

## Courses Description

**College:** Prince El- Hassan Bin Talal For Natural Resources & Environment

**Department:** Land & Environment Management

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**Course ID:** 1202100      **Description:** Garden Landscape

**Full Course Description:**

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**Course ID:** 1202101      **Description:** Water Resources

**Full Course Description:**

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**Course ID:** 1202251      **Description:** Fundamentals of Agricultural Economics

**Full Course Description:**

Factors affecting land use approached from a three-fold framework - physical, economic and institutional - with a focus on the economic framework. The course includes scope, content, and the problems dealt with; defining the three-fold framework; shift in land uses over time and the role of land in society. The valuation of real property, including cash-flow analysis with soil conservation and public policy, are emphasized as well as the current land uses, environmental issue associated with the land resources.

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**Course ID:** 1202253      **Description:** Geographic Information Systems (GIS)

**Full Course Description:** Historical developments of the GIS and its applications. Students receive information on the geographical data, projections, raster and vector data format, computer hardware, the database for GIS and spatial analysis with the focus on problems of land-use planning, resource management and related topics. The course concludes with further knowledge of system selections, followed by practical examples.

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**Course ID:** 1202261      **Description:** Environmental Soil Science

**Full Course Description:**

Soil sciences and their major branches, influence of the environment on soil formation; local, regional and global scales of soil formation, physical, chemical and mineralogical properties of soil. It shows the importance of soil as a medium of waste disposal and plant growth, and tackles the chemical forms of macro- and micronutrients, the role of organic matters and microorganisms in soil.

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**Course ID:** 1202280      **Description:** Introduction to Plant Production

**Full Course Description:** Crop environment. Soil moisture and organic matter management. Production technology of crops: climate and soil factors, status, importance, production inputs, post harvest operation, method of production, cost calculation of major crops. Crop estimate. Crop calendar. Quality control of crops. Cropping scheme: concept, utility, procedure.

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**Course ID:** 1202281      **Description:** Principles of Plant Science

**Full Course Description:**

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**Course ID:** 1202282      **Description:** Meteorology

**Full Course Description:**

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**Course ID:** 1202284      **Description:** Introduction to Plant Protection

**Full Course Description:** Basic study of weeds, insects, and disease agents, and the problems they cause. Recognition of important plant pests and application of integrated cultural, chemical, and biological pest management procedures.

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**Course ID:** 1202313      **Description:** Hydrology

**Full Course Description:**

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**College:** Prince El- Hassan Bin Talal For Natural Resources & Environment

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**Course ID:** 1202316      **Description:** Environmental Soil Physics

**Full Course Description:** Soil physical properties, water infiltration into soil, components of the soil water potential. It also concentrates on soil water movement under saturated and unsaturated conditions, Darcy's law and continuity equation, soil and water equilibrium and water tables. The course ends with a look at the gas, heat and solute transport in soil, solar energy budget and the aerodynamic effects on evaporation.

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**Course ID:** 1202318      **Description:** Environmental Soil Physics

**Full Course Description:**

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**Course ID:** 1202322      **Description:** Principles of Irrigation

**Full Course Description:** Irrigation importance, soil water infiltration, crop water consumptive use and its calculation. Irrigation systems; surface, sprinkler, trickle and subsurface, crop water use efficiency, and irrigation scheduling.

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**Course ID:** 1202323      **Description:** Irrigation Practices

**Full Course Description:** Irrigation systems design, irrigation system components, environmental impact of irrigation, protection of plant ecosystem by irrigation. The course investigate the environmental effect on frosting, fertigation and liquid wastes as well as water use efficiency and minimizing evaporation and water quality maintenance with regard to irrigation systems.

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**Course ID:** 1202332      **Description:** Rangelands & Management of Protected Areas

**Full Course Description:** General categorization and identification of rangelands, their environmental requirements and potential uses in landscaping. Students will be familiarized with the evaluation of such lands as resources for industrial, medical and aromatic applications. The course covers land degradation and its control in the arid and semi arid rangelands, endangered species and ecosystem management, as well as management plans for protected areas.

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**Course ID:** 1202335      **Description:** Environmental Pollution

**Full Course Description:** Physical, chemical, and biological processes affecting soil and water (both surface & groundwater) pollution. The course covers the methods of monitoring and protecting soil and ground water resources. The course tackles sediment, pesticides, industrial, pathogenic and fertilizers pollution. Moreover, the course gives idea on soil erosion, animal waste as well as air pollution.

