



RAJA MAHENDRA PRATAP SINGH UNIVERSITY
ALIGARH

Pre- Ph.D.Coursework
SYLLABUS

National Education Policy - 2020

Structure Syllabus Developed by

Sl.	Convener / Member	Dept.	Institute
1	Dr.AchyutPrakash Gupta, Convener	Geography	K.A. College, Kasganj
2	Dr.Rajiv Kumar Member	Geography	S.V. College, Aligarh
3	Sh. Izhar Ahmad Member	Geography	D.S. College, Aligarh
4	Dr.Mohd. Danish Member	Geography	P.C. Bagla College,Hathras
5	Dr. Avanesk Kumar Singh Member	Geography	D.S. College, Aligarh
6	Dr. Jitendra Sharma	Geography	D.S. College, Aligarh
7	Shri Nitin Kumar	Geography	S.V. College, Aligarh

Subject Expert

Sl.	Convener / Member	Designation	Dept.	Institute
1	Prof. Rajeev Kumar Member	Professor	Geography	Meerut College, Meerut
2	Prof. Uttam Kumar Member	Professor & Head	Geography	MHH College, Ghaziabad

Pre-Ph.D. Course Work (Geography)

SEMESTERWISE SYLLABUS

Paper 1 Theory

Program/Class:Certificate		Year:First	Semester:1
Subject:Pre-Ph.D. Course Work(Geography)			
CourseCode:		CourseTitle:Research Methodology	
CourseOutcome: Upon completion of this course, the research scholar will acquire a comprehensive understanding of the philosophical foundations, evolution, and contemporary perspectives of geographical thought and research. The scholar will be able to identify research problems, formulate objectives, hypotheses, and research questions, and design appropriate research methodologies for geographical investigations. The course will enable the scholar to apply qualitative, quantitative, and mixed-method approaches for data collection, analysis, and interpretation, while developing competence in geographical fieldwork, sampling techniques, and spatial data analysis. It will further strengthen the scholar's ability to critically evaluate classical and contemporary schools of geographical thought and to employ statistical and analytical techniques in geographical research. The scholar will also develop awareness of research ethics, academic integrity, intellectual property rights, and plagiarism issues, and will gain the skills necessary for preparing research proposals, dissertations, scientific reports, and scholarly publications.			
Credits:4		CoreCompulsory	
Max.Marks:		Min.PassingMarks:	
TotalNo.ofLectures-Tutorials-Practical(inhoursperweek):L-T-P			
Unit	Topics		No.ofLectures
I: Nature and Foundations of Geographical Research	This unit introduces the concept, nature, scope, objectives, and significance of research with special reference to Geography. It examines the scientific method, research paradigms, and the interdisciplinary character of geographical inquiry. The unit familiarizes scholars with basic, applied, exploratory, descriptive, analytical, and action research approaches. Emphasis is laid on identifying research problems, conducting literature reviews, locating research gaps, and understanding various sources of geographical data, including census records, government reports, field observations, maps, satellite data, and scholarly publications. The unit also highlights contemporary trends and emerging areas in geographical research		
II: Research Design and Field Methodology	This unit focuses on the formulation and design of geographical research. It covers the identification of research problems, formulation of objectives, research questions, hypotheses, and conceptual frameworks. Scholars are introduced to various research designs, including survey, case study, experimental, longitudinal, and mixed-method approaches. The unit discusses techniques of primary and secondary data collection through questionnaires, interviews, observations, focus group		

	discussions, participatory rural appraisal, and field surveys. Special attention is given to sampling methods, reliability and validity of data, fieldwork planning, GPS-based data collection, ground truthing, and preparation of field reports for geographical investigations..	
III: Evolution of Geographical Thought and Contemporary Perspectives	This unit examines the historical development of geographical thought from ancient to contemporary periods. It explores the contributions of Greek, Arab, European, Indian, and modern geographers in shaping the discipline. Major philosophical and methodological traditions including Environmental Determinism, Possibilism, Neo-determinism, Regional Geography, Quantitative Revolution, Systems Approach, Behavioural Geography, Humanistic Geography, Radical Geography, Marxist Geography, Feminist Geography, Postmodern Geography, and Political Ecology are critically evaluated. The unit also discusses contemporary debates, environmental governance, sustainability, and emerging paradigms influencing geographical scholarship in the twenty-first century.	
IV: Data Analysis, Research Ethics and Academic Writing	This unit provides an understanding of statistical and analytical techniques used in geographical research. Topics include descriptive and inferential statistics, correlation, regression, hypothesis testing, spatial analysis, and interpretation of geographical data. The unit further emphasizes research ethics, academic integrity, plagiarism prevention, intellectual property rights, and responsible conduct of research. Scholars are trained in the use of citation styles such as APA, MLA, and Chicago, as well as the preparation of research proposals, theses, dissertations, research papers, seminar presentations, and scholarly publications. The unit aims to develop the skills necessary for effective scientific communication and professional academic writing.	

