

Bachelor of Arts Geography Course Description

AGE 100	Introduction To Cartography and Map Analysis
Course content (including topics)	Introductory terminologies; frequency distribution, measures of central tendency and dispersion; measurement systems; data acquisition, processing and presentation; introduction to inferential statistics; probability theory; types of distribution; formulation and testing of simple hypotheses; sampling techniques and theory. History of cartography; use and care of drawing instruments; map compilation and design; relief, thematic and choropleth maps. Interpretation and analysis of topographic maps; map scale, map legend, map orientation; analysis of relief and drainage; Analysis of settlements and communication; land use and administration; population characteristics.
AGE 101	Development of Geographic Thought
Course content (including topics)	Nature and scope of geographic thought; selected thought processes of geographical thinkers in the ancient world, the middle ages and renaissance; the influence of Varenus, Kant, von Humboldt, Ritter, Darwin and Ratzel; environmental determinism and possibilism; new trends and development in geographic teaching and research; the role of geography in national development, with special reference to Kenya.
AGE 102	Physical Geography I
Course content (including topics)	Lithosphere: Introduction, Earth's physical environment and its interactions. The earth's major geological and topographic features caused by endogenic processes of volcanicity, faulting and folding; the theory of plate tectonics; materials of the earth's surface, igneous, sedimentary and metamorphic rocks; Materials of the earth, rock formation, classification and identification of rocks. Utilization of rock materials and management. Geological mapping. Atmosphere: Introduction: The planet earth, its position, size and composition; Earth's physical environment and its interactions. Lithosphere: Atmosphere: Weather and climate; Introduction to weather elements; Nature, composition and structure of the atmosphere; Solar energy and atmospheric circulation.
AGE 103	Spatial Organizations
Course content	Introduction to Spatial organization; Man and Environment: Environmental

(including topics)	Determinism and Human Possibilism; The Influence of Environment on Man and vice-versa. Spatial Interaction: Definition, Bases and Barriers, Individual Space Activity, Distance-Decay and Gravity Models. Spatial Diffusion: Types, and Barriers. The Concept of a Region; Migration; Types, Barriers and Patterns; Pull and Push Factors. An Urban World; The urban Concept; Origins and Evolution of Cities; Functions and Economic base. Agriculture: Origins, Theory and Analysis; Origins; Von Thunen Model of agricultural location.
AGE 200	Qualitative and Quantitative Techniques in Geography
Course content (including topics)	Hypothesis testing (normal distribution, data transformation, probability, sampling, statistical tests); data sources; topographic maps, field surveys and statistical abstracts: drainage basin analysis, network analysis (communication systems); thematic maps, map reduction and enlargement.
AGE 201	Physical Geography II
Course content (including topics)	Hydrosphere: Introduction, World's hydrological cycle water balance/budget, evaporation; condensation and precipitation; water use by vegetation; overland flow; infiltration; ground water; streamflow. Lithosphere: Introduction, Weathering, slope processes; water and mass movements, channel, wind, coastal and glacial processes and resultant land forms.
AGE 202	Human Geography
Course content (including topics)	Introduction to human geography; The concept and evolution of human geography; The nature and scope of human geography; Methodology in human geography; The branches of Human geography; Spatial Relationships: Definition of space, Spatial Interaction; Social space; The human environment; The physical environment; Distance and distance decaying effect; Spatial diffusion: Spatial process and patterns; Spatial processes; Spatial patterns. Spatial organization of human societies: Concepts, classification and evolution of human societies, Locational analysis Spatial relation and interaction; Concept of a region; Human settlements; Human migration and Major world settlement
AGE 203	Regional Geography of East Africa
Course content (including topics)	Physical realm: Introduction to East Africa, physiographic regions and geology; landscape evolution in East Africa (Plate tectonics, faulting, volcanic activity, others); East Africa's drainage and the process of drainage evolution; climate and the problem of aridity in East Africa; soils and biomes (vegetation, animal and insect life) in East Africa and East African physical