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**Course ID:** 1202337      **Description:** Environmental Pollution

**Full Course Description:**

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**Course ID:** 1202338      **Description:** Introduction to Animal Production

**Full Course Description:** Establishing an understanding of the importance of animal production as a major field of agriculture production. It focuses on the subjects, which enrich pin formation about farm animals regarding heredity and environment that leads to increase animal production of meat, milk and eggs to provide animal protein for human consumption

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**Course ID:** 1202352      **Description:** Fundamentals of Agricultural Economics

**Full Course Description:**

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**Course ID:** 1202353      **Description:** Geographic Information System

**Full Course Description:**

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**College:** Prince El- Hassan Bin Talal For Natural Resources & Environment

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**Couse ID:** 1202354      **Description:** Environmental Landscaping

**Full Course Description:** The concept of landscaping, its importance, and the components of landscaping and environmental landscaping. Students become oriented to the cultural developments and their impact on landscaping, history of landscaping, modern landscaping projects followed by laboratory sessions.

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**Couse ID:** 1202356      **Description:** Soil Survey & Land Use

**Full Course Description:** The concept and importance of land planning for future uses, the effects of physical resources of land, such as soil, climate and topography, on land evaluation. Students will also take a glimpse of the use of soil, survey data, water resources and land cover information, remote sensing and geographic information systems used in land evaluation. The course ends with extended discussions of the effects of socio-economic factors on land evaluation.

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**Couse ID:** 1202361      **Description:** Environmental Soil Chemistry

**Full Course Description:** Chemistry of soil solutions, the chemical and mineralogical nature of the solid phase, the chemical reactions present at the solid-liquid interface and the concepts of complex ion formation and single ion activity in the soil solution. The course concludes with a glimpse of reactions of ion exchange, precipitation, dissolution and adsorption, chemical behavior, and processes in the environment.

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**Couse ID:** 1202363      **Description:** Environmental Soil Chemistry

**Full Course Description:**

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**Couse ID:** 1202364      **Description:** Soil - Water Plant Relationship

**Full Course Description:** The ecological importance of water, thermal water properties, solution physical laws. It tackles the plants relation with the soil's physical properties, as in apparent specific gravity, soil compactness, soil water and soil temperature regimes, soil water replenishment of the roots and the mechanisms of water transport within the soil-plant system. The course discusses the factors affecting ET and the technology employed in ET reduction, the direct measuring of ET's depletion, lysimeter and pan evaporation.

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**Couse ID:** 1202365      **Description:** Soil Fertility & Plant Nutrition

**Full Course Description:**

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**Couse ID:** 1202381      **Description:** Plant Science

**Full Course Description:** Providing a broad, integrated overview of plant biology including economic and environmental aspects. The course covers plant diversity, basic biology, evolution, toxicology, striates, function and development, environmental control, and adaptation.

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**Couse ID:** 1202383      **Description:** Plant Ecology

**Full Course Description:**

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**Couse ID:** 1202387      **Description:** Plant Ecology

**Full Course Description:** Discussing local factors of limiting plant growth, reproduction, and diversity. Mechanisms of plant interaction with their local environment and their effects on diversity and community functioning. Specific topics are covered such as mechanisms of competition and facilitation, pattern of diversity, and community stability.

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**Couse ID:** 1202417      **Description:** Engineering Properties of Soil

**Full Course Description:**

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**Course ID:** 1202422      **Description:** Reuse of Reclaimed Water

**Full Course Description:** Wastewater reuse terminology, water reuse evolution and wastewater reuse planning. Other topics are reclaimed water distribution and storage. Water reclamation and reuse criteria, water reuse for irrigation of raw eaten vegetables and reuse for industries. Case studies reclaimed water projects will be covered.

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**Course ID:** 1202431      **Description:** Cont. Transport in Porous Media

**Full Course Description:**

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**Course ID:** 1202436      **Description:** Remediation of Polluted Ecosystems

**Full Course Description:** Providing a comprehensive knowledge of the practices, techniques and systems applying the principles of physics, microbiology, and chemistry to evaluation of pollution in soil and groundwater in the field of remediation. The course focuses on performing remediation design calculations and cover criteria for remediation, mechanisms of transformation, strategies for remediation and evaluation of their efficiency.

