PHILOSOPHY:

The Department offers postgraduate courses leading to the award of Postgraduate Diploma in Environmental Management (PGD), Master of Science (M.Sc.) and Doctor of Philosophy (Ph.D.) degrees in Geography. The philosophy and mission statement underlying the postgraduate programme in Geography is to produce graduates imbued with the ability to contribute to national, regional and global environment and development issues through their understanding of the spatial phenomena and processes that produced them. This is achieved by equipping the students with a broad foundation and specialized knowledge in all areas of Geography.

OBJECTIVES:

The objectives of the PGD Programme are as follows:

1. To inculcate in the students basic training in environmental science, with particular reference to the recognition, retrieval and analysis of environmentally significant data.

2. To provide graduates with professional preparation for work and further studies in the broad field of Geography and other associated applied professions.
The objectives of the M. Sc. Programme are as follows:

1. To provide students with a solid theoretical knowledge in their chosen branches of Geography through the delivery of a well-coordinated and balanced degree programme, integrating core Geography courses with practical applications.
2. To develop in the students scientific skills in oral, written and graphical communication.
3. To provide students with sufficient materials to explore the subject, to carry out self-organized study, and to think about issues and challenges of acquiring, analyzing and interpreting data.
4. To provide students with a short basis to engage more quickly and effectively with the economics and management expert of earth’s references resources.

The objectives of the Ph.D. Programme are as follows:

1. Produce globally competitive graduates equipped to pursue careers in geography as academics, in industry, the public sector and non-government organizations.
2. Foster the acquisition and implementation of broad-based research and analytical skills related to the geographical sources.
3. Develop new areas of teaching through research in response to the advancement in scholarship and the needs of the community including vocational training.
4. Inculcate the attitude and develop the ability of postgraduate students to disseminate their research findings through publications, conferences and workshops.
SCOPE:

The PGD programme is designed to update candidates’ practical knowledge to be able to meet the challenges posed by the changing environment. The training aims at improving on the efficiency as well as inspiring the candidates to pursue further studies in Geography and other related disciplines. Thus, in addition to professional training in Environmental Management, the programme also provides broad preparation for the candidates to pursue Master’s and Doctorate degrees in the Geography and the Environmental Sciences.

The scope of the M. Sc. and Ph.D. degree programmes provides opportunities for specialization in all areas of Geography, particularly the following: Agricultural Geography, Biogeography, Cartography, Climatology/Physical Oceanography, Environmental Management, Geographic Information Systems, Geomorphology, Hydrology and Water Resources, Industrial Geography, Political Geography, Population Geography, Remote Sensing, Rural Geography, Transportation Geography and Urban Geography.

ADMISSION REQUIREMENTS:

a. PGD Programme

In addition to satisfying the conditions for admission into the University of Nigeria, candidates applying for the PGD in Environmental Management should hold Bachelors degree or Higher National Diploma (HND) passed at Upper Credit Level in Geography or related disciplines.
b. **M.Sc. Programme**

In addition to satisfying the conditions for admission into the University of Nigeria, candidates applying for the M. Sc degree in Geography should hold Bachelors degree with a minimum CGPA of 3.0 in Geography, Education/Geography or related disciplines in the Social, Physical, Biological, Agricultural and Environmental Sciences or Engineering etc.

c. **Ph.D Programme**

In addition to satisfying the conditions for admission into the University of Nigeria, candidates applying for the Ph. D degree in Geography should hold Master’s degree with a minimum CGPA of at least 4.0 on a scale of 5.0 in a relevant area of Geography or the related disciplines.

**DURATION OF PROGRAMMES**

**PGD**

Maximum and minimum duration of Postgraduate Diploma programme shall be:

Full-Time: A minimum of 2 Semesters  
A maximum of 4 Semesters

**M.Sc.**

Full-Time: A minimum of 3 Semesters  
A maximum of 5 Semesters

Part-Time: A minimum of 5 Semesters  
A maximum of 8 Semesters
PhD

The minimum duration of programme (or the minimum residential requirement) and maximum duration of the Ph.D. programme shall be:

(a) Duration of Master’s/Ph.D programme.
   Full-time: 3 Calendar Years minimum; 5 Calendar years maximum.
   Part-Time: 4 Calendar years minimum; 6 Calendar years maximum.
(b) Duration of Ph.D programme (After Master’s Degree)
   Full-Time: 3 Calendar years minimum; 5 Calendar years maximum.
   Part-Time: 4 Calendar years minimum; 6 Calendar years maximum.

REQUIREMENTS FOR GRADUATION

PGD Programme

To be awarded the PGD, a student must have taken and passed the prescribed number of required courses (30 units) from the approved list of courses for the programme as follows:

- Core courses: 26 units
- Long Essay: 4 units
- Total: 30 units

In all cases, PGD students must write, submit to the Department and pass a Long Essay duly supervised by an approved lecturer in the Department. Such Long Essay must be sent to an external examiner nominated by the Department and appointed by Senate for that purpose.