	<p>environment as a resource and constraint.</p> <p>Human Realm: Population dynamics in East Africa; agriculture and the East African economy; industry and development in East Africa; transport and its role in the economy of East Africa; trade among East African states; tourism and East Africa's economy.</p>
AGE 204	Economic Geography
Course content (including topics)	<p>The Changing nature of Economic Geography; World's population distribution. Population Migration; Inequality in space economy; Basic concepts in Economics; The concepts of scarcity and choice. Fundamentals concepts and Economic Geography; Problem of Economics and Economic Geography; Mindsets of Economic Geography. Demand and Supply relationships. Determine of market price. Trade; Home Trade; International Trade. Transport; Role of Transport in Development; Various types of transport. Theories of location: Von Thunen's theory of Agricultural land use; Relevance of Von Thunen's theory of Agricultural land use to Kenya. Location of industries; Water's theory of Industrial Location Economic Geography of energy. Theories of Development and underdevelopment</p>
AGE 205	Soil Geography
Course content (including topics)	<p>Introduction, Soil formation and properties; Soil profile characteristics; physical and chemical properties of soils; Approaches to soil classification, Soil types and classification/taxonomy; Soil distribution and local variations and nomenclature, soil catena, types of tropical soils; utilization and management practices; Problem soils; Field soil identification through profile and mapping techniques; Soil fertility and productivity assessment techniques; Field practical exercises; Application of soil survey methods to resource planning with reference to local examples</p>
AGE 206	Medical Geography
Course content (including topics)	<p>The human ecology approach to health; Epidemiological mapping and spatial analysis; Environmental health, including the environmental causes of cancer; The relationship among demographic change, economic development, and population health; The political economy of non-communicable health problems, such as lead poisoning and the "obesity epidemic"; The spatial diffusion of infectious diseases; The disease ecology approach to infectious and vector-borne diseases, e.g. malaria, West Nile virus, and Lyme disease; The challenges of "global health" in the 21st century, with special emphasis on "emerging infectious diseases," such as HIV/AIDS, SARS, and Avian influenza</p>
AGE 300	Aerial Photography and Field Course

Course content (including topics)	Elements of photographic systems: definition, scope and significance of aerial photography; history of aerial photography, acquisition of aerial photographs, types of aerial photographs, marginal information, photographic resolution; introduction to air-photo interpretation; fundamentals of air-photo interpretation, book photo interpretation, equipment and applications; photogrammetry: geometric elements of vertical photographs, image parallax measurement.
AGE 301	Physical Geography III
Course content (including topics)	Atmosphere: Climatic elements and their global distribution; climatic factors and controls; climatic classification schemes; climate change and implications. Biosphere: scope and definition; ecosystem concept; biotic and abiotic interactions; types classification and distribution of living organisms; linkages in the biosphere.
AGE 302	Regional Geography of Africa
Course content (including topics)	Physical Realm; Introduction; location and size. Physiographic regions; geology, relief and drainage. Climate, vegetation and soils. Resource exploitation and constraints. Human realm; Linguistic groups, population distribution and migration patterns, urbanisation, transport and communication, land use systems, pastoralism and agricultural systems, industrialization(Extraction and manufacturing),trade and regional integration and conflicts.
AGE 303	Geography of Development
Course content (including topics)	The nature of development and underdevelopment; Changing Concept of Development; Measuring development; theories and models of development and under development; Geographical perspectives of development; Geographic variations in development at a global, regional and local levels and contemporary issues in development. Measuring development; the concept of Development; Geographical variation of development: Development Theories: Modernization Theory; Radical Theories of Development; Beyond Macro Theories of development; Neo-Liberalism; Contemporary issues of development; Sustainable Development
AGE 304	Biogeography
Course content	Definition and scope; Ecosystem in geographic explanation; Elementary

