

**Agricultural, Environmental and Development Economics 597.01  
International Studies 597.01**

*Winter Quarter 2005*

**COURSE SYLLABUS**

Time: Tuesdays and Thursdays, 4:00 – 6:18 p.m.

Place: Parks Hall, Room 107

Title: *Problems and Policies in World Population, Food, and Environment*

Credit hours: 05

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Office hours will be announced in class.

Objectives: The objectives of the course are to encourage the students to appreciate the **nature** and **extent** of population, food, and environmental **problems**, to provide the students with basic interdisciplinary **tools** that help them understand better the causes and consequences of these problems, and to alert the students about the challenges involved in evaluations of the appropriateness of the **policies** used to address these problems, especially in developing countries and in nations in transition from central planning to a market economy. The **interrelationships** among these three sets of complex problems and the urgency of rigorous criteria in the **evaluation** of alternative policy options are highlighted in the course.

Contents: The course combines information from **theory**, **data**, and policy **experience**. In particular, the course addresses **population** growth and the challenges it poses – those of providing everyone with an adequate **diet** while simultaneously conserving the **natural resources** on which agriculture and other economic activities depend.

Since population is increasing more rapidly in **poor** countries than anywhere else, special attention is paid to the prospects for environmentally sound agricultural development in Africa, Asia, and Latin America. The problems arising as a **transition** is made from communism to a market economy are also examined, since agricultural development has lagged, environmental deterioration has been pronounced or both have occurred in many of the nations experiencing this transition.

The particular demographic, food availability and environmental circumstances found in any one region or country can, in turn, be traced to particular choices, policies and programs. The course examines these issues from a **choice perspective** and evaluates policies and programs that influence the extent of these problems through choices and human behavior.

Format: Lectures, including active **participation** in class discussion, videos, and recitations.

Grading: Grades are based on the following elements:

- (a) one writing assignment or **term paper** (presentation of summary, outline and bibliography, 5 points; final paper, 40 points),
- (b) two **midterm** exams (20 points each),
- (c) two **homework** assignments (5 points each), and
- (d) **attendance** and active class participation (5 points).

The *first homework* assignment will address computational problems on **population** growth. The *second homework* assignment will address computational issues related to the **demand and supply of food**. The assignments will help you in your research for the term paper, by showing the types of information, computations, and analysis that are expected in the paper. These problem sets must be submitted at the beginning of the class the day they are due. Points will be **deducted** for every weekday after the deadline. Keep attention in class for possible changes of dates.

The *first midterm* exam covers the population and food sections of the course, up to the class before the exam. The *second midterm* exam covers issues in economic development and the environment as well as the integrating section of the course. It focuses on materials discussed in class after the first midterm.

The *writing assignment* requires a problem statement and **data analysis** of key population, food demand and supply, environment, and economic development issues in a particular developing or transition economy, followed by an **evaluation** of policies and recommendations. You will be able to choose a country from a **short list** of eligible developing countries and economies in transition, which will be announced early in the course. These countries will be selected for this year's course (2005) on the basis of the availability of data and the appropriateness of the analysis of relevant population, food and environment issues for this country. It is expected that the list of eligible countries will change each year, to reduce opportunities for plagiarism, which will not be tolerated.

The specific content of the paper will be **discussed in class** throughout the quarter. The students are expected to seriously consider the suggestions offered in class and to follow the specific instructions presented during class time. Students will be required to use specific **data sources** for some of the computations that must be included in the paper, these computations must be explicitly presented in the paper, and the students are expected to cover specific **time periods** with their analysis. These instructions will be announced in detail as the relevant portions of the course are developed in class.

The *homework assignments* will serve to prepare for the computational portions of the writing assignment. One assignment will address computational issues about population growth. The other one will address computational issues about the supply and demand of food in the particular country. The students are expected to use the specific concepts and **methods** presented in class in their papers.

The *outline* assignment will also serve as preparation for the writing assignment. It should include a brief summary of why the country selected is a useful case study, what are the main issues that the writer expects to address, and what references are available to complete the task. An outline of the paper will allow the TAs to check if the student's plan for the paper is complete. The students are encouraged to have a good conversation with the relevant TA about their papers. Feedback on this assignment will help the student address the final challenge of writing the paper.

Problem sets must be submitted at the beginning of the class session on the day they are due. **Late** papers will be heavily **penalized** and are highly discouraged. On the homework and outline assignments, one out of five points will be deducted for each day. On the writing assignment, 10 out of 100 points will be deducted for each day the paper is late. Midterms must be taken on the dates indicated above, unless a very serious excuse is presented. The instructor will then assign a new date.

Regular class **attendance** is extremely critical in this course, as relevant materials presented in class may not be available elsewhere. Midterm exam questions will be heavily based on classroom discussion. Attendance will be randomly checked, by calling the roll and perhaps through class quizzes. At various times, including twice during the same class session, attendance will be taken. Any student who is absent without an excuse (*e.g.*, note from a medical clinic, obituary notice for a relative who has passed away or the like) when the roll is taken will have the grade lowered by 20 points out of 100 each time there is an absence.