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**Course ID:** 1202438      **Description:** Remediation of Polluted Ecosystems

**Full Course Description:** Providing a comprehensive knowledge of the practices, techniques and systems applying the principles of physics, microbiology, and chemistry to evaluation of pollution in soil and groundwater in the field of remediation. The course focuses on performing remediation design calculations and cover criteria for remediation, mechanisms of transformation, strategies for remediation and evaluation of their efficiency.

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**Course ID:** 1202439      **Description:** Geoenvironmental Waste Management

**Full Course Description:**

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**Course ID:** 1202441      **Description:** Environmental Soil Microbiology

**Full Course Description:** Development of soil microbiology, the essential elements and compounds required for the growth and activity of microbes. Students will increase their knowledge of the environmental factors which determine growth and activity of microbes in soil, in addition to the carbon, nitrogen and phosphorous cycles in soil. The course concludes with a look at the decomposition of soil's natural and synthetic organic matter and its importance to soil fertility.

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**Course ID:** 1202454      **Description:** Soil & Water Conservation

**Full Course Description:**

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**Course ID:** 1202458      **Description:** Soil & Water Conservation

**Full Course Description:** Major problems of arid and semi arid soil components emphasizing on the management practice to sustain and maintain environmental quality, as in structural stability, soil erosion by water and wind actions, low infiltration rate, soil salinity and alkalinity. It also discusses the improvement of soil structures, methods for soil moisture conservation, followed by reclamation of saline and alkaline soils. The course ends with soil management and a look at the poor quality of irrigation water.

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**Course ID:** 1202461      **Description:** Watershed Management

**Full Course Description:**

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**Course ID:** 1202464      **Description:** Soil Biochemistry

**Full Course Description:** Discussing the soil biochemical techniques, elemental transformations, biologically active compounds, pesticide metabolism, and fate of genetic materials in soils.

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**Course ID:** 1202465      **Description:** Soil Fertility &Plant Nutrition

**Full Course Description:** Soil chemical and physical properties as related to soil fertility, macro and micro nutrients and their reactions in soil, their availability, role in nourishing plants, as well as soil's application rates and plants intake. The course ends with the fertilizers classification, types and application methods into the soil

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**Course ID:** 1202467      **Description:** Watershed Management

**Full Course Description:** Understanding of the processes involved in catchments hydrology in different environments. The course also focuses on the development and application of watershed models: structure, calibration, evaluation, sensitivity analysis, simulation.

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**Course ID:** 1202471      **Description:** Soil Spatial Variability

**Full Course Description:** Sampling strategies in spatially variable and possibly correlated media. The course covers the role of scaling theories and geostatistics in quantifying spatial and temporal variability in soil properties. The course covers the classical measurement of variability and the use of geostatistics in the description of salt affected lands.

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**Course ID:** 1202473      **Description:** Micro Computer Applications in Land & Water Management

**Full Course Description:**

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**Course ID:** 1202475      **Description:** Computer Applications in Land and Water Management

**Full Course Description:** Introducing the theoretical background for using the computers in entering and analyzing data, then applying them to the graphical presentations of land and water pollution. Students get acquainted with the computer uses in environmental pollution making use of different core courses

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**Course ID:** 1202478      **Description:** Environmental Mathematical Modeling

**Full Course Description:**

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**Course ID:** 1202482      **Description:** Crops Production

**Full Course Description:**

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**Course ID:** 1202490      **Description:** Field Training

**Full Course Description:** The Training is addressed to researchers, agriculture companies, and agricultural Research stations in the area. The topics of training routs are: soil moisture conservation, water harvesting, plant production, and fertilizers production and application Irrigation methods and development of eco-sustainable production

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**Course ID:** 1202497      **Description:** Graduation Project

**Full Course Description:**

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**Course ID:** 1202498      **Description:** Special Topics

**Full Course Description:** Students may carry out field, laboratory, and computer work to achieve the objectives of the study. Topics including the environmental effects on the physical, chemical and biological properties of the soils.