(including topics)	plant ecology; Energy flow and use; Nutrient circulation; Primary productivity; Biotic and abiotic interactions; Ecological succession; Dominance at climax and natural vegetation; Comparative analysis of selected biomes; World vegetation and soil types; Human population and the environment; Conservation of protected resources; The concept of biodiversity and resource conservation; Human modification of ecosystems and consequences
AGE 305	Hydrology and water resources I
Course content (including topics)	Definition and scope. River basin characteristics; establishment of hydrometric network; elements of the hydrologic cycle; analysis of hydrologic data; rating curves, frequency analysis and hydrograph analysis. The hydrological concept of floods and droughts. Influence of Human Activities and Land Use Changes on Hydrologic cycle. Impact of Climate changes on hydrologic cycle. Problems in water resources planning and development.
AGE 306	Climatology
Course content (including topics)	Introductory definition; Weather, climate, meteorology and climatology; Origin of the science of climatology; Paleoclimates and past climates; Climatic elements and their measurements; Radiation, temperature, precipitation, evaporation/evapotranspiration, wind and humidity; Climatic factors; Latitude, altitude, land masses, relief features; Atmospheric processes; Atmospheric circulation, air masses and fronts; evaporation and condensation, clouds and precipitation; Weather forecasting; Preparation of synoptic maps, use of remote sensing. .
AGE 307	Geomorphology
Course content (including topics)	Principles and concepts of geomorphology; theories of landform development endogenic and exogenic processes, weathering processes; the work of surface flow: drainage overland flow, channel processes and resultant landforms; wind erosion, glacial and periglacial landforms; coastal processes: the work of waves, currents and tides, and resultant features.
AGE 308	Arid and Semi Arid Lands (ASALs)
Course content (including topics)	Location and extent of arid and semi-arid lands; causes and types of arid lands; the physical background and natural resources of arid lands; population and problems of occupancy of arid lands; humans versus aridity: early cultures and human adjustments and adaptation in arid and semi-arid environments; overview of global warming; climate as a factor in human history; greenhouse effect and radiation forces; climate projection,

	vulnerability and resilience.
AGE 309	Settlement Geography
Course content (including topics)	Patterns of African rural settlement – indigenous, colonial and post-colonial; models of urban evolution focusing on the interplay between indigenous, pre-colonial and colonial industrial settlements; network stages of growth settlement: diffusion theories and settlement patterns; analysis of settlement distribution; the rank-size rule and central place theory; settlement interaction theories and methods of delimiting the sphere of influence of settlements, the role of small and intermediate settlements in the spatial planning process.
AGE 310:	Agricultural Geography
Course content (including topics)	Introduction, nature and scope of agricultural geography; land use/cover definition and classification; determinants of agricultural land use; the nature and characteristics of agricultural regions: agro-climatic, agro-ecological and crop combination regions; agricultural systems of the world: Whittlesey's classification; agricultural land use model of Von Thuenen, modification and relevance; traditional systems of agricultural land use and food crisis; modern and sustainable agricultural systems.
AGE 311	Population Geography
Course content (including topics)	Introduction to population geography- data, spatial measures and mapping, population characteristics (Age, sex, nuptiality, households, urban-rural patterns, socio-economic etc): Components of population change; Population distribution- world population growth and distribution; Theories to understand how varying rates of population growth and the overall demographic conditions of particular places are inextricably linked to dissimilar levels of economic, social, and technological development within each region; Basic quantitative and qualitative tools used for studying changes in population size and composition; Case studies of particular demographic situations to show how population geography shapes the world around us
AGE 312	Historical Geography
Course content (including topics)	The conceptual basis of historical geography; source material and methodology for historical geographers; an overview of the biological social evolution of man; the historical geography of Africa, cultural health's, the Neolithic and urban revolutions; trade and manufacturing; the people of Africa, the spatial impact of Colonial cultures: Greek, Roman, Islamic and European; case studies from the historical geography of East Africa.