M.Sc. Programme
To be awarded the M.Sc. degree, a student must have taken and passed a total of 33 units from the prescribed number of compulsory and required courses selected from the approved list as follows:

<table>
<thead>
<tr>
<th>Core courses</th>
<th>26 units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissertation</td>
<td>6 units</td>
</tr>
<tr>
<td>Total</td>
<td>32 units</td>
</tr>
</tbody>
</table>

In all cases, M.Sc. students must write and submit to the Department and pass a dissertation duly supervised by an approved lecturer in the Department. Such a project must be sent to an external examiner nominated by the Department and appointed by Senate for that purpose.

**Ph.D. Programme**

To graduate, all the Ph.D. candidates must take and pass all the requisite courses, a total of 30 units, as prescribed in the Ph.D course list below:

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>18 units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis</td>
<td>12 units</td>
</tr>
<tr>
<td>Total</td>
<td>30 units</td>
</tr>
</tbody>
</table>

Every Ph.D. candidate must submit and pass a thesis on a chosen and approved topic, supervised by an approved Ph.D supervisor in the Department in line with the regulations of the School of Postgraduate Studies. The Ph.D. thesis must be defended before an external examiner duly nominated for that purpose and appointed by Senate.
EMPLOYMENT OPPORTUNITIES

Successful graduates in Geography are equipped for careers in research institutions, tertiary institutions, government parastatals, corporate agencies, military and paramilitary outfits, multinational corporations, development agencies, non-governmental organizations and other public or private companies for works related to the environment such as mapping, public health, geographic information systems, urban planning, rural development and environmental education and in other areas of man-environment interactions.

AREAS OF SPECIALIZATION (M.SC AND PH.D)

i. Agricultural Geography

ii. Biogeography

iii. Cartography

iv. Climatology/Physical Oceanography

v. Environmental Management

vi. Geographic Information Systems

vii. Geomorphology

viii. Hydrology and Water Resources

ix. Industrial Geography

x. Political Geography

xi. Population Geography

xii. Remote Sensing

xiii. Rural Geography

xiv. Transportation Geography and
STRESS AREAS

The PGD programme is solely in Environmental Management while the following stress areas are covered in both the M.Sc. and Ph.D. programmes:

<table>
<thead>
<tr>
<th>Area</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>General/Methodology Courses</td>
<td>0</td>
</tr>
<tr>
<td>Geomorphology</td>
<td>1</td>
</tr>
<tr>
<td>Climatology and Physical Oceanography</td>
<td>2</td>
</tr>
<tr>
<td>Hydrology and Water Resources/Biogeography</td>
<td>3</td>
</tr>
<tr>
<td>Cartography/Remote Sensing</td>
<td>4</td>
</tr>
<tr>
<td>GIS/Environmental Management</td>
<td>5</td>
</tr>
<tr>
<td>Rural/Agricultural/Urban Geography</td>
<td>6</td>
</tr>
<tr>
<td>Industrial/Transport Geography</td>
<td>7</td>
</tr>
<tr>
<td>Population/Political Geography</td>
<td>8</td>
</tr>
<tr>
<td>Projects</td>
<td>9</td>
</tr>
</tbody>
</table>

LIST OF APPROVED SUPERVISORS

In line with the regulations of the University’s School of Postgraduate Studies (SPGS) on the minimum requirements for postgraduate supervision, the table below shows the list of approved postgraduate supervisors in the Department and their major areas of specialization. The nominal specializations notwithstanding, the academic staff have researched and published extensively and demonstrate strong competences in the stress areas the Department offers.
# LIST OF APPROVED POSTGRADUATE SUPERVISORS

<table>
<thead>
<tr>
<th>S/N</th>
<th>Names</th>
<th>Qualifications</th>
<th>Rank</th>
<th>Field of specialization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Prof. P. O. Phil-Eze</td>
<td>B.Sc, M.Sc, Ph.D,</td>
<td>Professor</td>
<td>Biogeography &amp; Environmental Management</td>
</tr>
<tr>
<td>2.</td>
<td>Prof. I. A. Madu</td>
<td>B.Sc, M.Sc, PGDE, Ph.D</td>
<td>Professor</td>
<td>Rural Geography</td>
</tr>
<tr>
<td>3.</td>
<td>Dr. M. C. Obeta</td>
<td>B.Sc, M.Sc, Ph.D</td>
<td>Senior Lecturer</td>
<td>Hydrology &amp; Water Resources</td>
</tr>
<tr>
<td>4.</td>
<td>Dr. T. C. Nzeadibe</td>
<td>B.Sc, M.Sc, Ph.D</td>
<td>Snr. Lecturer</td>
<td>Environmental Management</td>
</tr>
<tr>
<td>5.</td>
<td>Dr. H.C. Nnamchi</td>
<td>B.Sc, M.Sc, Sc.D</td>
<td>Snr. Lecturer</td>
<td>Climatology &amp; Physical Oceanography</td>
</tr>
<tr>
<td>6.</td>
<td>Dr. C.K. Ajaero</td>
<td>B.Sc, M.Sc, Ph.D</td>
<td>Snr. Lecturer</td>
<td>Population Geography</td>
</tr>
</tbody>
</table>

