

தமிழ்நாடு மத்தியப்
பல்கலைக்கழகம்



**CENTRAL
UNIVERSITY OF
TAMIL NADU**

तमिलनाडु केन्द्रीय
विश्वविद्यालय

ESTABLISHED BY AN ACT OF PARLIAMENT IN 2009

M.Phil./Ph.D GEOGRAPHY PROGRAMME

CURRICULUM STRUCTURE

(From the Academic Year 2018-19 Onwards)

Department of Geography
School of Earth Sciences
Central University of Tamil Nadu
Neelakudi, Thiruvarur – 610 005

Email: hodgeo@cutn.ac.in

Phone: 04366 277338

www.cutn.ac.in



M.Phil. / PhD PROGRAMME OUTCOMES

On completion of the programme, students will be able to:

- Identifying, interpreting and analysing geographic problems and processes
- Formulating a research methodology and executing formal research projects independently and ethically
- Defending and communicating facts, ideas and research findings via written, oral, graphical and quantitative outlets.
- Contribute knowledge of geography in response to issues in their specialized area

PROGRAMME SPECIFIC OUTCOMES

- To develop original thinking in the field of geography and geospatial sciences
- To carry out independent research of high quality in their specialized area
- To evaluate and suggest optimal measures to solve multi-dimension geographic problems through geospatial techniques
- To able to communicate research findings in various forums at national and international level.



M.Phil./Ph.D Geography Programme

Curriculum Structure

(from the academic year 2018-19 onwards)

PART-I		Credits				Assessment	
Title		L	T	P	Total	CIA	ESE
GEO CW1	Research Methodology	3	1	0	4	40	60
GEO CW2	Geographic Data Analytics	3	1	0	4	40	60
GEO CW3XX	Any One from the List of Elective Courses	3	1	0	4	40	60
		Total			12	300	
PART-II *							
GEO DS	Dissertation and Viva-Voce	0	0	12	12	100	
Total Credits					24		
* M.Phil							

List of Elective Courses

GEO CW301	Applied Geomorphology
GEO CW302	Applied Climatology
GEO CW303	Integrated Watershed Management
GEO CW304	Biodiversity and Conservation
GEO CW305	Environmental Impact Assessment
GEO CW306	Coastal Zone Management
GEO CW307	Disaster Risk and Vulnerability
GEO CW308	Land Evaluation and Land Use Planning
GEO CW309	Precision and Urban Agriculture
GEO CW310	Environmental Changes, Health and Wellbeing
GEO CW311	Demography and Social Wellbeing
GEO CW312	Urban Sustainability in Mega Cities
GEO CW313	Urban Planning and Smart Cities
GEO CW314	Rural and Regional Development
GEO CW315	Energy Resources
GEO CW316	Location Analytics
GEO CW317	Hyperspectral Remote Sensing
GEO CW318	Thermal Remote Sensing
GEO CW319	Microwave Remote Sensing
GEO CW320	Spatial Decision Support System
GEO CW321	WebGIS
GEO CW322	Sustainable Tourism
GEO CW323	Climate Change and Human Health



PART-I

Credits: 4

Course Code: GEO CW01

RESEARCH METHODOLOGY

Learning Outcomes

After completion of this course, the research scholar will able to

- 1. understand the scientific way of conducting geographical research and design own research plan and methods*
- 2. collect and appreciate various approaches to analyse the data*
- 3. carry out a literature review in relation to their field of specialization*
- 4. able to present the results in the form of a thesis with appropriate structure and formats*

Unit – I

Research Process: Types of Research - Scientific approach to Geography - Ethics in Geographical Research - Fundamental Research Concepts: literature review, formulating a research problem, developing research questions - identifying variables, constructing hypotheses - Information technologies in research

Unit – II

Research Design and Data Collection: Basic Principles in Research Design - Selecting a Study Design - Selecting a method of data collection - Sampling design - Conducting questionnaire surveys - Ethical issues in data collection - Health, safety and risk in the field - Working in different cultures and different languages - Data Display: tables, graphs, maps, visualizations - Reliability and validity of data

Unit – III

Data Generation and Analysis: Making observations and measurements: field and laboratory - Getting information from the past: Paleo studies - Numerical modelling in physical geography - Simulation and reduced complexity models - Satellite earth observation - Digital terrain analysis - Behavioural observations and archives - Geographical Analysis: representing, visualising and interpreting geographical data

Unit – IV

Research reporting and Thesis writing: Structure and components of scientific reports – Writing a research proposal - Mechanics of writing - Formatting research papers - Citation methods - Scientometrics - Reference Management Softwares - Plagiarism