AGE 313	Geography of Tourism
Course content (including topics)	The concepts of tourism and leisure; tourism components and stakeholders in tourism industry; geography in travel planning: travel itineraries, travel formalities; essentials of successful destinations (5A's and business requirements and commercial skills); desirable characteristics, attributes and skills of travel agent; tourism impacts (ecological, economic and social); tourism growth and sustainability; ecotourism: definition, elements, significance.
AGE 314	Rural Development
Course content (including topics)	Nature, scope and methodology of Rural Geography; Basis and rationale of rural development; Overview of rural problems; Rural population dynamics; Social structure and organisation of rural communities, livelihoods and rural poverty; Agricultural development and the role of rural areas in national development, Challenges affecting rural development
AGE 315	Geography of Poverty
Course content (including topics)	The concept of poverty (a notion/phenomenon); indicators of poverty; causes and theories of poverty; spatial inequalities and poverty; rural-urban poverty, measurement and institutional structures and poverty alleviation; case studies on poverty from selected developed and developing countries.
AGE 316	Oceanography I
Course content (including topics)	Definition and scope; history of oceanography; ocean and morphology; physical properties of ocean water; salinity; marine sediments; atmosphere-sea interactions and El Niño Southern Oscillation, ENSO episodes; sea waves and shoreline processes; tsunamis. Surface ocean currents; water masses; deep currents; tides: concepts and characteristic features, coral reefs, ocean habitats. marine biomes; sea organisms; marine ecology; marine resources; contemporary issues of marine ecosystems.
AGE 317	Geographical Information System (GIS)
Course content (including topics)	Introduction to GIS; history, components and functions. GIS principles; data capture, gathering and management; data types and formats; Geo-referencing; spatial reference and projection; topology; GIS overlay analysis; database structure; spatial analysis; spatial interpolation techniques.
AGE 400	Remote Sensing and Resource Management
Course content (including topics)	Introduction to Remote Sensing and Satellite Technology; Definition and types of remote sensing; Satellite platforms and ground receiving stations;

	Significance in resource management; Sensors and Resolution; Electromagnetic Spectrum and its interactions; Satellite image processing, analysis and interpretation; Satellite imagery and factors for detection and identification of resource condition; Image processing and classifications; Image characteristics. Remote Sensing data sources and applications: Data for various regions; Applications. Integration of Geo-Spatial technologies in Resource Management; Geographic Information System overlays of thematic maps; Modelling
AGE 401	Environmental Conservation
Course content (including topics)	Nature and scope; introduction to the conceptual issues and definitions: ecosystem, ecology, biomes, biodiversity, species, etc; human interactions and impact on the environment; population growth and environmental conservation; environment vs development; environmental resources: meaning, perception, and classification; biodiversity and wildlife conservation and management; environmental resources exploitation, conservation and management; environmental governance: policies, legislation, protocols and conventions; policy making and implementation. Role of environment in national development
AGE 402	Surveying
Course content (including topics)	Introduction; Historical background to surveying and mapping, types of surveying, processes and categories of surveys; Surveying measurements and instrumentation; Distance measurement; Measurement of angles and directions; Levelling; Modern surveying procedures Practical Survey: Practical Field survey and office work stages, Traversing, Triangulation, Plane Table, Optical Levelling Techniques
AGE 403	Applied Biogeography
Course content (including topics)	The first and second laws of thermodynamics and their implications on resources; human population and environment; the environmental gradient and species adaptation; population dynamics and ecosystem stability; community species diversity and richness; the principle of island biogeography and the conservation of protected resources; the concept of biodiversity and resource conservation. Endangered/threatened and extinct world species; global conservation agents and institutional framework mechanisms; biotechnology development and intellectual property rights (IPR) problems of biogeographical studies in developing countries.
AGE 404	Hydrology and Water Resources II
Course content	Ground water hydrology: Geohydrology investigations, Infiltration process,