# PROGRAMME STRUCTURE

**PGD Programme**

**Course No.** | Title                                | Units |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DEM 0511</td>
<td>Introduction to Environmental Systems</td>
<td>3</td>
</tr>
<tr>
<td>DEM 0521</td>
<td>Environment, Energy and Development</td>
<td>3</td>
</tr>
<tr>
<td>DEM 0531</td>
<td>Environmental Hazards and Disasters</td>
<td>3</td>
</tr>
<tr>
<td>DEM 0541</td>
<td>Environmental Surveying and Mapping</td>
<td>3</td>
</tr>
<tr>
<td>DEM 0561</td>
<td>Basics of Environmental Change</td>
<td>3</td>
</tr>
<tr>
<td>DEM 0571</td>
<td>Pollution and Pollutants</td>
<td>3</td>
</tr>
<tr>
<td>CED 341</td>
<td>Introduction to Entrepreneurship</td>
<td>2</td>
</tr>
</tbody>
</table>

**First Semester**
<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEM 0501</td>
<td>Research Methodology and Seminar</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Formulation of research problem. Scientific hypothesis.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Literature sources and survey.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Qualitative and quantitative research methods.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Project structure and presentation. Research proposal seminar.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written presentation by individual students and discussion of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PGD research proposal</td>
<td></td>
</tr>
<tr>
<td>DEM 0511</td>
<td>Introduction to Environmental Systems</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>The Biosphere, Ecological Concepts: Energy source, consumers,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>producers, biotopes, biocenosis, biodiversity. The Physical</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Environment: habitat, cycle, niche, entropy, global change.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Human Environment: settlements, cities, mining,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>agricultural activities, Industries.</td>
<td></td>
</tr>
<tr>
<td>DEM 0521</td>
<td>Environment, Energy and Development</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEM 0532</td>
</tr>
<tr>
<td>DEM 0542</td>
</tr>
<tr>
<td>DEM 0552</td>
</tr>
<tr>
<td>DEM 0554</td>
</tr>
<tr>
<td>CED 342</td>
</tr>
<tr>
<td>DEM 0592</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

**DEM 0531  Environmental Hazards and Disasters**  

**DEM 0532  Environmental Degradation and Restoration**  

**DEM 0541  Environmental Surveying and Mapping**  

**DEM 0542  Air Photographs & Satellite Remote Sensing**  

**DEM 0552  Environmental Impact Assessment**  
Environmental quality. Basic and theoretical concepts in environmental management. Legal and administrative frameworks in environmental management in Nigeria. Development of EIA in the
developed and developing world. The EIA process from inception to final permit. Techniques of 
Impact Assessment. Baseline data acquisition and analysis. Methods of impact assessment: 
Qualitative networks, Graphic overlay method, checklist approach, matrix method, etc.
Stakeholder involvement in EIA Process. Fieldwork practical in impact evaluation and 
management plan.

**DEM 0554 Environmental Problems in Nigeria**

Nature of the Nigerian environment. Problems of water, land, noise and air quality. The oil 
industry and the environment. Urban waste management. Nigerian environmental laws and 
policies. Measures for environmental awareness and education

**DEM 0561 Basics of Environmental Change**

Reproductive capacity, birth control: population size. The effects of growing population on 
environment: Climate change, environmental degradation etc. Mitigation of effects of growing 
population on environment. Global changes.

**DEM 0571 Pollution and Pollutants**

Conceptual issues: Environment, pollution, pollutants and ecology. Air, water and noise 
pollution. Oil spillages and their effects. Toxic wastes. Sources and causes of pollution. Basic 
chemistry of major pollutants. Environmental effects. Natural hazards and their effects on public 
health.

**DEM 0592 PROJECT**

A project report embodying results of field investigation in any of the aspects of the programme.

**CED 341 Introduction To Entrepreneurship**

2

CED 342  Business Development & Management  2


M.Sc. Programme

A. Core Courses

All candidates MUST register for the courses listed below:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Titles</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>PGC 601</td>
<td>Research Methodologies and Application of ICT in Research</td>
<td>3</td>
</tr>
<tr>
<td>GEO 501</td>
<td>Perspectives on Geographic Theory and Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>GEO 503</td>
<td>Computer and Statistical Applications in Geography</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Second Semester</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 592</td>
<td>Master’s Research Seminar</td>
<td>3</td>
</tr>
<tr>
<td>GEO 599</td>
<td>Master’s Project</td>
<td>6</td>
</tr>
<tr>
<td>CED 342</td>
<td>Business Development &amp; Management</td>
<td>2</td>
</tr>
</tbody>
</table>
At least 12 units from the candidate's specialization 12

Total 32

B. M.Sc. SPECIALIZATION

Candidates should register the courses under their areas of specialization as listed below:

M.Sc. GEOMORPHOLOGY

First Semester

GEO 511 Advanced Theories, methods and application in Geomorphology 3

Second Semester

GEO 512 Quantitative Geomorphology 3

3 units to be chosen each from First and Second semesters from the following courses

First Semester

GEO 513 Tropical Geomorphology 3
GEO 515 Fieldwork and laboratory Analysis in Geomorphology 3
GEO 517 Fluvial Geomorphology 3
GEO 519 Applied Geomorphology 3

