Agronomy (AGRO)

Courses

**AGRO 1703 Crop Science: 3 semester hours.**
Botanical characteristics of agronomic and horticultural plants; relationship between crops and civilization in both historical and biological terms; nature of crop plants in relation to structure, physiology, environment, growth and development; crop improvement, cropping systems and practices, crop hazards and prevention.

**AGRO 2603 Environmental Soil Science: 3 semester hours.**
An introduction to soils, its components and its relationship to the environment. The importance of soils to man, animals and plants. Important physical properties, role of soil constituents; origin, nature, and classification of parent materials; soil genesis, classification and survey; soil fertility and chemical properties; soils and chemical pollution; soils and the world's food supplements.
Prerequisites: AGRO 1703 (may be taken concurrently).

**AGRO 2613 Natural Resource Conservation Management: 3 semester hours.**
Ecological approach to basic conservation principles, concepts and techniques underlying the management and uses of natural resources that is both efficient and sustainable.
Prerequisites: AGRO 1703 and AGRO 2633 (may be taken concurrently).

**AGRO 2623 Green House Mgmt: 3 semester hours.**
The shape and source of soil features materials and processes involved in or produced after the formation of soil with emphasis on variations world-wide and the principles of soil classification, mapping, and interpretation. Additional topics include: soil taxonomy; land capability classification; soil survey and its utilization; and soil interpretations for non-farm uses.

**AGRO 2633 Forage and Pasture Management: 3 semester hours.**
Use of forage in grassland agriculture, identification of forage grasses and legumes, cultural practices including weed control, mechanization of forage harvesting and storage; types of pastures, different systems of grazing management and utilization of forages by farm animals.
Prerequisites: AGRO 1703 and AGRO 2613 (may be taken concurrently).

**AGRO 2733 Principles of Crop Production: 3 semester hours.**
Crop characteristics and classifications, growth patterns, soil and climate requirements (Physiology), pest control, storage, distribution, and application of these principles to the management and production of field and vegetable crops for improved food, fiber, and forages.
Prerequisites: AGRO 1703 and AGRO 2603 (may be taken concurrently).

**AGRO 3623 Soil Morphology and Classification: 3 semester hours.**
The shape and source of soil features materials and processes involved in or produced after the formation of soil with emphasis on variations world-wide and the principles of soil classification, mapping, and interpretation. Additional topics include: soil taxonomy; land capability classification; soil survey and its utilization; and soil interpretations for non-farm uses.
Prerequisites: AGRO 2603 and AGRO 3633 (may be taken concurrently) and AGRO 3713 (may be taken concurrently).

**AGRO 3633 Soil Fertility and Fertilizers: 3 semester hours.**
Chemical, biological and physical processes as they influence soil fertility, manufacture of fertilizers and their reactions with soils and the oil-plant-water system.
Prerequisites: AGRO 2603 and AGRO 3623 (may be taken concurrently) and AGRO 3713 (may be taken concurrently).

**AGRO 3643 Soil and Water Management: 3 semester hours.**
Sustainable soil productivity and management in agricultural systems involving resource inputs, tillage systems, erosion control, residue management, and water management for a quality environment.
Prerequisites: AGRO 2603 and AGRO 3733 (may be taken concurrently).

**AGRO 3713 Gen Entomology: 3 semester hours.**
Insect morphology, life histories, characteristics and habits of beneficial and harmful insects and their impact on agricultural production and the environment; anatomy and physiological growth and metamorphosis, insect orders, ecological aspects and insect behavior, control of harmful insects.
Prerequisites: AGRO 1703 and AGRO 3623 (may be taken concurrently) and AGRO 3633 (may be taken concurrently).

**AGRO 3733 Plant Pathology: 3 semester hours.**
Fundamental principles of plant pathology, including parasites and disease development, identification of major agronomic diseases and their biotic and abiotic causes; proper diagnosis of plant diseases, differentiation between signs and symptoms, isolation of pathogens in pure culture; environmental effects on development of infectious plant diseases; control of plant diseases.
Prerequisites: AGRO 1703 and AGRO 3643 (may be taken concurrently).

**AGRO 3993 Independent Study: 1-3 semester hour.**
Readings, research and/or field work on selected topics.
AGRO 4613 Soil Microbiology: 3 semester hours.
Role of soil microorganisms in soil-plant ecosystems. Microbial ecology, microbes in nutrient cycles important to agriculture, pesticide degradation, bacterial fertilizers, composting, waste disposal, plant microbe interactions. Laboratory estimation of soil microbial populations and measurement of important biological processes in soil and current methods.
Prerequisites: AGRO 3623 and AGRO 3633 and AGRO 3643.

AGRO 4623 Environmental Science: 3 semester hours.
Physical, chemical, biological and agricultural components of the environment and their interactions and effects on pollution and the maintenance and utilization of varied environmental systems.
Prerequisites: AGRO 3623 and AGRO 3633 and AGRO 3643.

AGRO 4993 Independent Study: 3 semester hours.
Readings, research and/or field work on selected topics.

AGRO 5613 Environmental Microbiology: 3 semester hours.
Study of the biological and chemical interactions between microbes and microbial metabolites with the environment (e.g. air, water, and soil) as related to food, agriculture quality and safety, animal and human health, and waste management. Emphasis will be on bioremediation, microbial bioprocesses, microbial by-products, microbial control and aerobiology. Laboratory, field and greenhouse situations will be practiced.

AGRO 5653 Soil Chemistry: 3 semester hours.
Study of the theories, principles, and practices of soils from a chemical process perspective. Soils and the application of nutrient cycling, plant nutrition, waste disposal, acid rain, pesticides and heavy metals. Soil, plant, and water interactions and analysis in laboratory settings required.

AGRO 5663 Principles of Environmental Science and Management: 3 semester hours.
Discussion, study and analysis of the methods of monitoring, assessing, and designing remedies for environmental pollution, including the physical, chemical and biological components utilized in maintaining and improving the capacity of varied environmental characteristics as related to agricultural production.

AGRO 5723 Soil-Plant Relations: 3 semester hours.
Discussion, study and analysis of the theories, principles, and practices which combine the production and management of plants for food, feed, and fiber with the determination of soil properties and their conservation and management. Review and analysis of recent literature pertaining to growth response curves, nutrient uptake, movement of nutrients in the soil, measurement of availability of nutrients to plants, and movement of nutrient to natural water systems.

AGRO 5733 Agricultural Chemicals and Water Quality: 3 semester hours.
Study and analysis of practices underlying the economical use of fertilizers, pesticides, and other agricultural chemicals. Emphasis on the relationship of soil properties and plant growth, selectivity and impact on the environment.

AGRO 5743 Land Disposal of Wastes: 3 semester hours.
Theoretical, regulatory, and practical aspects of disposal of municipal wastes, sewage effluent and sludge, industrial and hazardous wastes by land treatment and filling. Identification and assessment of strategies for clean-up of soil resources contaminated by past waste disposal as well as environmental impact of organic wastes.

AGRO 5753 Soils, Ecology, and Land Uses: 3 semester hours.
Soils and their properties as planned related to landscape ecology and specific land uses will be examined on a global, regional, and local level. An ecosystem approach will be used to examine issues and current problems associated with ecology and land use practices in agricultural systems, rangelands, forests, and wetlands. Also, ethical and philosophical points will be considered based on different soils, ecology, and land use viewpoints.

AGRO 5793 Problems and Issues in Environmental Science: 3 semester hours.
Identification and analysis of current trends and issues in environmental science. Evaluation of pending legislation, federal agency regulations and state and local policy applications. Reports; discussions; projects.