(including topics)	Ground water recharge and discharge, Human influence on the hydrological cycle. Soil Erosion and sediment transport processes: Factors determining erosion and sedimentation, Measurements and analysis of erosion and sediment transport, Reservoir sedimentation and underlying factors. Water resources planning, development and management; Available water resources and dam development; Water demands and the need for development; Flood management; Drought management; River basin/watershed management. Hydrology and Environment; Arid and semi arid hydrology; Urban hydrology; Eco-hydrology; Environmental aspects of hydrology; Hydrological modeling. Water Supply and integrated water resource management; Water supply; Reservoir management and water transfer; Integrated Water Resources Management; Remote Sensing and GIS in Hydrology. Climate Change and Water resources
AGE 405	Geography of Hazards
Course content (including topics)	Definition and Characteristics of Hazards; Classification of Hazards and Geography's Role in Hazards' Studies; The Interaction between Man and Hazards; Costs and losses of Hazards; Beneficial Aspects of Hazards; Human Occupancy of Hazards. Factors Influencing Human Occupancy of Hazard Prone areas; Variations in Vulnerability to Hazards in the World; Demographic Factors; Poverty; Level of Country's Development; Lack of Early Warning Systems; Lack of economic insurance. Technological and Cultural Changes; Human Perceptions and Hazard Management; A person's past experience; Interpretation of Physical Characteristics; Personality Traits; Situational Characteristics; Managerial Selection of Hazards' Adjustments; Theoretical Foundations and Major Research Techniques in Hazard Studies; Gender Vulnerability to Disasters
AGE 406	Hydrogeomorphology
Course content (including topics)	The application of geomorphology in land use planning and management, environmental designs; quantification of geomorphology with reference to a drainage basin as a study unit; river channels and flood management, soil erosion and sedimentation problems; the economic value of coastal and arid and forms; environmental protection and landform systems; resource surveys and values; urban landforms studies and management; the significance of geomorphological mapping and application in planning; landform classification with reference to local examples.
AGE 407	Fluvial Geomorphology
Course content (including topics)	Fluvial process in landform development under different climatic regimes; a detailed study of selected geomorphological themes with emphasis on study

	of new land surface characteristics using drainage basin units; special reference to channel flow; sediment deposits; fluvial systems and coastal terrace; the dynamic nature of flowing water.
AGE 408	Rock Materials and Structure
Course content (including topics)	Interpretation of geological maps, identification of rock specimen in laboratory and in the field; the influence of rock composition and structure of landforms using local examples.
AGE 409	Applied Climatology
Course content (including topics)	Climate measurements and observations: Collection, storage, retrieval, analysis and dissemination of data for practical uses such as forecasting. Microclimatology and its significance for agriculture and urban environments: Pollution studies, water, pests and diseases, human health, crop requirements, economic activities e.g. commerce, communication and transportation. Climatology and environmental changes.
AGE 410	Urban Geography
Course content (including topics)	Definition (scope, measurement and basic facts of urbanization; the causes and problems of urbanization; urban functions and functional classification of towns; analysis of town plans; general problems of urban land use; theories of the internal structure of cities; social and economic patterns; spatial inequality and social welfare; the city in the third world; urbanization and national development; contemporary issues in urban studies; national urban policies with reference to East Africa.
AGE 411	Transport Geography
Course content (including topics)	Definition of transportation geography and its role and practical importance in the geographical system - historical development of the various modes of transport; basic concepts and generative forces of transportation, Models and theories in transportation geography -traffic census, Theories and network analyses - network formation and analysis and introduction to transport economics; Principles of transportation planning and introduction of transport to economics. Contributions of improved transportation and the links between transport and development, tourism, urbanization, regional integration, international trade, transport and information communication technologies (ICTs).
AGE 412	Industrial Geography
Course content (including topics)	Theories of industrial location and their relevance to developing countries - the various shades of the classical location theory, the behavioural and