Second Semester

GEO 514 Climate change and Geomorphological System 3
GEO 516 Soil Erosion and Conservation 3
GEO 518 Land Resource Evaluation and Management 3
GEO 510 Geomorphological Mapping 3

M.Sc. CLIMATOLOGY AND PHYSICAL OCEANOGRAPHY

First Semester
GEO 521  Weather and Climate Dynamics  3
GEO 523  Physical and Applied Climatology  3

Second Semester
GEO 526  Physical Oceanography  3
GEO 522  Numerical Modelling of the Ocean and Atmosphere  3

M.Sc. HYDROLOGY AND WATER RESOURCES

First Semester
GEO 531  Hydrological processes  3
GEO 533  Hydrology of Drainage Basins  3

Second Semester
GEO 532  Water Resources Management  3

3 units to be chosen from the list below
GEO 534  Applied Hydrology  3
GEO 535  Public Water Supplies  3
GEO 536  Water Pollution Studies  3

M. Sc. BIOGEOGRAPHY

First Semester
GEO 537  Tropical Vegetation and Mapping  4
GEO 539  Biogeography of Soils  4

Second Semester
GEO 538  Tropical Ecosystems  4

M.Sc. CARTOGRAPHY
First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 541</td>
<td>History of Cartography</td>
<td>3</td>
</tr>
<tr>
<td>GEO 543</td>
<td>Theoretical Foundations and Cartographic Research Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

(Electives: 3 units from Remote Sensing/GIS)

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 542</td>
<td>Worldwide Geographic System (WGS)</td>
<td>3</td>
</tr>
<tr>
<td>GEO 544</td>
<td>Automated Cartography and Digital Applications</td>
<td>3</td>
</tr>
</tbody>
</table>

M.Sc. REMOTE SENSING

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 545</td>
<td>Remote Sensing Studies</td>
<td>3</td>
</tr>
<tr>
<td>GEO 547</td>
<td>Image Analysis and Processing</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 546</td>
<td>Remote Sensing Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

(Electives: 3 units from Cartography/GIS)

M.Sc. GEOGRAPHIC INFORMATION SYSTEMS

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 551</td>
<td>Elements of Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GEO 553</td>
<td>Trends and Applications of GIS</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 552</td>
<td>Management Issues and GIS Functionalities</td>
<td>3</td>
</tr>
<tr>
<td>GEO 554</td>
<td>Spatial Data Structure</td>
<td>3</td>
</tr>
</tbody>
</table>
### M. Sc. ENVIRONMENTAL MANAGEMENT

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 555</td>
<td>Theoretical and Ethical bases of Environmental Management</td>
<td>3</td>
</tr>
<tr>
<td>GEO 557</td>
<td>Environmental Pollution, Control and Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 556</td>
<td>Environmental Management and Impact Assessment</td>
<td>3</td>
</tr>
</tbody>
</table>

3 units to be chosen from the list below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 558</td>
<td>Environmental Politics and Socioecological Problems in Nigeria</td>
<td>3</td>
</tr>
<tr>
<td>GEO 538</td>
<td>Tropical Ecosystems</td>
<td>4</td>
</tr>
<tr>
<td>GEO 516</td>
<td>Soil Erosion and Conservation</td>
<td>3</td>
</tr>
<tr>
<td>GEO 536</td>
<td>Water Pollution Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

### M. Sc. RURAL GEOGRAPHY

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 561</td>
<td>Rural Development and Planning Problems</td>
<td>4</td>
</tr>
</tbody>
</table>

4 Units to be chosen from the list below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 581</td>
<td>Population Geography: Theory and Process</td>
<td>4</td>
</tr>
<tr>
<td>GEO 563</td>
<td>Agricultural Geography: Theory and Processes</td>
<td>4</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 562</td>
<td>Rural-Urban Interaction</td>
<td>4</td>
</tr>
</tbody>
</table>
M. Sc. AGRICULTURAL GEOGRAPHY

First Semester
GEO 563 Agricultural Geography: Theory and Processes 4

Second Semester
GEO 564 Models and Analytical Techniques in Agricultural Geography 4
4 units from the list below:
GEO 516 Soil Erosion and Conservation (2nd semester) 3
GEO 561 Rural Development and Planning (1st semester) 4

M. Sc. URBAN GEOGRAPHY

First Semester
GEO 565 Urban Geography: Theory and Process 4

Second Semester
GEO 566 Urban Analytical Techniques and Urban Modelling 4
4 Units to be chosen from the list below:
GEO 568 The Process of Urban and Regional planning 4
GEO 562 Rural-Urban Interaction (2nd semester) 4
GEO 573 Transport and Transit Systems (1st semester) 4

M. Sc. INDUSTRIAL GEOGRAPHY

First Semester
GEO 571 Industrial Geography: Theory and Process 3
GEO 573  Transport and Transit Systems  3

Second Semester

GEO 572  Industrial Location: Policies and Development  3
GEO 574  Models and Analytical Techniques in Industrial Geography  3