Suggested Readings

- Kothari, C.R. and Garg, G. (2019): *Research Methodology: Methods and Techniques*, New Age International, New De
- Creswell, J.W. and Creswell, J.D. (2018): *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* Sage Publications.
- Clifford, N., French, S. and Valentine, G. (2016): *Key Methods in Geography*, Sage Publications, London.
- Gomez, B. and Jones, J.P. (2010): *Research Methods in Geography*, Wiley-Blackwell.
- Dikshit, R.D. (2003): *Geographical Thought: A Contextual History of Ideas*, Prentice Hall of India, New Delhi.
- Johnston, R.J. (1983): *Philosophy and Human Geography*, Edward Arnold, London.
- Peet, R. (1998): *Modern Geographical Thought*, Blackwell Publishers, Oxford.
- Hubbard, P., Kitchin, R., Bartley, B. and Fuller, D. (2002): *Thinking Geographically: Space, Theory and Contemporary Human Geography*, Continuum, London.
- Gregory, D., Johnston, R., Pratt, G., Watts, M. and Whatmore, S. (Eds.) (2009): *The Dictionary of Human Geography*, Wiley-Blackwell.
- Mishra, R.P. and Ramesh, A. (1989): *Fundamentals of Cartography*, Concept Publishing Company, New Delhi.

Paper 2
Theory

Program/Class:Certificate		Year:First	Semester:I
Subject: Pre-Ph.D. Course Work(Geography)			
CourseCode:		CourseTitle:Advanced Geographical Techniques	
CourseOutcome: Upon successful completion of this course, the research scholar will acquire advanced knowledge of cartographic, geospatial, and analytical techniques used in contemporary geographical research. The scholar will develop the ability to collect, manage, analyze, model, and visualize spatial data using Geographic Information Systems (GIS), Remote Sensing, GPS/GNSS, and other emerging geospatial technologies. The course will enhance skills in spatial analysis, geospatial modelling, GeoAI, machine learning, and big data applications for addressing complex geographical, environmental, and developmental issues. The scholar will also gain competence in applying geospatial technologies for climate change studies, disaster management, urban and regional planning, resource management, tourism studies, and sustainable development, while effectively communicating research findings through scientific and geospatial visualization tools.			
Credits:4		CoreCompulsory	
Max.Marks:		Min.PassingMarks:	
TotalNo.ofLectures-Tutorials-Practical(inhoursperweek):L-T-P			
Unit	Topics		No.ofLectures
I: Advanced Cartography and Spatial Analysis	Principles of advanced cartography, thematic mapping, digital cartography, map projections, and geovisualization. Spatial data models, spatial databases, and techniques of spatial analysis including buffering, overlay analysis, network analysis, surface analysis, and spatial decision-making. Applications of cartographic and spatial analytical methods in geographical research.		
II: Geographic Information Systems (GIS)	Concepts, components, and architecture of GIS. Spatial database management, georeferencing, digitization, and data integration. Vector and raster data analysis, terrain analysis, hydrological modelling, and spatial decision support systems. Applications of GIS in environmental management, urban planning, resource assessment, and regional development..		
Unit III: Remote Sensing and Geospatial Data Acquisition	Principles of remote sensing, electromagnetic radiation, sensors, platforms, and satellite imagery. Digital image processing, image classification, change detection, and accuracy assessment. GPS/GNSS applications, spatial data collection, and emerging technologies such as UAVs, drones, LiDAR, and mobile mapping systems.		
IV: Geospatial Modelling and Emerging Technologies	Spatial statistics, geostatistics, interpolation, hotspot analysis, and spatial modelling techniques. Introduction to GeoAI, machine learning, big data analytics, and computational geography. Applications in climate change studies, disaster management, environmental monitoring, sustainable development, and scientific communication of geospatial research.		

Suggested Readings

- Chang, K. T. (2023): Introduction to Geographic Information Systems, McGraw-Hill Education.*
- Longley, P. A., Goodchild, M.F., Maguire, D.J. and Rhind, D.W. (2021): Geographic Information Systems and Science, Wiley.*
- Burrough, P.A., McDonnell, R.A. and Lloyd, C.D. (2015): Principles of Geographical Information Systems, Oxford University Press.*
- Lillesand, T.M., Kiefer, R.W. and Chipman, J.W. (2015): Remote Sensing and Image Interpretation, Wiley.*
- Jensen, J.R. (2016): Introductory Digital Image Processing: A Remote Sensing Perspective, Pearson.*
- Campbell, J.B. and Wynne, R.H. (2011): Introduction to Remote Sensing, Guilford Press.*
- DeMers, M.N. (2009): Fundamentals of Geographic Information Systems, Wiley.*
- Kumar, M. (2018): Remote Sensing and GIS, New Central Book Agency, Kolkata.*
- Lloyd, C.D. (2010): Spatial Data Analysis: An Introduction for GIS Users, Oxford University Press.*
- O'Sullivan, D. and Unwin, D.J. (2014): Geographic Information Analysis, Wiley-Blackwell.*