	empirical approaches; The geography of enterprise and the techniques of industrial location analysis, New developments in industrial location theory (including the application of systems concept), Techniques for measuring industrial growth and change, The role of government in industrial activity; The export processing zone concept (EPZ).
AGE 413	Political Geography
Course content (including topics)	The meaning and scope of political geography -elements of political geography; basic principles and key concepts of the interactions between geographical space and political process; Formation of states, nature and functions of boundaries-concept of State, Nation and Nation State; Attributes of State – the nature and functions of boundaries and frontiers, Shape, Size, Territory and Sovereignty, Types of states and governments - the structure of the state and demarcation of administrative areas and constituencies; administrative reforms, Electoral Geography – Geography of Voting, Geographic Influences on voting pattern, Geography of Representation, Gerrymandering. Introduction to global geo-political theories - the heartland theory, sea versus air power, international organizations: ECOWAS, EAC, SADC, EU, AU, UN etc., neocolonialism and globalization; Political Geography of Resource Conflicts – Water Sharing Disputes, Disputes and Conflicts Related to Forest Rights and Minerals, Politics of Displacement: Issues of relief, compensation and rehabilitation: with reference to Dams and Special Economic Zones
AGE 414	Regional Planning
Course content (including topics)	Introduction: Concept of Region, Regional Disparities, Need for Regional Planning, Elements of planning theory, Regions for Planning (identification, characteristics, problems and policies): Case Studies of: a. River Valley Development Plan: Metropolitan Regional Plan: Regional planning models and development plans, Growth Pole and Core-periphery models and their application in development planning in developing countries; Institutional and organisational structures for regional development; Methods of regional analysis including data for regional analysis -Gravity model and other spatial interaction models. Regional Planning in Kenya (District, CDF. COUNTY)
AGE 415	Geography of Marketing
Course content (including topics)	The field of geography of marketing; systems approach to geography of marketing; location of commerce; role of commerce in economic development; delimitation of market areas; marketing of agricultural, industrial and other goods; consumer behavior, micro-geography of market places, marketing and development; international marketing, regional economic groupings and marketing; contemporary issues in geography of

	marketing
AGE 416	Geography of Energy
Course content (including topics)	The spatial organization of energy supply systems; historical perspective, sources and types of energy, global energy demand and consumption disparities; the problems of energy demand and consumption disparities; energy generation and environmental impact assessment; technological development and energy; energy conservation and national policies in Kenya.
AGE 417	Geographic Information Systems (GIS) II
Course content (including topics)	Introduction: GIS applications in urban planning; GIS functionality in urban planning and management. GIS applications in natural resources management: GIS in land cover/land use and vegetation ecology, GIS and watershed management, GIS applications in forest inventory and management. GIS and land administration; Application of GIS in land administration and information standardization; GIS applications in solid waste management; GIS applications in thematic mapping; GIS analysis and spatial data modeling. Laboratory of GIS - practicals and demonstrations; Data creation and manipulation, Geodatabase, attribute and data conversion. Demonstration of ArcGIS Software: ArcGIS interface, Arc Catalogue/Demonstration of QGIS software; Demonstration and laboratory practical's on standard analysis toolbox (buffer, overlay, and selection); Map output and visualization of geographic data
AGE 418	Oceanography II
Course content (including topics)	Wave action and long shore drift; coastal weathering processes, including sediment movement and weather effects; sea level changes (isostatic and eustatic); coastal landforms and coastal resources; human interactions with the coast; economic activities and the role of coastal communities: pollution, fishing, commerce and recreation; sustainable management of coastal resources and techniques; legislative requirements for coastal resources management. (One Week Field Study at the Coastal Region of Kenya).
AGE 419	Research Project
Course Description	This unit will involve research on a topic selected by the student with instructor's guidance. Research may include field, laboratory and library components and will be carried out under instructor's supervision. The results will be presented as a written report as approved length and format.

