

Syllabus of Ph.D. in Geography Programme

Course Title: Research Methodology in Geography and Field Methods

Course Code: RGG-101

Total Credits: 04 Credits

Section I: Research Methods in Geography

Concepts and Scientific Methods of Research in Geography, Theoretical and Empirical Research, Objectives, Hypotheses and Theory in Research, Ethics in Research, Power-objectivity and subjectivity, Organization of Dissertation and Thesis

Section II: Research Design

Research Design, Literature Review, Assessment of Data Requirement-Qualitative and Quantitative, Sampling Design, Pre-Field Work, Field Work and Post Field Work; Questionnaire and Schedule for Field Work, Interpretation, Analysis and Synthesis

Section III: Nature and Role of Field Survey in Geographical Studies

Geographic Enquiry and Field Survey, Field Survey in Physical Geography and Human Geography, Components of Field Survey- Observation, Field Mapping, Data Collection, Focused Group Discussion, Recording Information

Section IV: Computer Applications and Cartographic Representation

Computer Applications in Data Management and Analysis, Display and Interactions, Cartographic Communication and Visualization, Map Generalization

Reading List:

1. Clifford, N. S. French and G. Valentine (2010). *Key Methods in Geography*. London: Sage
2. Gomez, B. and Jones, J.P. III (Ed.) (2010). *Research Methods in Geography: A Critical Introduction*. New York: Wiley-Blackwell
3. Haines-Young R. H. and J. R. Petch (1986). *Physical Geography: Its Nature and Methods*. London: Harper and Row
4. Harvey, David (2007). *Explanation in Geography*. Jaipur: Rawat Publications
5. Kothari, C.P. (2012). *Research Methodology: Methods and Techniques*. New Delhi: New Age International
6. Kumar, R. (2005). *Research Methodology A Step-by-Step Guide for Beginners*. London: Sage Publications
7. Mishra, R.P. (1989). *Research Methodology: A Handbook*. New Delhi: Concept Publishing House
8. Stoddart, R. (1982). *Field Techniques and Research Methods in Geography*. Lincoln: University of Nebraska., <http://digitalcommons.unl.edu/geographyfacpub>
9. Lounsbury, J.F. and F.T. Aldrich (1986). *Introduction to Geographic Field Methods and Techniques*. University of California: C.E. Meril Pub. Co.
10. http://www.itc.nl/~rossiter/teach/msc/ResearchSkillsText_all.zip

Course title: Research Techniques

Course Code: RGG-102

Total Credits: 04

Section 1: Epistemological basis of Quantitative and Qualitative Research

Ontology, Epistemology and Methodological issues in Quantitative and Qualitative Research; Arguments for Choosing Quantitative and Qualitative Methodologies, Power and Subjectivity in Qualitative Research

Section II: Introduction to Basic Statistics

Descriptive Statistics: Measures of Central Tendency, Measures of Dispersion, Measures of Disparity and Inequality, Spatial and Combination Analysis; Measures of Association and Explanation: Correlation and Regression Analysis; Elementary Probability; Theory of Sampling; Testing of Hypothesis

Section III: Tools of Qualitative Research

Observation – Participant and Non Participant; Focus Group; Participatory Action Research; Historical and Archival Research; Ethnography; Oral History; Visual Methods and Methodologies

Section IV: Interpretation and Communication

Coding of Data: Purpose of Coding, Types of Codes and Coding, Developing Coding Structure and Processes of Coding; Use of Computers in Data Analysis; Statistical Packages in Geographical Analysis: Types, Uses, Advantages and concerns, Key Functions; Choosing Appropriate Software for Analysis

Section V: Remote Sensing and GIS Techniques in Geospatial Research

Basics of Remote Sensing; Image Properties; Image Interpretation; Digital Image Processing and Classification; GIS: An Overview; Maps and GIS; Digital Representation of Geographic Data; Query and Analysis; GPS Fundamentals; Participatory GIS; Applications of Remote Sensing and GIS in Natural Resource Management, Socio-economic Analysis, Disaster Management

Reading List:

1. King, L.J. (1969). *Statistical Analysis in Geography*. Englewood Cliffs, NJ: Prentice Hall
2. Mahmood, A. (1999). *Statistical Methods in Geographical Studies*. New Delhi: Rajesh Publications
3. Pal, S. K. (1982). *Statistical Techniques: A Basic Approach to Geography*. New Delhi: Tata McGraw Hill
4. Gupta, S.P. (2009). *Elementary Statistical Methods*. New Delhi: Sultan Chand and Sons
5. DeLyser, D. (2009). (Eds). *The SAGE Handbook of Qualitative Research in Human Geography*. Thousand Oaks: Sage Publications
6. Denzin, N. and Y. Lincoln (2005). (Eds). *The SAGE Handbook of Qualitative Research*. Thousand Oaks: Sage Publications
7. Hay, Ian ed. (2005). (Ed). *Qualitative Research Methods in Human Geography*. Melbourne: Oxford University Press
8. Limb & Dwyer (2001). (Eds). *Qualitative Methodologies for Geographers*. London: Arnold
9. Chang, kang-tsung (2010). *Introduction to Geographic Information Systems*. Tata McGraw-Hill, New Delhi
10. Jensen, J.R. (2007). *Remote Sensing of the Environment: An Earth Resource Perspective*. New Delhi: Pearson Prentice Hall, 2007
11. Joseph, G. (2005). *Fundamentals of Remote Sensing*. Hyderabad: Universities Press Pvt. Ltd.
12. Lillesand, T.M., Keifer, R.W. and J.W. Chipman (2004). *Remote Sensing and Image Interpretation*. New Jersey: Wiley & Sons Inc.
13. Lo, C.P. and K.W. Yeung (2009). *Concepts and Techniques of Geographic Information Systems*. India: PHI Learning Private Ltd

Course title: Research in Physical Geography

Course Code: RGGE-101

Total Credits: 04

Section I: Focus of Research in Physical Geography

Scope and Subject Matter of Physical Geography, Earth System Sciences: Lithosphere and Tectonic System, Atmosphere and Climate, Hydrosphere and Processes

Section II: Research Techniques in Geomorphology

Scope of Geomorphology, Process of understanding Geomorphology, Geomorphological Field Mapping and Models

Section III: Research in Hydrospheric Studies

Basin Morphometry, Hydrology and Environment, Study of Coastal Morphology, Observing Oceans

Section IV: Environment and Climate

Investigating Biodiversity, Land Degradation and Desertification, Soils and Land Evaluation, Dynamics of Climate: Global Warming and Climate Change

Reading List:

1. Barry, R.G. and Chorley, R.J. (1999). *Atmosphere, Weather and Climate*. New York: Routledge
2. Bloom, A.L. (1998). *Geomorphology*. New York: Prentice Hall
3. Chow, V.T. (1964). *Handbook of Applied Hydrology*. New York: McGraw Hill Book Co.
4. Druva Narayana, V.V. (1993). *Soil and Water Conservation Research in India*. Indian Council of Agricultural Research: New Delhi
5. George, J. (2004). *Fundamentals of Remote Sensing*. Hyderabad: Universities Press Pvt. Ltd.
6. Huggett, R.J. (2004). *Fundamentals of Biogeography*. New York: Routledge
7. Jensen, J.R. (2009). *Remote Sensing of the Environment: An Earth Resource Perspective*. New Delhi: Pearson Education
8. King, C.A.M. (1966). *Techniques in Geomorphology*. London: Edward Arnold (Publishers) Ltd.
9. Sharma, H.S. (1982). *Perspectives in Geomorphology*. New Delhi: Concepts Publishing Company
10. Strahler, A.N. and Strahler, A.M. (2006). *Modern Physical Geography*. New Delhi: Cambridge
11. Thornbury, W.D. (2011). *Principles of Geomorphology*. New Delhi: New Age International Publishers
12. Tom Garrison. (2010). *Oceanography: An Invitation to Marine Science*. Thomson Higher Education: Belmont, CA
13. Wroght, R.T. and Boorse, D. (2011). *Environmental Science toward a Sustainable Future*. Benjamin Cummings: Boston

Course title: Research in Human Geography

Course Code: RGGE-102

Total Credits: 04

Section: I Key Concepts

Space: Absolute, Relative, Social and Relational; Spatiality and Spatial Structure, Concept of Third Space; Place and Sense of Place; The Idea and Morphology of Landscape; Territory and Scale; Nature- Matter and Socio- cultural Construct of Nature; Ecology- Deep Ecology and Political Ecology

Conceptual Debates: Local-Global; Society-Space; Masculinity- Femininity; Human- Non-Human; Modern- Post Modern

Section 2: Approaches

Regional and Systematic; Positivism and Rise of Spatial and Locational Approaches; Behaviouralism Systems Approach; Idealism-Humanistic; Phenomenological and Existential; Structural and Structuration- Structural Marxism, Structural- Functional; Radical, Liberal/Welfare Approaches; Feminist Perspective

Section- 3 Methods/ Methodological debates

Quantitative- Qualitative; Analytic- Interpretative; Categorical- Dialectical; Pluralising-Totalizing