M. Sc. TRANSPORTATION GEOGRAPHY

First Semester

GEO 573  Transport and Transit Systems  3
GEO 575  Transport Management  3

Second Semester

GEO 576  Quantitative Methods in Transportation Geography  3

3 Units to be chosen from the list below:

GEO 577  Urban Transport  3
GEO 578  Rural Transport  3
GEO 579  Transport and Tourism  3

M. Sc. POPULATION GEOGRAPHY

First Semester

GEO 581  Population Geography: Theory and Process  4

Second Semester

GEO 582  Analytical Techniques and Models in Population Geography  4

4 Units to be chosen from the list below:
M. Sc. POLITICAL GEOGRAPHY

First Semester

GEO 583 Theories and Issues in Political Geography 4

Second Semester

GEO 584 Models and Analytical Methods in Political Geography 4

4 Units to be chosen from the list below:

GEO 561 Rural Development and Planning Problems 4
GEO 558 Environmental Politics and Socioecological Problems in Nigeria 3
GEO 568 The Process of Urban And Regional Planning 4

Course No. Course Description Units

A. General Courses

PGC 601 Research Methodologies and Application of ICT in Research 3

disciplines and or hypothesis. Identification of research problems and development of research questions and or hypotheses. Detailed treatment of methods of collecting relevant research data and the format for presenting research results (from designing the table of content to referencing. Bibliography and appendix). Data analysis and result presentation in different disciplines using appropriate analytical tools methods of project/dissertation writing. Application of appropriate advanced ICT tools relevant in every discipline for data gathering analysis and result presentation. Essentials of spreadsheets. Internet technology and internet search engines. All registered masters Degree students must attend a solution-based interactive workshop to be organised by the school of Postgraduate studies for a practical demonstration and application of the knowledge acquired from the course conducted by selected experts.

GEO 501 Perspectives on Geographic Theory and Research Methods 3


GEO 503 Computer and Statistical Applications in Geography 3

The quantitative and computer revolutions in Geography. The Fortran and other programming languages. The R programming language. Laboratory in Fortran. Laboratory in R. Introduction

GEO 592  Master’s Research Seminar  3
Written Presentation by individual students and discussion of the results of Master’s research.

GEO 599  MASTER’S PROJECT  6
Project report embodying results of first-hand field and/or cartographic, computer or quantitative investigation in the candidate’s area of specialization.

CED 342  Business Development & Management  2

B. Specialized Courses

M. Sc. GEOMORPHOLOGY

GEO 510  Geomorphological Mapping  3
Geomorphology from Davis and after. Strahler and the departure from Davis. History of geomorphological mapping: Polish, French, British, Dutch, Russian, American, Australian and Nigerian schools. Contents and features of geomorphological maps from various schools. Scales factor in geomorphological mapping and its influence on accuracy, details and expenses. The
role of the I.G.U. Commission on geomorphological survey and mapping: symbols on the
geomorphology maps. Types of geomorphological maps. Use of geomorphological maps for
development purposes. The production of geomorphological map of given area. Manual and GIS
–based approaches of producing geomorphological maps fieldwork and image analysis.

GEO 511  Advanced Theories , Methods and Application in Geomorphology  3
Meaning, nature and scope of Geomorphology from the various schools of Geomorphology.
Development of Geomorphology- Ancient, Medieval, Arabian Contributions. Geomorphology in
the Renaissance and Classical Periods: German, British, Italian, French, Swiss and American
contributions. Development of Geomorphology in modern and contemporary period; Powell,
Dutton, Gilbert, Penck, Thorbecke, Bornhardt, Budel, Crickmay, Wayland and Willis, Peltier,
King, Horton, Strahler, Schumm, Sceiddeger, Hack etc. Nature of Geomorphological problems
and research (landform, landscape and space). Problems and methods- case studies . Applications
of Geomorphological methods and techniques to geomorphological problems in other
disciplines.

GEO 512  Quantitative Geomorphology  3
Meaning, nature and scope of quantitative geomorphology. Qualitative and quantitative
geomorphology. Quantitative geomorphology in relation to Dynamic Geomorphology and the
systems approach in geomorphology. The geomorphological problem: scales of measurement,
the geomorphological data, descriptive and inferential statistics.Computer-aided analysis,
algorithms and GIS. Sampling for geomorphologic analysis. General and specific
geomorphometry: meaning, nature, and scope. Reasons and basis of terrain sampling. Indices of
the land surface. Geomorphometry of drainage basins drainage density. Analysis of the character
of surfaces.
GEO 513   Tropical Geomorphology  


GEO 514   Climate Change and Geomorphological System  

The Earth’s physical system: atmosphere, lithosphere, hydrosphere, fauna and man. The interrelationships between the systems. Importance of climate to living organisms. Climate as outcome of the state of the atmospheric system. Open and closed systems. Malankovich theory of climate change from the Mesozoic to date. Evidence of associated change sof the geomorphological systems to the climate changes on earth. Lateritic crust and climate change in the tropics. Present climate change and its implications for the natural resources of the tropical lands. Climate change prediction, mapping, response and management. Natural hazards. Geomorphological inputs in predicting and managing natural hazards and disasters.