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**Course ID:** 1202499      **Description:** Seminar

**Full Course Description:**

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**Course ID:** 111202241      **Description:** Environmental Soil Science Lab

**Full Course Description:** ;

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**Course ID:** 111202271      **Description:** Introduction to Plant Production

**Full Course Description:** lk

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**Course ID:** 111202273      **Description:** Introduction to Nutrition Science

**Full Course Description:** fd

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**Course ID:** 111202275      **Description:** Introduction to Plant Protection

**Full Course Description:** hg

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**Course ID:** 111202276      **Description:** Introduction to Animal Production

**Full Course Description:** f

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**Course ID:** 111202310      **Description:** Environmental Soil Physics

**Full Course Description:** s

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**Course ID:** 111202311      **Description:** Environmental Soil Physics Laboratory

**Full Course Description:** ';

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**Course ID:** 111202320      **Description:** Environmental soil Chemistry

**Full Course Description:** gf

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**Course ID:** 111202330      **Description:** Environmental Soil Microbiology

**Full Course Description:** c

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**Course ID:** 111202331      **Description:** Environmental Soil Microbiology Lab

**Full Course Description:** hg

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**Course ID:** 111202340      **Description:** Soil Survey & Land Use

**Full Course Description:** ';

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**Course ID:** 111202362      **Description:** Sustainability of Range and Protected Areas

**Full Course Description:** ';

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**Course ID:** 111202370      **Description:** Environmental Volunteering

**Full Course Description:** g

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**Course ID:** 111202411      **Description:** Soil Spatial and Temporal Variability

**Full Course Description:** .

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**Course ID:** 111202412      **Description:** Engineering Soil Properties

**Full Course Description:** g

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**Course ID:** 111202420      **Description:** Soil Fertility and Fertilizers

**Full Course Description:** ';

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**Course ID:** 111202421      **Description:** Soil Chemistry and Fertility Lab

**Full Course Description:** ';

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**Course ID:** 111202440      **Description:** Soil and Water Conservation

**Full Course Description:** jh

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**Course ID:** 111202462      **Description:** Combating Desertification and Drought

**Full Course Description:** jh

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**Course ID:** 111202475      **Description:** Special Topics

**Full Course Description:** d

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**Course ID:** 111202477      **Description:** Field Training

**Full Course Description:** ;l

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**Course ID:** 1712021120      **Description:** Environmental Lab Analysis

**Full Course Description:** To provide the students with an understanding of the principles and techniques in environmental sampling, field and laboratory measurements. In addition to perform the basic laboratory analysis in chemistry and biological environmental samples. And to obtain quality parameters following published procedures.

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**Course ID:** 1712021210      **Description:** Hydropedology

**Full Course Description:** This course deals with the interconnectedness and interdependence of the branches of soil science and hydrology. The course deals with a systematic approach and a comprehensive presentation to study the pedological processes of soil, hydrologic reactivity and characteristics in the terrestrial environment near the surface of the earth in both its biological and non-biological aspects. The course aims at understanding the pedological controls on hydrological processes and properties, hydrological effects on soil composition, variability and functions. This category emphasizes soil in the real world with distinct characteristics (eg soil structure, horizon and heterogeneity), environmental variables (eg climate, land forms, living organisms), human impacts (eg, land use and management), hydraulics and geological biological flow.

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**Course ID:** 1712021230      **Description:** Soil Biochemistry

**Full Course Description:** This course provides information regarding biochemical process that occurs within the biological community in the soil. Students are introduced to related topics such as biomass and soil enzyme activity. The course links the concept of biological systems in the soil including plants animals and microbes with their ecological habitat and their relationships as well as their role in nutrient cycling and how biological processes in the soil are linked to physical and chemical processes.

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**Course ID:** 1712021240      **Description:** Environmental Soil Science

**Full Course Description:** A fundamental of soil science examines the basic physical, chemical, and biological properties of the dynamic soil system. Including: soil texture, structure, water, air, temperature, soil formation and classification, colloidal chemistry, acidity, biology, organic matter, plant nutrients. We also cover related environmental and agricultural issues. Including: management of the soil resource to maintain the soil/water/plant resource base, bioremediation, and soil pollution. My goal is to make this course as enjoyable and beneficial to you as possible.

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**Course ID:** 1712021241      **Description:** Environmental Soil Science Lab

**Full Course Description:** This course aims to enable students and provide them with the basic necessary skills to work in soil science laboratory. The student will gain scientific and application skills to analyze soil for basic physical, chemical, and biological characteristics.

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**Course ID:** 1712021260      **Description:** Plant Science and Production

**Full Course Description:** The course aims at clarifying the concepts of botany, which include plant composition, stages of sexual and sexual growth and reproduction, seed formation and germination, the emergence of plantation, knowledge of the basic processes of plants, as well as the environmental and physiological determinants of growth and crop development. Focus on the environmental and physiological concepts of economic crops. Soil and climate factors and their importance in crop production. Post-harvest operations. Methods of production and calculation of crop production cost. Production season. Quality control over the outcome, and crop production methods.