References

1. Daniel M., Paul S. (2013) An Introduction to Scientific Research Methods in Geography and Environmental Studies, SAGE Publications Ltd.
2. Basil Gomez, John Paul J. (2010) Research Methods in Geography - A Critical Introduction, John Wiley & Sons Ltd.
3. Nicholas C., Meghan C., Thomas G, Shaun F. (2016) Key Methods in Geography, SAGE Publications Ltd.
4. Ranjit Kumar (2014) Research Methodology - A Step-by-Step Guide for Beginners, SAGE Publications Ltd.
5. Mishra R.P., (1998): Research Methodology: A Handbook (Revised and Enlarged Edition) (2016), Concept Publishing Company, New Delhi.
6. MLA Handbook (2016), Modern Language Association
7. Cook C.K. (1985) Line by Line: How to Edit Your Own Writing, Modern Language Association



Credits: 4

Course Code: GEO CW02

GEOGRAPHIC DATA ANALYTICS

Learning Outcomes

After completion of this course, the research scholar will able to

- 1. engage with the quantitative methods used to collect, analyse, present and interpret geographical data*
- 2. appreciate various spatial and statistical methods in analyzing geographical data including the application of geospatial techniques*
- 3. demonstrate advanced spatial statistical methods, techniques and software packages*

Unit –I

Geographic Data Analytics: Use and Abuse of Statistics - Principles of Statistics - Statistical Methods for Geography - Descriptive Statistics - Probability: Discrete and Continuous Probability Distributions - Probability Models - Inferential Statistics: Confidence Intervals, Hypothesis Testing and Sampling

Unit –II

Advanced Techniques: Analysis of Variance - Correlation - Regression Analysis - Spatial Patterns - Data Reduction: Factor Analysis and Cluster Analysis - Spatial Autocorrelation - An Introduction to R

Unit –III

Spatial Analysis: Gravity and Potential Models - Network Analysis - Location-Allocation Models - Trend Surface Analysis - Spatio-Temporal Analysis - Geodemographic Analysis - Spatial Interaction Models

Unit – IV

Geocomputation: Remote Sensing, GIS and GNSS in Geography Research: Mapping, Spatial Analysis and Modeling, Change Detection Analysis - GIS Overlay: Weighted Overlay Functions - Multi-Criteria Evaluation: AHP, Satty Scale, Fuzzy AHP - Spatial Decision Support System



References

1. Rogerson, P.A. (2014) *Statistical Methods for Geography - A Student's Guide*, SAGE Publications Ltd
2. Harris R. (2016) *Quantitative Geography - The Basics*, SAGE Publications Ltd
3. Jacek Malczewski (1999) *GIS and Multicriteria Decision analysis*, John Wiley & Sons, Inc, New York.
4. Ningchuan Xiao (2015) *GIS Algorithms*, SAGE Publications Ltd
5. Chris B., Alex S. (2015) *Geocomputation - A Practical Primer*, SAGE Publications Ltd
6. Minshull, R. (1975) *Introduction to Models in Geography*, Longman.
7. Najma Khan, (1998): *Quantitative Methods in Geographical Research*, Concept Publishing Company, New Delhi.
8. David W. Allen, (2011). *GIS Tutorial 2: Spatial Analysis Workbook for ArcGIS10*, ESRI Press, Red Lands, USA.
9. Andy Mitchell, (1999). *GIS Analysis - Volume 1: Geographic Patterns and Relationships*, ESRI Press, Red Lands, USA.
10. Andy Mitchell, (2009). *GIS Analysis - Volume 2: Spatial Measurements and Statistics*, ESRI Press, Red Lands, USA.
11. Abler, R., Adams, J. S., and Gould, P., (1971). *Spatial organization: The geographer's view of the World*, Englewood Cliffs, N.J., Prentice-Hall. Englewood Cliffs.
12. Tsung Chang Kang, (2002). *Introduction to Geographic Information Systems*, Tata McGraw-Hill Publishing Company Limited, New Delhi.



Credits: 4

Course Code: GEO CW03

ELECTIVE COURSE

Research scholar needs to select any one elective course from the pool of elective courses offered by the Department in consultation with the supervisor. Based on the field of interest of the candidate and recent research trends in the field, concerned research supervisor will prepare a syllabus before the commencement of the course.

After completion of this elective course, the research scholar will able to demonstrates a sound understanding of the field of study and the appropriate research methods



Part-II

DISSERTATION AND VIVA-VOCE

After completion of approved course work, scholars will work independently on specialized problems related to the research interests of the respective supervisor. They will also need to prepare and submit a thesis within in the stipulated time period which will be evaluated by the supervisor and external examiner(s) and need to defend the thesis in a public viva-voce. A successful thesis should represent the result of the candidate's research which should be an original contribution to knowledge and worthy of publication.

Please refer to the UGC/University guidelines for details of the regulations for M.Phil. / Ph.D. Dissertation.