Section- 4 Research Frontiers/ Themes

Development and Growth: Change, Inequalities and Disparities; Geographies of Poverty and Destitution; Displacement and Development Refugees; Geographies of Resistance, Dissent and Conflict; Geographies of Health and Wellbeing; Political Economies and Ecologies of Environment and Natural Resources; Hazards and Vulnerabilities; People, Resources and Livelihoods; State and the Market in the Globalised World: 'Fordism', Flexible Specialization; Global Integration, Financial Capital; International Division of Labour, Reconstructing of Labour Market

Reading List:

1. Agnew, John et.al., Eds. (1996). *Human Geography: An Essential Anthology*, Oxford: Blackwell
2. Gregory, D. and Castree, N. Eds. (2012). *Human Geography*. Thousand Oaks: Sage
3. Cloke, Paul et.al, Eds. (2009). *Introducing Human Geographies (2nd Ed)*, London: Hodder Arnold
4. Norton, William (2004). *Human Geography*, 5th edition, Ontario: Oxford Univ. Press
5. Barnes Trevor & Derek Gregory, Eds. (1997). *Reading Human Geography: The Poetics and Politics of Inquiry*, London: Arnold
6. Soja, Edward W (1989). *Postmodern Geographies: The Reassertion of Space in Critical Social Theory*, London: Verso
7. Bird, James (1989) *The Changing Worlds of Geography: A Critical guide to concepts and methods*, Oxford: Clarendon Press
8. Aitken Stuart and Gill Valentine, Eds. (2006). *Approaches to Human Geography*, London: Sage Publications
9. Cox, K.R. (2014). *Making Human Geography*, New York: The Guilford Press
10. Clifford, N., French, and S. and Valentine, G. Eds. (2010). *Key Methods in Geography*. Thousand Oaks: Sage

Course Title: Research in Regional Development and Planning

Course Code: RGGE-103

Total Credits: 04

Section I: Region and Regional Development

Concept of Region and Regional Planning, Growth, Development and Underdevelopment, Evolution of Spatial Structure, Spatial Organization, Spatial Equilibrium and Integration, Theories of Regional Development

Section II: Approaches, Techniques and Measurements

Alternate Approaches to Regionalization, Indicators and Construction of Indices, Classification and Grouping, Poverty, Unemployment and Migration

Section III: Regional Development Planning in India

Regional Development and Disparities and Regional Imbalance, Regional Backwardness, Five Year Plans and Regional Development, Dimensions of Development Planning, Federalism and Fiscal Allocation; Planning Agencies: Finance Commission, Planning Commission and Niti Ayog; Role of Agriculture, Rural Development, Industrialization, Infrastructure and Urbanization in Regional Development

Section IV: Regional Planning and Case Studies

Development Plan: Regional Approach, Desert Development Plan, Integrated Coastal Zone Management, Hill Area Development Plan, Integrated Tribal Area Development Plan, Evaluation Method

Reading List:

1. Chand, M. and V.K. Puri (1983). *Regional Planning*. New Delhi: Allied Publisher
2. Five Year Plan I-XII, Planning Commission. New Delhi: Govt. of India
3. Gore, Charles (1984). *Regions in Question: Space, Development Theory and Regional Policy*. London: Methuen & Co. Ltd.
4. Mishra, R.P. (1992) (Ed). *Regional Planning: Concepts, Techniques, Policies and Case Studies*, New Delhi. Concept Publishing Company
5. Nath, V. and S.K. Aggarwal (2009). *Regional Development Planning in India*. New Delhi: Concept Publishing Company
6. Papola, T.S., H.S. Verma, B.K. Joshi and R.C. Sinha (1983). (Eds). *Development of Hill Areas: Issues and Approach*. Bombay: Himalaya Publishing House
7. Ray Choudhy, J. (2001). *An Introduction to Development and Regional Planning: With Special Reference to India*. Kolkata: Orient Blackswan

Course Title: Social Factors in Region Formation in India

Course Code: RGGE-104

Total Credits: 04

Section I: Regions and Regionalism

Territoriality and Scale, Regions and Regionalism, Historical Regionalism, Social Factors in Regions Formation – Peopling and Ethnicity, Religion, Languages and Dialects, Factors in Regionalism, Tools and Techniques of Research in Social Geography

Section II: Languages and Region Formation in India

Languages in India, Numerical Pattern, Region Formation and Linguistic Regions, Language Shift

Section III: Tribes and Castes: Evolution

Definition and characteristics, Communities and Spatial Distribution, Composite Regions, Socio-economic Status, Levels of Development, Globalization and Challenges

Section IV: Contemporary Issues

Social Groups: Patterns of Gender and Space, Health, Education, Poverty, Changing Landscape, Inequality, Mobility, Conflicts.

