Environmental Science:

**Conservation Biology** (3 credits)
The course introduces students to the fundamental principles of conservation biology (e.g. global species numbers, causes of extinction, genetic diversity, ecosystem diversity). Topics will include zoo versus field conservation, effects of global change on species extinction, quantitative methods to determine and predict the status of plant and animal populations, nature reserves and national parks, and biological and social underpinnings of conservation problems. Legal frameworks and values and ethics of conservation at the local and global levels will be discussed.

**Habitat Ecology** (3 credits)
This course focuses on terrestrial and aquatic habitats for organisms. For terrestrial habitats, the major biomes (e.g. tropical rain forest, taiga, savannah, and desert) will be discussed in relation to the influence of major environmental factors. Community development discussions will focus on concepts such as succession, climax, species diversity and productivity. The course also looks at major aquatic communities (i.e. neuston, plankton, nekton and benthos), environmental factors and their roles in aquatic ecosystems, and the ecological classification of aquatic organisms.

**Introduction to Environmental Sociology** (3 credits)
The major issues in the sociology of the environment are examined, enabling a critical analysis of the interactions between society and the environment. It also offers opportunity to reflect on both individual and collective actions that impact the environment. Topics covered include the sociology of risk, science, technology, the social construction of environmental issues, ecofeminism, and sociology of environmental movements, environmental governance and the political economy of global capitalism. Rational choice, value rationality and instrumental rationality in addition to a number of human behavior models will be discussed.

**Biostatistics** (3 credits)
This course applies statistical methods to biological formulation. It deals with sampling techniques, data presentation, analysis and interpretation. Types of distribution (e.g. normal, binomial, Poisson) are discussed. Analytical procedures including t-test, X^2, F-ratio, correlation and regression will be used to analyze biological data. Students will be taken through some basic experimental designs as well (e.g. CRD, RCD, and factorial design).

**General Geography and Cartography** (3 credits)
This course will provide knowledge on the physical, chemical and biological processes of landforms and distribution, theories of origin of continental shelves and submarine canyons, internal and external forces, earthquakes, volcanoes and tsunamis, continental drift and plate tectonics, weather and climate, vegetation and soils. Also, the course will equip students with skills in map-making and include advanced map production techniques. The course will involve fields where necessary.
**Introduction to Environmental Geology** (3 credits)
The course examines the relationships between ecology and short term human concerns. Emphasis is placed on application of geologic principles to common environmental problems. Topics include rocks and minerals, energy resources, topographic and geologic maps, slope stability and landslides, river processes and coastal erosion, floods, and groundwater exploitation and saltwater intrusion, geologic hazards and problems, geology and health, and land use. Application of principles to problems pertaining to urban planning, earthquake-resistant design, and waste site/landfill development will be discussed.

**Integrated Coastal Zone Management** (3 credits)
This course introduces students to the basic concepts and practices of Integrated Coastal Zone Management (ICZM). The topics covered include introduction to ICZM; coastal ecosystems (e.g. mangrove swamps, coral reefs, sea grass beds, estuaries, lagoons, sandy and rocky shores, sand dunes and coastal savannah); natural coastal processes (e.g. geologic processes, tides, waves, tsunamis, currents, runoffs/floods, hurricanes and sediment transport/long shore drifts); and uses and opportunities of the coastal zone. Traditional methods of management as well as sector versus integrated approaches for managing the coastal zone are discussed.

**Research Methods in Biology** (3 credits)
The course exposes students to the processes involved in the scientific method of investigation. There will be exercise in observational skills, asking questions, formulating hypotheses, experimental designs, biological techniques, data acquisition, analysis and scientific presentation. Students will be required to do a literature review on specific topics presentation to seminars.

**Science and Formulation of Environmental Policy** (3 credits)
The course examines the distribution of responsibility for the formulation and execution of environmental policy in Ghana. The different types of policy instruments and their theoretical underpinnings will be pointed out. The role of science, the regulated community and lay public in environmental decision making will be discussed in addition to participatory approaches to policy formulation. Top-down and bottom-up approaches to policy formulation will also be discussed. Alternative regulatory and institutional frameworks will be evaluated with reference to specific environmental issues.

**Environmental Economics** (3 credits)
This course provides analysis of some of the most important areas of environmental economics. It will cover the efficient and equitable use of scarce environmental resources as well as the measurement of environmental and natural resource values. Areas stressed include the economics of pollution control, the application of cost benefit analysis to the environment, and global environmental issues. Topics include benefits transfer, the travel cost method, the hedonic pricing method, and contingent valuation. Students will make presentations on the course.
Environmental Stewardship and Communication (3 credits)
This course examines the environmental impact of our daily decisions as consumers and residents of a community. It also examines the failures and successes of communicating environmental messages to the public, risk, public health information and community coalition building are among the specific types of communications analyzed.