GEO 515   Fieldwork And Laboratory Analysis In Geomorphology  

The nature of the geomorphological problem. The paths to scientific investigations with emphasis between the problem, the model, the hypothesis, fieldwork, experimentation, findings and conclusion. Fieldwork: qualitative and quantitative- nature and characteristics of sampling,

**GEO 516 Soil Erosion and Conservation**  
3


**GEO 517 Fluvial Geomorphology**  
3

The drainage basin as the theatre of fluvial action. Drainage basins as distinctive regions-Bauche, Chorley and after Chorley to present times. Precipitation in the drainage basin. The

**GEO 518  Land Resources Evaluation And Management  3**


**GEO 519  Applied Geomorphology  3**

The concept of Applied Geomorphology as geomorphology in the service of human society. Computer applications in geomorphology. Map analysis, GIS, Aerial photo analysis, topographic analysis and attributes mapping. Man and landscape- global examples. EIA, National Policy on

**M.Sc CLIMATOLOGY AND PHYSICAL OCEANOGRAPHY**

**GEO 521 Weather and Climate Dynamics**


**GEO 522 Numerical Modelling of the Ocean And Atmosphere**


**GEO 523 Physical and Applied Climatology**

GEO 526  Physical Oceanography  3


M.Sc HYDROLOGY/WATER RESOURCES

GEO 531  Hydrological Processes  3
The hydrological Cycle, its components and relevance to key environmental and societal issues. Collection and measurement of hydrological data, Surface runoff. Hydrograph analysis, Hydrological mappings. Application of GIS in watershed studies

**GEO 532 Water Resources Management.**

3


**GEO 533 Hydrology of the Drainage Basin.**

3


**GEO 534 Applied Hydrology**

3

Meaning of applied hydrology, flood hazards. Types of flood hazards, adjustment to flood hazards. Water transport, water treatment, waste water management. Effects of land use and climate on water resources. Carriers in hydrology, Water resources and/or environmental management.


**GEO 536 Water Pollution Studies**

Concept of water pollution, sources of water pollution, effects of water pollution, measurement of water pollution, water pollution sampling. Water sample analysis, water pollution control, water quality monitoring. Indices for water quality monitoring, water quality modelling.

**M. Sc. BIOGEOGRAHY**

**GEO 537 Tropical Vegetation and Mapping**


**GEOG 538 Tropical Ecosystems**

Disturbed tropical ecosystems. Tropical ecosystems and climate change. Dynamics of biogeographical populations, Ecological carrying capacities and Ecosystem productivity. Models in ecology. Dynamics of biogeographical conservation in tropical ecosystems.

**GEOG 539  Biogeography of Soils  4**


**M.Sc. CARTOGRAPHY**

**GEO 541  HISTORY OF CARTOGRAPHY  3**

History of Cartography. Development of Cartography from ancient times to the present. The origin of national surveys and development of mapping in Nigeria.

**GEO 542  WORLDWIDE GEOGRAPHIC SYSTEM (WGS)  3**


**GEO 543 THEORETICAL FOUNDATIONS AND CARTOGRAPHIC RESEARCH  3**


**GEO 544  AUTOMATED CARTOGRAPHY AND DIGITAL APPLICATIONS  3**
The origin of computer cartography. Developments in the automation of mapping. Hardware and their applications; as input, processing and output devices e.g mobile GPS. Digital applications and software. Various applications of software processes. Current uses of software and their benefits. Demerits of certain software types and implications of use.

M.Sc REMOTE SENSING

GEO 545 REMOTE SENSING STUDIES 3
Basic concepts and principles of remote sensing applications. Primary concepts and primary principles are highlighted.

GEO 546 IMAGE ANALYSIS AND PROCESSING 3

GEO 547 REMOTE SENSING SYSTEMS
Various platforms carrying out remote sensing: aircraft, satellite, shuttle etc. All remote sensing systems e.g Radar, aerial photography, satellite images etc.

M.Sc GEOGRAPHIC INFORMATION SYSTEMS

GEO 551 Elements of Geographic Information Systems 3
The course is designed to examine the various definitions of GIS, origin of the field, its importance and terms of data integration, manipulation, display and accessibility to existing spatial records uniquely differentiated from other forms of environmental data handling. It discusses the historical evolution of Geographical and Land Information Systems, the disciplines involved including Remote Sensing, Geodesy, Photogrammetry, Surveying, Cartography,
Statistics, Computer Science, Mathematics and Engineering along with practical applications of the technology along with the course as a set of inter related subsystems.

**GEO 552 Management Issues and GIS Functionalities**  
3  
The course will focus on the major GIS functionalities such as the maintenance and management of spatial and non-spatial data such as spatial data input functions, data manipulation functions etc and output formatting. Basic management issues such as the implementation of GIS at various levels will be reviewed. The course will also examine issues such as needs awareness system planning, functional requirements analysis, benchmarking, system choice, pilot project cost and benefits analysis, legal issues etc. It will also look at introduction of GIS to organization, implementation strategy, and development of a national GIS policy.