Reading List:

1. Chopra, P.N. (1965): *Gazetteer of India*, Vol. 1, Country and People, New Delhi: Publication Division, Govt. of India
2. Hutton, J.H. (1931): *Census of India 1931, with Complete Survey of Tribal Life and Systems*, Vol. II, New Delhi: Gian Publishing House
3. Subbarao, B. (1958). *The Personality of India: Pre and Proto-historic Foundation of India and Pakistan*, Baroda: Faculty of Arts, Maharaja Sayajirao University of Baroda
4. Raza, M. and A. Ahmed (1988): *An Atlas of Tribal India*, New Delhi: Concept Publishing House.
5. Ahmed, A. (1999): *Social Geography*, Jaipur: Rawat Publications
6. Ahmed, A. (2012): *Social Geography in India*, New Dehi: Concept Publishing Company Pvt. Ltd.
7. Ahmad, A. (1999): *Geography of the South Asian Subcontinent: A Critical Approach*, New Delhi: Concept Publishing Company
8. Schwartzberg, Joseph E. (1978): *A Historical Atlas of South Asia*, Chicago: University of Chicago Press
9. Crane, Robert I. (ed.) (1966): *Regions and Regionalism in South Asian Studies: An Exploratory Study*, Durham: Duke University

Course Title: Remote Sensing Applications in Geographical Research

Course Code: To be allotted

Total Credits: 04

The aim of this course is to enhance the knowledge of students in the applications of remote sensing techniques in geographical research. It introduces various key fields of earth system sciences such as geosciences, soil and agriculture, water resources, urban environment and natural hazards by applying satellite remote sensing technologies. This course helps the scholars in major application areas in the background of key theoretical foundation along with the usage of spatial information tools and techniques in the relevant research fields.

Section 1: Applications in Geosciences

Geomorphology, Geology, Hydrogeology, Marine and Coastal Environment

Section 2: Applications in Soil and Agriculture

Soil Resource Mapping, Estimation of Soil Moisture and Evapotranspiration, Land Degradation, Agriculture Crop: Inventory, Acreage, Health and Yield Estimation, Forest Resource Mapping

Section 3: Applications in Water Resources

Snow and Glaciers, Rainfall-Runoff and Hydrologic Modelling, Integrated Watershed Management

Section 4: Applications in Urban Environment

Land Use and Land Cover, Land Transformation, Urban Sprawl, Urban Climate and Urban Hydrology, Utilities and Services, 3D/4D Studies

Section 5: Applications in Natural Hazards

Flood, Drought, Earthquake, Landslide, Cyclone, and Cloudburst

Reading List:

1. John R. Jensen. (2013). Remote Sensing of the Environment: An Earth Resource Perspective, 2/e. New Delhi: Pearson Prentice Hall.
2. Lillesand, T.M., Keifer, R.W. and Chipman, J.W. (2004). Remote Sensing and Image Interpretation. New Jersey: Wiley & Sons Inc.
3. Joseph, G. (2005). Fundamentals of Remote Sensing. Hyderabad: Universities Press Pvt. Ltd.
4. Reddy, A. (2012). Text Book of Remote Sensing and Geographical Information Systems. Hyderabad: BS Publications.
5. John R. Jenson. (2015). Introductory Digital Image Processing. Delhi: Pearson Education.
6. Roger M. McCoy. (2005). Field Methods in Remote Sensing. New York: The Guilford Press.
7. Journal of the Indian Society of Remote Sensing. ISSN: 0255-660X (Print) 0974-3006 (Online). <https://link.springer.com/journal/volumesAndIssues/12524>
8. International Journal of Remote Sensing. ISSN: 0143-1161 (Print) ISSN: 1366-5901(Online). <https://www.tandfonline.com/action/journalInformation?journalCode=tres20>
9. Remote Sensing. Open Access. ISSN 2072-4292. <http://www.mdpi.com/journal/remotesensing>
10. ISPRS Journal of Photogrammetry and Remote Sensing. ISSN: 0924-2716. <https://www.journals.elsevier.com/isprs-journal-of-photogrammetry-and-remote-sensing>
11. Remote Sensing Applications: Society and Environment. ISSN: 2352-9385. <https://www.journals.elsevier.com/remote-sensing-applications-society-and-environment>
12. https://nrsc.gov.in/User_Manuals
13. <https://www.geospatialworld.net>