AREC - AGRICULTURAL AND RESOURCE ECONOMICS

AREC200 The Chesapeake Bay Ecosystem: Intersection of Science, Economics, and Policy (3 Credits)
The Chesapeake Bay is one of the most studied and monitored ecosystems in the world. To develop effective policies to restore this system to a healthier status requires integrating what we know about the biological and physical properties of the system with our understanding of the human dimension. Issues such as achieving nutrient reduction goals, restoring healthy blue crab and oyster fisheries in the bay will be used to demonstrate how economics interacts with science to guide policies that can be effective in achieving Bay restoration goals.

AREC210 The Food Chain: What Happens As Your Food Goes From Farm to Table (3 Credits)
How can we feed a growing global population, reduce farming’s environmental damage, and provide a healthier diet, all in the face of climate change? The course explores these global food system challenges in the context of the food supply chains that link farms, input providers, traders, food processors, retailers, consumers, and governments. We assess how supply chains are organized; how they use technologies; and how they can create organizations, develop new technologies, and adapt food production practices to meet these four major challenges facing the global food system.

AREC240 Introduction to Economics and the Environment (4 Credits)
Costs and social impacts of pollution and human crowding in the modern environment. The economic, legal and institutional causes of these problems. Public policy approaches to solutions and the costs and benefits of alternative solutions.
Credit Only Granted for: ECON200, AREC240, or AREC250.

AREC241 Environment, Economics and Policy (4 Credits)
How can economics help us understand modern environmental problems and design better policies to solve them? This course studies the relationship between the economy, environment and policy. The importance of production, consumption, externalities, property rights and public goods in environmental issues is examined. Technological and incentive-based solutions are considered. Students will apply these concepts to evaluate current controversial environmental problems.
Credit Only Granted for: AREC240 or AREC241.

AREC250 Elements of Agricultural and Resource Economics (3 Credits)
An introduction to economic principles of production, marketing, agricultural prices and incomes, farm labor, credit, agricultural policies, and government programs.
Credit Only Granted for: ECON200, AREC240 or AREC250.

AREC260 The Science of Gender in Economics and Development (3 Credits)
Is science an objective enterprise that qualifies researchers to investigate gender free from the constraints and prejudice of their culture? We will investigate the process by which various scientific disciplines, including anthropology, evolutionary biology, psychology, and economics do research on the topic of gender. We will describe the current state of the literature on why different sexes exist and how sex translates into gender across different societies today. With a better understanding of the sources of sex and gender, we will examine how to research the reasons behind the highly divergent economic outcomes for men and women today. We will discuss these issues in the context of the labor market in developed countries like the US as well as a variety of contexts in developing countries. A particular focus will be the techniques for learning more about the underlying reasons for these differences, how and whether they can be overcome, and if women play a specific role in improving economic outcomes in the poorest parts of the world.
Recommended: Completion of introductory statistics recommended but not required.

AREC280 Harvesting Big Data to Examine Agriculture and Climate Change (3 Credits)
Can agricultural production keep up with climate change? The digital revolution has changed the way we analyze and interpret the world. Big data offers both opportunities and challenges that require new tools and methods of analysis. This course applies sophisticated digital tools to an age-old concern: the impact of climate on agricultural productivity. In this hands-on introduction to data analysis and visualization with real-world data, students acquire the tools to understand the impacts of environmental change and more.
Credit Only Granted for: HNUH258A or AREC280.
Formerly: HNUH258A.

AREC306 Farm Management and Sustainable Food Production (3 Credits)
The organization and operation of farm businesses are explored through principles of management, financial analysis, production economics, marketing, and business planning. These farm management principles are presented in the context of a sustainable food production system.

AREC326 Intermediate Applied Microeconomics (3 Credits)
Deepens and broadens your ability to apply rigorous economic analysis skills to a broad range of problems.
Prerequisite: ECON200, AREC250, or AREC240; and ECON201. And MATH120, MATH130, MATH136, or MATH140; or must have completed MATH220.
Credit Only Granted for: ECON306, ECON326, AREC489M, or AREC326.
Formerly: AREC489M.

AREC345 Global Poverty and Economic Development (3 Credits)
This interdisciplinary course explores social and economic development around the world. Topics include geography, democratization, political instability and conflict, health and education, agricultural development, micro-entrepreneurship, and an introduction to impact evaluation methods used to evaluate the efficacy of public policy aimed at alleviating poverty.
Repeatable to: faculty committee.
The College of AGNR Honors Program. The thesis will be defended to a
Undergraduate honors thesis research conducted under the direction
AREC388 Honors Thesis Research (3-6 Credits)
Undergraduate honors thesis research conducted under the direction
of an AGNR faculty member in partial fulfillment of the requirements of
the College of AGNR Honors Program. The thesis will be defended to a
faculty committee.
Restriction: Must be in the AGNR Honors program.
Repeatable to: 6 credits if content differs.
AREC433 Food and Agricultural Policy (3 Credits)
Economic and political context of governmental involvement in the farm and food sector. Historical programs and current policy issues. Analysis of economic effects of agricultural programs, their benefits and costs, and comparison of policy alternatives. Analyzes the interrelationship among international development, agricultural trade and general economic and domestic agricultural policies.
Prerequisite: ECON326 or AREC326; or students who have taken courses with comparable content may contact the department.

AREC435 Commodity Futures and Options (3 Credits)
The economics and institutional features of commodity futures and options markets. Students will develop a basic understanding of the underlying price relationships between cash and futures markets and will apply this information to business risk management decision making.
Prerequisite: AREC326; or ECON326; or students who have taken courses with comparable content may contact the department.