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**Couse ID:** 1712021273      **Description:** Introduction to Nutrition Science

**Full Course Description:** This course gives introduction about principles of human nutrition, major terminologies related to nutrition. It also shows major nutrient groups in human diet, food energy, food processing, food preservation, food microbiology, and special topics related to nutrition such as coffee.

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**Couse ID:** 1712021274      **Description:** Fundamentals of Agricultural Economics

**Full Course Description:** Factors affecting land use approached from a three-fold framework - physical, economic and institutional - with a focus on the economic framework. The course includes scope, content, and the problems dealt with; defining the three-fold framework; shift in land uses over time and the role of land in society. The valuation of real property, including cash-flow analysis with soil conservation and public policy, are emphasized as well as the current land uses, environmental issue associated with the land resources.

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**Couse ID:** 1712021275      **Description:** Introduction to Plant Protection

**Full Course Description:** Basic study of weeds, insects, and disease agents, and the problems they cause. Recognition of important plant pests and application of integrated cultural, chemical, and biological pest management procedures.

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**Couse ID:** 1712021276      **Description:** Introduction to Animal Production

**Full Course Description:** Establishing an understanding of the importance of animal production as a major field of agriculture production. It focuses on the subjects, which enrich pin formation about farm animals regarding heredity and environment that leads to increase animal production of meat, milk and eggs to provide animal protein for human consumption

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**Couse ID:** 1712021310      **Description:** Environmental Soil Physics

**Full Course Description:** The course aims to provide the essential concepts of the soil physical properties in relation to agricultural, engineering and environmental fields. The course objectives is to introduce the students to the main principles of water, gas, heat, and solute movement in soils with selected examples related to soil and water management and the influence of soil physical properties on transfer processes.

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**Couse ID:** 1712021311      **Description:** Environmental Soil Physics Laboratory

**Full Course Description:** The laboratory allows the students to practice the major determination and/or estimation principles and methods for the most common soil physical properties either at the field or at the laboratory.

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**Couse ID:** 1712021320      **Description:** Environmental soil Chemistry

**Full Course Description:** Soil chemistry the tools of chemistry, to understanding of the chemistry of soil surfaces soil solution and soil organic matter important soil processes, such as sorption phenomena on soil, ion exchange processes, redox chemistry of soils and the chemistry of saline and sodic soils. And fate of environmental pollutants.

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**Couse ID:** 1712021321      **Description:** Chemistry of Environmental Pollutants

**Full Course Description:** This course will introduce the fundamental principles of understanding pollution chemistry of different soil pollutants; reducing pollution; chemical toxicity; chemical exposures and risk assessment; as well as solid waste disposal.



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**Course ID:** 1712021330      **Description:** Environmental Soil Microbiology

**Full Course Description:** This course examines the metabolic and molecular diversity of microbial populations and in the soil and groundwater, their role in "natural" transformations, and potential importance in environment remediation. It also focuses on ecology and diversity of microorganisms in soils. The course emphasis on factors controlling microbial activity and the role of microorganisms in organic matter decomposition and nutrient cycling. The laboratory part trains the students on necessary skills needed in basic microbiology laboratories like media preparation, difference between microbial isolates, sub culturing, isolating pure cultures and gram staining. It also depth the knowledge in some microbial behavior in the soil system and how they interact among different organisms, for example symbiotic association in nitrogen fixing bacteria and the rhizosphere effect.

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**Course ID:** 1712021340      **Description:** Soil Survey & Land Use

**Full Course Description:** This course provides the students with the knowledge necessary to identify the morphological characteristics and taxonomic units of soil; techniques of writing soil pedon and mapping unit descriptions; and techniques of preparing soil maps. This course will briefly discuss the soil forming factors and how they affect land use. The students will be introduced to the concept of soil evaluation for land use planning, and to the effects of physical resources of land; such as soil, climate and topography, on land evaluation. Students will also take a glimpse of the use of soil, survey data, water resources and land cover information systems used in land evaluation. The course ends with extended discussions of the effects of socio-economic factors on land evaluation derived from physical factor on building a final land use plan.