**GEO 553 Trends and Applications of GIS**  
3  
A survey of evolutionary trends in GIS hardware and software packages including output, input and system peripherals. The course will look at the merits and demerits of the more packages, operating systems, coding systems, editors, processors, spread sheets, compiles and graphics standard. The future of GIS and the problems of its implementation in developing countries will also be reviewed in this course. The course will equally review GIS applications such as environmental issues of artificial projects and natural hazards, transportation, planning, process management, public administration etc.

**GEO 554 Spatial Data Structure**  
3  
Discussions are on basic concepts of space, Geographic Space; Geometric Model of spatial data, Topologic Data Structures; Raster and Vector Data Structures and algorithms.

**M. Sc. ENVIRONMENTAL MANAGEMENT**
GEO 555 Theoretical and Ethical Bases of Environmental Management 3

Ethical models in environmental management: Strong Anthropocentrism, Ecocentrism, Pathocentrism etc., Sustainability and Sustainable development: Issues, challenges and contradictions., Pillars of sustainable development- environmental, economic, social and cultural diversity . Critical analytical approaches to environmental resource and social management: Political ecology (PE), Urban political ecology (UPE) and feminist political ecology (FPE) frameworks; Environmental Justice (EJ) and Environmental Social Movements. Case studies from Nigeria and Africa.

GEO 556 Environmental Management And Impact Assessment 3


GEO 557 Environmental Pollution, Control and Management 3


GEO 558 Environmental Politics and Socioecological Problems In Nigeria 3

M.Sc RURAL GEOGRAPHY

GEO 561 Rural Development and Planning Problems 4
The rural concept; Challenge of contested discourses of rurality; Current rural conditions and opportunities in rural areas; Threats to rural areas-declining fiscal capital, demographic change, climate change, etc; Climate change and food security; Innovation in the Context of Rural Areas; Modernizing the Rural Economy- Strengthening Rural Markets, Balancing Diversification and Specialization and skill building in rural areas; Concepts and Issues in rural development; Rural development objectives and policies; Models and strategies of rural development; Optimization of rural land use and sustainable development; Empirical studies and appraisal of specific schemes of rural development in Nigeria and other countries; Principles and components of rural development plan; Rural development planning problems with particular reference to developing countries.

GEO 562 Rural-Urban Interaction 4
The rural and urban concepts; Characteristics of rural population; Rural central places; Rural – Urban links; Basis and processes of interaction; Sectoral interactions; Flows of people, goods, services and wastes; Measurement of interactions and spheres of influence of rural markets and urban areas; Influence of changing rural-urban interactions on rural livelihoods; The role of urban centres in the development of their surrounding rural region; Urban based associations and rural transformation; Transformations in peri-urban areas, case study on rural urban interaction; Urban- rural imbalances and disparities; Rural-urban migration and its implication on rural development; The need for spatial planning.

M. Sc. AGRICULTURAL GEOGRAPHY

GEO 563 Agricultural Geography: Theory and Processes  4

Scope and methodology of agricultural geography; Its position in geography and related fields; Theoretical basis of agriculture-demand and supply factors for agricultural production; systems of exploitation, regional analysis, and a survey of the world's major agricultural activities. Classification of agricultural regions; The nature of tropical agriculture; Agricultural geography of the humid and semi-arid tropics; Climate change and Agricultural production; Agriculture and economic development – role of government policy; reforms and agricultural reforms; problems and prospects for agricultural modernization.

GEO 564 Models and Analytical Techniques in Agricultural Geography  4

Social and economic concepts in agricultural geography; Agricultural decision-making in theory and practice as applied to small-scale farming and agrarian sector in developing countries; Geography of the agriculture in terms of the modern style and advanced trends in agriculture; Greenhouses agriculture and urban agriculture; Contribution of agriculture to the development
process and the role of this development in the growth of agriculture; Location analysis and processes of interaction of agricultural space; Methods of data collection, sampling techniques, and analysis with relevance to specific research topics. Theories, models and problems of explanation in agricultural geography; The role of perception and folk ecology in the analysis and interpretation of traditional Nigerian land use systems; Application of GIS to Agricultural production.

M.Sc. URBAN GEOGRAPHY

GEO 565 Urban Geography: Theory and Process 4


GEO 566 Urban Analytical Techniques And Urban Modeling 4


GEO 568 The Process Of Urban And Regional Planning 4
Theory and practice in urban and urban - centered regional planning.. Case studies and readings demonstrating the techniques used in various aspects of plan preparation within the framework of the planning process.. Urban policies and policy making in Nigeria; analysis of local, state and federal decision making processes as they affect public policy in urban area.. Impact of the forces of urban growth and changes on the urban political system, centralization and decentralization in the metropolis and inter-governmental relations.

