Generate, analyze, and interpret maps denoting major conflict zones and interstate boundary disputes.
5. Understand the nature and scope of Political Geography, conceptualize geopolitics and comprehend geographic conflicts in various regions.

Part I

Unit I: Social Geography

1. Social Geography: Meaning and scope; its approaches; and contemporary trend of its development.
2. Concept and types of social space and social groups.
3. Social Well-being: Concept and Component: Housing, Health and Education; Concept of Human development and its measurements.
4. Contribution of race, religion, language and ethnicity in promoting diversity in India.
5. Social Geographies of inclusion and exclusion: Caste, class, gender and ethnicity.

Unit II: Cultural Geography

1. Meaning and scope of Cultural Geography and contemporary trend of its development
2. Types of culture: material and non-material

3. Concepts in cultural geography: Cultural diffusion, Cultural lag, cultural landscape, and cultural region.
4. Cultural ecology and folk geography; folk culture and rituals with special reference to Assam

Unit III: Political Geography

1. Political Geography: Nature, scope and recent trends; Approaches to its study.
2. Concept of state, nation, and nation-state; Attributes of State, frontiers and boundaries, buffer zones.
3. Concept of Geopolitics, Heartland and Rimland; Mackinder's Heartland Theory.
4. Concept of colonialism, neo-colonialism and lebensraum.
5. Geography and conflict: India-Pakistan; India-China, Russia-Ukraine.

Part II

Unit I: Practical Works (16 marks) (Two questions of 8 marks each)

1. Level of Social well-being with the help of composite Z-score in India /North-East India. (1 Exercise)
2. Construction of Ternary Diagram representing the social composition of the population in India/North East India. (1 Exercise)
3. Sex disparity in literacy in India/North-East India using Sopher's Disparity Index. (1 Exercise)
4. Construction of a map of India highlighting the major conflict zones (2 Exercises), the states of North-East India during Pre and Post-Independence periods (up to the present). (3 Exercises) along the border with China and Interstate boundary disputes in NE India.
5. Sketch of traditional house types of some selected tribes of North-East Indian states.
6. Preparation of a short video documentary on a folk ritual of a selected community of Assam.

Unit II: Practical Note-Book and Viva-voce (9 Marks)

1. Evaluation of Practical Note-Book (5 marks)
2. Viva-voce (4 marks)

Reading List

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Social Geography

1. Ahmad, A., 1999: Social Geography, Rawat Publications, Jaipur and New Delhi.
2. Ahmad, A., (ed), 1993: Social Structure and Regional development: A Social Geography Perspective, Rawat Publications, Jaipur.
3. Carter, John and Trevor, Jones. 1989: Social Geography: An Introduction to Contemporary Issues, Edward Arnold, London.
4. Eyles, J.: 'Social Geography', in Johnston, R.J., et al, The Dictionary of Human Geography.
5. Jones, E. and Eyles, J., 1977: An Introduction to Social Geography, Oxford University Press, Oxford and New York.

6. Jones, E.(ed), 1975: Readings in Social Geography, Oxford University Press, Oxford.
7. Sharma, H.N., 2000: 'Social Geography' in Singh, J. (ed.) Progress in Indian Geography(1996-2000), INSA, New Delhi.
8. Smith, D.M., 1977: Human Geography: A Welfare Approach, Edward Arnold, London.
9. Sopher, D.E. (ed), 1980: An Exploration of India: Geographical Perspectives on Society and Culture, Longman, London.
10. Srinivas, M.N., 1986: India: Social Structure, Hindustan Publishing Corporation, Delhi.
11. Taher, M., 1994: An Introduction to Social Geography: Concept and Theories, NEIGS, Guwahati. 37

Cultural Geography

1. Crans, Mike, 1998: Cultural Geography, Routledge, London.
2. Dancan, J. and Ley, D. (eds), 1992: Place/Culture/Representation, Routledge, London.
3. Gritzer, Charion, F., 1984: 'The Scope of Cultural Geography', Journal of Geography, Volume 65, pp.4-11.
4. Jackson, Richard.H. and Hudman, Lloyel. E., 1990: Cultural Geography, West Publishing Company, New York.
5. Johnston, R.J., Gregory, Derek and Smith, David M. (eds), 1994: The Dictionary of Human Geography, Blackwell, Oxford.
6. Jordan, T.G. and Rowntree, L.: The Human Mosaic: A Thematic Interpretation in Cultural Geography.
7. Noble, A.G. and Dutt, A.K. (eds), 1982: India: Cultural Pattern and Processes, West View Press /Boulder, Colorado.

Political Geography

1. Agnew, John A., Mamadouh, V.; Secor, A. and Sharp, J. 2015. The Wiley Blackwell Companion to Political Geography. Wiley-Blackwell.
2. Smith, Sara. 2020. Political Geography: A Critical Introduction, Wiley-Blackwell.
3. Dikshit, R.D. 2020. Political Geography: Politics of Place and Spatiality of Politics. Macmillan India.
4. Dwivedi, R L Misra, H N. 2019. Fundamentals of Political Geography. Surjeet Publications.

Theory Credit : 3

Practical Credit: 1

No. of Required Classes : 60

No. of Contact Classes: 40

No. of Non-Contact Classes : 20

Particulars of Course Designer (Department of Geography, Gauhati University, geography@gauhati.ac.in)

Four Year Under-Graduate Programme

Subject: Geography

Semester: V

Course Name: **Internship**

Course Code: GGY0500504

Course Level: Higher

Internship at a Glance:

- Credits: 4
- No of Hours: 120 (these may be offline or online)
- Internship to be undertaken after the 4th Semester examination, i.e. the Summer break and continued at convenience during the next semester.
- Marks to be reflected in the Grade Sheet of the 5th Semester (even if the internship requirements stretch onto the 6th semester. However, the student's marksheet will only be downloadable after the grades are entered)
- Two categories of Internship: (i). Skill internship (ii). Research Internship
- Internship can be intra-institutional
- A formal letter should be sent from the HoD /Principal of a College to the IPO as part of the initiation process.

On completion of internship 4 documents will need to be available.

1. Certificate of successful completion of Internship (see below for format)
2. Activity logbook (detailed day to day account of activities that should also contain period spent, work done, skill learnt or in process) (see Format below)
3. Evaluation report (The relevant sections are to be filled in and signed by the Internship Supervisor at the IPO and the Mentor at the Department or College) (see Format below)
4. A Report by the Intern (see Format below)