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**Course ID:** 1712021341      **Description:** Landscape Ecology

**Full Course Description:** This course is aimed to introduce the students to the major concepts of the recently emerged landscape ecology branch of science. Basic components of landscape ecology and their definitions will be discussed, i.e. pattern, patch, corridor, matrix. Processes affecting landscape development in addition to equilibrium and dynamic paradigms will be discussed. The relationships between landscape ecology and other high technologies like geographic information systems and remote sensing, scale and hierarchy theory, scaling techniques are among the topics that will be covered in this course.

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**Course ID:** 1712021350      **Description:** Irrigation science

**Full Course Description:** The course aims to introduce the students to the main principles of irrigation systems (surface, sprinkler and trickle irrigation systems) and principles of operating farm irrigation systems on the basis of soil-water-plant relationships. The major course outcomes are to provide the students with the knowledge in irrigation scheduling, estimation of water consumptive use, irrigation system evaluation, system and pump selection. Also the course aim to provide the students with the designing principles and management techniques of agricultural irrigation methods.

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**Course ID:** 1712021361      **Description:** Sustainability of Range & Protected Areas

**Full Course Description:** This course will use theoretical approaches to illustrate principles of range and protective land principles in environmental sustainability. To study the basic data about types and ecology of range lands, and protected areas categorization systems and conditions and to know the main processes of environmentally development and improvement of these lands, and to focus on some suggested management practices that used in resources sustainability.

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**Course ID:** 1712021362      **Description:** Environmental Model Forest

**Full Course Description:** This course will focus in giving students the background knowledge to identify the issues of interest to stakeholders in forest land use from environmental point of view. Develops the skills needed to estimate the sustainable forest ecosystem and the approaches that combine the social, cultural and economic needs of local communities with the long-term sustainability of large landscapes in which forests are an important feature. By design they are voluntary, broad-based initiatives linking forestry, research, agriculture, investment, recreation, and other values and interests within a given landscape. Students will gain skills in the theoretical aspects of both plantation and natural forest sustainability.

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**Course ID:** 1712021370      **Description:** Environmental Volunteering

**Full Course Description:** This course focuses on volunteering efforts carried out by students in the environmental scope. The course created a learning environment through community engagements. Students work in teams to perform their project, and finally present it at the end of the semester. This course develops social work and increases the students connections with different environmental organizations in Jordan.

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**Course ID:** 1712021410      **Description:** Soil Water Plant Relationships

**Full Course Description:** The course explores the main functions and properties of water, the basic concepts of plant-water relations such as the soil-plant-atmosphere continuum, and explains how water affects the physiological processes that control the quantity and quality of growth. The course provides the essential understandings of the factors affecting, and the techniques of measuring, the entry, retention, and movement of water into and through the soil-plant system. The course focuses on soil-plant-atmosphere continuum and the plant-water balance dynamics, including transpiration, movement of soil-water to roots and extraction by roots, plant-water translocations, and the effects of drought stress on plant productivity.

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**Course ID:** 1712021411      **Description:** Soil Spatial & Temporal Variability

**Full Course Description:** The course introduces sampling strategies for spatially variable. The course covers the role of spatial and temporal statistics in quantifying the magnitude and direction variability's of soil properties. The course focuses on land management using spatial and temporal definitions. The course aims to introduce students to the concept of regionalized variable, educate and train students on spatial-analysis models with emphasis on some soil applications, and differentiate between the point variables and core sampling variables in geospatial analysis.

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**Course ID:** 1712021412      **Description:** Engineering Soil Properties

**Full Course Description:** The course aims to introduce the students to the main concepts and theories of soil physical properties from the engineering stand point in order to evaluate, judge and amend the soil for various environmental, agricultural, and engineering applications. Also it aims to provide the students with the applications of solid and fluid mechanics to formulate the basic techniques used for evaluation soil properties and to develop the methodologies required for site improvement and testing the soil for various foundation establishments. The course also aims to introduce the students to the geotechnical engineering concepts and soil mechanics as a combination of engineering mechanics, and provide the students with the major determination principles used either at the field or the laboratory for the major soil physical properties used by engineers.