AREC445 Agricultural Development, Population Growth and the Environment (3 Credits)
Development theories, the role of agriculture in economic development, the agricultural policy environment, policies impacting on rural income and equity, environmental impacts of agricultural development.
Prerequisite: ECON326 or AREC326; or students who have taken courses with comparable content may contact the department.

AREC446 Sustainable Economic Development (3 Credits)
Examine why socially equitable and environmentally sustainable economic growth is difficult to achieve. It explores the interactive dynamics of environmental degradation, human capital, inequality and institutions. Emphasis is on the role of market imperfections and political failure in explaining the persistence of extractive economic institutions that hinder sustainable development.
Prerequisite: AREC326; or ECON326; or students who have taken courses with comparable content may contact the department.
Credit Only Granted for: AREC446 or AREC489G. Formerly: AREC489G.

AREC447 The Economy of China (3 Credits)
An introductory survey course of economic development in China with emphasis on understanding the process of economic reform in mainland China since 1978.
Prerequisite: AREC326, ECON306, or ECON326.

AREC453 Natural Resources and Public Policy (3 Credits)
Rational use and reuse of natural resources. Theory, methodology, and policies concerned with the allocation of natural resources among alternative uses. Optimum state of conservation, market failure, safe minimum standard, and cost-benefit analysis.
Prerequisite: AREC326, ECON306, or ECON326; and (BMGT230 or ECON230).
Cross-listed with: ECON453.
Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Agricultural and Resource Economics: Agribusiness; Agricultural and Resource Economics: Environmental and Resource Economics; Economics Bachelor of Arts; Environmental Science & Policy-Env Economics).
Credit Only Granted for: AREC453 or ECON453.

AREC454 The Economics of Climate Change (3 Credits)
The role of economics in the formation of climate policy; basic concepts of environmental economics including efficiency, externalities, and policy instruments; economic models of intertemporal decisions and decision making in the face of uncertainty. Applied economic analysis of specific issues and current policy initiatives.
Prerequisite: 1 course with a minimum grade of C- from (AREC326, ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230).
Cross-listed with: ECON484.
Credit Only Granted for: AREC454 or ECON484.

AREC455 Economics of Land Use (3 Credits)
Fundamentals of location theory. Microeconomics of land use decisions, including determination of rent and hedonic pricing models. Impacts of government decisions on land use, including regulation (e.g., zoning), incentives (transferable development rights), provision of public services, and infrastructure investments. Impacts of land use on environmental quality, including issues relating to sprawl, agricultural land preservation, and other topics of special interest.
Prerequisite: 1 course with a minimum grade of C- from (AREC326, ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230).
Cross-listed with: ECON485.
Credit Only Granted for: AREC455 or ECON485.

AREC456 Energy and Environmental Economics (3 Credits)
Economic theory and empirical methods are used to study problems of energy, the environment, and the economy. It examines the extraction, production, and use of energy and market institutions and regulatory approaches used to correct market failures. Topics covered include: oil and natural gas markets, management and design of electricity markets, renewable energy, non-market valuation, climate change, and transportation policies.
Prerequisite: 1 course with a minimum grade of C- from (AREC326, ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230).
Cross-listed with: ECON486.
Credit Only Granted for: AREC456 or ECON486.

AREC457 Energy, Climate Change, and Options for a Low-Carbon Economy (3 Credits)
Provides a primer in the physics and atmospheric chemistry of climate change, describes what the effects of climate change may be and explains how energy generation and use in various sectors of the economy contribute to greenhouse gas. It presents policy options meant to curb the use of fossil fuels (e.g., carbon taxes), improve energy efficiency (e.g., standards and incentives), and identifies possible drawbacks or unintended effects of such policies. Students will also study adaptation from the engineering, policy and anthropology points of view. The course further covers other aspects of climate change, as the potential effect of climate change on human health, cultural artifacts and the built environment, and sensitive ecological systems, and the legal implications of carbon storage options.
Recommended: ECON200. And AREC326; or ECON326.
Restriction: Junior standing or higher.
AREC466 Transportation Engineering, Economics, and Policy (3 Credits)
The transportation system moves people and goods around the world, but transportation has downsides: harming local air quality, contributing to climate change, causing traffic accidents, and wasting people's time on congested roads. Mitigating these downsides will require new policies, new technologies, and new decisions by households and businesses. Focusing on the US transportation system, students will apply an integrated economics, policy, and engineering perspective to analyze transportation's most pressing challenges. Students are expected to have some background in one of the three disciplines--economics, engineering, or policy--but not all three. The beginning of the semester will include tutorials for students without much economics or engineering background.
Prerequisite: BMGT230, ECON230, ECON321, ENCE302, or PLCY304; or permission of the instructors.
Recommended: AREC326, ECON306 or ECON326.
Credit Only Granted for: AREC466 or ENCE489T.

AREC481 Environmental Economics (3 Credits)
An exploration of the use of economic incentives for protection of the environment and the determination of appropriate (or efficient) level of environmental quality. Also covers the choice of policy instruments for the attainment of environmental standards.
Prerequisite: 1 course with a minimum grade of C- from (AREC326, ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230).
Cross-listed with: ECON481.
Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Agricultural and Resource Economics: Agribusiness; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Environmental and Resource Economics; Economics Bachelor of Arts program).
Credit Only Granted for: ECON481 or AREC481.

AREC489 Special Topics in Agricultural and Resources Economics (3 Credits)
Repeatable to: 9 credits.