M.Sc. INDUSTRIAL GEOGRAPHY

GEO 571   Industrial Geography: Theory and Process 3

GEO 572   Industrial Location: Policies And Development Planning 3
Location and industrial development. Spatial strategy of industrial development. Industrial policies, laws and institution (Nigeria, global). The impact of industrial activity across space. Case studies of development plan and implication: Europe, America, Africa and Nigeria

GEO 574   Models and Analytical Techniques in Industrial Geography 3
Approaches to industrial location analysis: Behavioral, neoclassical and structuralist. Theories and models of industrial location: least cost, profit maximization, market area, locational dependency, industrial complex, central place theory. Analytical techniques and methods of industrial geography. Statistical Analytical tools in geography with the aid of SPSS, Geographic Information System.
M.Sc. TRANSPORTATION GEOGRAPHY

GEO 573 Transport and Transit Systems 3

GEO 575 Transport Management 3

GEO 576 Quantitative Methods in Transportation Geography 3
Evaluation of the characteristics of location patterns. Analysis of patterns of spatial equilibrium. Linkage, networks, movement and hierarchies. Normative interaction models such as connectivity and accessibility models. The strategy of model design. Transport Systems Analysis (TSA) using graph-theory in Transportation Geography. Matrix notion in urban and regional

**GEO 577 Rural Transport**  
3  

**GEO 578 Urban Transport**  
3  
GEO 579  Transportation and Tourism  3
Functions of transport in tourism; tourist transport systems. Transport economics, territorial planning or tourism and transportation. Quantitative tourism analysis. Perspectives in tourism management. Service quality analysis in tourism. Tourism strategy, hospitality and tourism operating systems. Overview of transport needs for tourism in developed and developing countries.

M. Sc. POPULATION GEOGRAPHY

GEO 581  Population Geography: Theory and Process  4
Theoretical and methodological foundations of population geography; Historical and theoretical perspectives of migration studies; Spatial patterns and consequences of migration; Migration policies and development planning; Dynamics and consequences of urban growth; Rural stagnation and poverty; methodologies and relevance of Social Impact Assessment (SIA); Quality of life and socioeconomic inequalities in population; Interrelationships of socio-environmental factors and impacts on the dynamics of human population.

GEO 582 Analytical Techniques and Models in Population Geography  4
Techniques of population data generation and collection; Demographic and statistical methods of analysis of population data; Theoretical and empirical analysis of population growth, decrease, mobility and quality of life; Application of GIS in Population studies; Development of geodatabases for population studies; exploratory spatial analysis and geospatial modeling of population data; Models and analysis of social inequalities and livelihoods; Applications of population data in research and development planning.
M.Sc. POLITICAL GEOGRAPHY

GEO 583   Theories and Issues in Political Geography   4

The theory of political geography. Recent trends in political geography and international
relations. Political geography and planning processes. Africa and global geopolitical strategies.
Theories of urban governance. Urban politics. Civil society in governance and state building.
The good governance agenda. Political geography in Nigeria.

GEO 584   Models And Analytical Methods in Political Geography   4

Approaches to the study of political geography. Research problems in political geography.
Models in political geography. Methods of analysis of the political organization of space in the
micro and macro context. Analytical tools in political geography.

Ph.D. Programme

Ph.D candidates may be required to register or audit any of the M.Sc Courses on the
recommendation and approval of the Departmental Postgraduate Board. In addition all Ph.D
candidates should register for a minimum of 30 units including the underlisted courses:

<table>
<thead>
<tr>
<th>Course No.:</th>
<th>Titles</th>
<th>Units</th>
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<tbody>
<tr>
<td>GEO 601</td>
<td>Doctoral Seminar I</td>
<td>3</td>
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<tr>
<td>GEO 603</td>
<td>Doctoral Seminar II</td>
<td>3</td>
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<tr>
<td>GEO 699</td>
<td>Doctoral Thesis</td>
<td>12</td>
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<tr>
<td>PGC 701</td>
<td>Synopsis and Grant writing</td>
<td>3</td>
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<td>Course No.</td>
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<tr>
<td>GEOG 601</td>
<td>DOCTORAL SEMINAR 1</td>
<td>3</td>
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<td>Detailed written presentation of the candidates’ Ph.D topic proposal; to include introduction; the research problem, aim and objectives of the research, the study area, theoretical framework, literature review, and research methodology.</td>
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<tr>
<td>GEOG 603</td>
<td>DOCTORAL SEMINAR III</td>
<td>3</td>
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<td>A detailed written pre-thesis presentation of the results of the candidate’s Ph.D research</td>
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<td>GEOG 699</td>
<td>DOCTORAL THESIS</td>
<td>12</td>
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<td>In-depth analysis and thoroughly researched and original presentation of results of extended field, library, statistical, computer, and/or cartographic work.</td>
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<td>PGC 701</td>
<td>SYNOPSIS AND GRANT WRITING</td>
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<td>Identification of types and nature of grant and grant writing, mining of grants application calls on the internet. Determining appropriate strategy for each grant application. Study of various grant application structures and contents and writing of concept notes. Detailed project description, budgeting and budget defense. Study of sample grant writings in various forms and writing mock research and other grants. Identification of University of Nigeria synopsis structure and requirements. (Introduction, Methodology and Results). Determining the content of each sub-unit of the synopsis. Steps in writing of synopsis from the Dissertation/Thesis document. Structural and language issues common errors in synopsis writing and strategies for avoiding them. The roles of the student and the supervisor in the production of a synopsis writing of mock synopsis. All registered Ph.D students must attend a solution-based interactive workshop to be organized by the School of Postgraduate studies for a practical demonstration and application of the knowledge acquired from the course, conducted by selected experts.</td>
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