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**Couse ID:** 1712021420      **Description:** Soil Fertility & Fertilizers

**Full Course Description:** This course introduce the soil chemical and physical properties as related to soil fertility, macro and micro nutrients and their reactions in soil, their availability, role in nourishing plants, as well as soil's application rates and plant intake. The course ends with the fertilizers classification, types and application methods into the soil. The lab part provides detailed information on routine chemical methods that used in soil testing and plant analysis, field soil and plant sampling techniques, types of fertilizers and plant nutrient recommendations, study of plant nutrient response functions, and nutrient management planning and how to apply fertilizers. The course material will be presented in the laboratory format and exercises which are designed to strengthen the theoretical principles thought in the lecture.

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**Couse ID:** 1712021430      **Description:** Remediation of Polluted Ecosystems

**Full Course Description:** This introductory course provides participants with an overview of remediation technologies and best practices for removing contaminants from soil, groundwater, and surface water. The instructor will discuss site characterization requirements for effective remediation system design, as well as the best technologies available for effective remediation of various contaminants. Case studies will be reviewed and remediation successes and failures will be discussed.

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**Couse ID:** 1712021440      **Description:** Soil & Water Conservation

**Full Course Description:** This course equips the students with concepts and techniques to carry out different soil and water conservation procedures. The students will be introduced to the major problems associated with wind and water soil erosion, soil crusting, soil degradation, and water quality problems. Methods to overcome these problems and techniques to sustain soil and water will be discussed, erosion control techniques, soil reclamation methods, water harvesting, and water quality enhancement methods are among the topics that will be covered in this course.

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**Couse ID:** 1712021441      **Description:** Combating Desertification and Drought

**Full Course Description:** This course will use the aspect that explains the main environmental problems affecting natural resources in arid, semiarid and dry sub-humid climatic zones. Study the interaction between physical factors of climate, and human induced factors, as the main cause of the environmental degradation process. Study and analyze the National Strategy and Action Plan (NAP) to combat desertification. Special cases will be provided to study the Biophysical characterization of Jordan.

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**Couse ID:** 1712021450      **Description:** Irrigation Practices

**Full Course Description:** This course equips the students with the basic practical knowledge regarding concepts and techniques to select, design, install, and maintain different irrigation systems with the complete set of accessories and parts. The students will be introduced to the major types of irrigation systems, including surface, drip, and sprinkler systems. The students will get the knowledge on the components for the irrigation systems. Irrigation systems and their interactions with the environment, irrigation efficiencies, irrigation water quality, and different types of fertigation are among the topics that will be covered in this course.

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**Couse ID:** 1712021451      **Description:** Reuse of Treated Wastewater

**Full Course Description:** This course provides an overview of the general aspects of wastewater reclamation and reuse. The course focuses on wastewater reuse terminology, water reuse evolution and wastewater reuse planning. Other topics are reclaimed water distribution and storage, water reclamation and reuse criteria, health aspects of using reclaimed water, risk assessment in wastewater reclamation and reuse.

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**Course ID:** 1712021452      **Description:** Design of Automated Irrigation Systems

**Full Course Description:** The course aims to introduce students to the basics of designing irrigation systems (sprinklers and drip irrigation) based on plant needs, climatic conditions and others, with a focus on modern irrigation techniques and technologies and the foundations of monitoring and evaluation. The course also focuses on design in terms of control and the basic needs of the automated control tools and methods of installation and control according to the characteristics of soil and plant needs and surrounding conditions.

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**Course ID:** 1712021463      **Description:** Non-traditional Agriculture

**Full Course Description:** This course focus on the principles of organic agriculture, which are covered by the agricultural cycle of field crops and weed control, and manure management and its role in soil conservation and ensuring the productivity of agricultural land. What is the certificate of organic farm. Also, this course will address agriculture without soil through understanding the establishment of systems configuration and techniques in plant nutrition, solid food circles, aquaculture, crops and agricultural practices, problems, and the balance between major and minor nutrients and others.

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**Course ID:** 1712021464      **Description:** Bio Systems Management

**Full Course Description:** This course aims to introduce students to the management of biological systems from an environmental and agricultural perspective by introducing students to the types of biological systems. Through this course, students will be provided with concepts related to the adoption of a multidisciplinary approach to deal with the complexity of the management of the biosphere system through human interactions and understanding of their actions and impacts on the natural world as an integral part of the Management and conservation of ecosystems.

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**Course ID:** 1712021477      **Description:** Field Training

**Full Course Description:** The Training is addressed to researchers, agriculture companies, and agricultural Research stations in the area. The topics of training routs are: soil moisture conservation, water harvesting, plant production, and fertilizers production and application Irrigation methods and development of eco-sustainable production