<u>Due Dates:</u>	First Problem Set	February 1 (Tuesday)
	First Midterm	February 15 (Tuesday)
	Second Problem Set	February 22 (Tuesday)
	Outline and Bibliography	February 24 (Thursday)
	Writing Assignment	March 15 (Tuesday)
	Second Midterm	March 15 (Tuesday, 3:30-5:18)

#### Academic

Misconduct: Academic misconduct of any kind (*e.g.*, plagiarism, cheating, and copying papers from other students, the internet or other sources) **will not be tolerated**. Copying someone else's answers to midterm exams constitutes academic misconduct, as does failure to cite the bibliographic sources for materials used in the writing assignment. Appropriate citations and references are required for all materials used in papers that are not the student's **own** work. A file of term papers submitted in previous offerings of this course is kept and consulted when there is suspicion of plagiarism and internet tools are used to detect other forms of plagiarism.

Faculty Rule 3335-5-54 will be followed in cases of suspected academic misconduct: "*Each instructor shall **report** to the Committee on Academic Misconduct all instances of what he or she believes may be academic misconduct.*" Instances of misconduct are penalized. In the past, students have failed to graduate because of this.

Students can work together, however, in the preparation of homework assignments, but each assignment must be turned in individually.

Disabilities: Students with disabilities, please see the instructor early for proper arrangements.

Web page: The syllabus, instructions, assignments, references and other materials will be available at the course's webpage at:

<http://aede.osu.edu/class/aede597.01/gonzalez/>

Bibliographic  
References:

Reading assignments will be taken from the forthcoming **book**:

1. Douglas Southgate, Douglas H. Graham and Luther Tweeten, *The Global Food Economy*, Basil Blackwell, forthcoming 2004.

The relevant chapters of the book will be available in the course's website, for the students to download. A printed copy can be obtained at SBX, from zip publishing.

If there is sufficient interest in the course's content, students may purchase any of the following two books.

2. Phillips Foster and Howard D. Leathers, *The World Food Problem*, Boulder, CO: Lynn Rienner Publishers, second edition, 1999.
3. Theodore Panayotou. *Green Markets: The Economics of Sustainable Development*, ICS Press, San Francisco, 1993.

Additional reading assignments will be drawn from sources available in closed reserve at the Main Library.

Topics by Weeks

**Week 1 Introduction to Population, Food, and the Environment**

- Course objectives and procedures
- Human behavior, choices and policies
- Interdependence and global externalities
- Carrying capacity
- Predicting the future
- Models
- Limits to growth (pessimist)
- Technological change (optimist)

**Reading Assignments** (on closed reserve at the Main Library. The symbol + means required reading)

- +1. Tom Tietenberg, *A Visions of the Future*, Environmental and Natural Resource Economics, pp. 1-11, Glenview, IL: Scott, Foresman.
- +2. Foster and Leathers, World Food Problem, pp. ix-xiii, pp. 1-12,
- +3. D. Gale Johnson, "Population, Food and Knowledge," American Economic Review, Vol. 90, No. 1, 2000, pp. 1-14.
4. Donella H. Meadows *et al.*, The Limits to Growth, New York: Universe Books, 1972.
5. Southgate, Graham and Tweeten, Chap. 1, "Introduction", website.

**Week 2                    Developing Country Policy Environments**

Key regional features and stylized facts

- Sub-Saharan Africa
- East, Southeast, and South Asia
- Latin America
- Eastern Europe and Former Soviet Union

**Reading Assignments**

- +1. Douglas H. Graham, "Regional Analysis of Economic Growth: A worldwide synopsis for developing country regions", in Southgate *et al.* book.

**Week 3                    Dimensions of the World's Population Problems**

- demographic variables and processes
- demographic equation
- overview of world population dynamics
- special problems in low-income countries
- why are birth rates so high?
- downturn in growth rates in early 1970s
- demographic transition
- population pyramids
- demographic momentum
- rural-to-urban migration
- population, economic growth, and the environment
- population dynamics and projections

- explanations
  - Malthus= hypothesis
  - Classical and neoclassical economists
  - Natural scientists
- what have we learned since Malthus?
- role of prices and markets

**Reading Assignments** (on closed reserve at the Main Library)

1. Thomas Malthus, An Essay on the Principle of Population (scan).
- +2. Foster and Leathers, Chaps. 7, 10, 15 and 16.
3. Video: "World Population"

**Week 4 World Food Problems: Demand**

- Nature of the Food Problem
- Rome Conference (1974)
- Purposes and costs of drives for self-sufficiency
- Problem of lack of purchasing power:
- Food Security and poverty
- Economic development and food
- International trade and food
- Comparative advantages
  - Food Demand considerations
    - Population growth
    - Income effects
    - Price effects
    - Product substitution
    - Food aid
    - Conflict between producer and consumer interests
    - Finding the right price for food
    - Phases of supply and demand balance and economic growth

**Reading Assignments** (on closed reserve at the Main Library)

1. Foster and Leathers, Chapters 2 through 6, 8 and 9.
2. Jayne *et al.*, Confronting the Silent Challenge of Hunger: A Conference Synthesis, Michigan State University, 1995.
3. C. Peter Timmer, A Price Policy Analysis: The Partial Equilibrium Framework, Getting Prices Right, Ithaca: Cornell University Press, 1986, pp. 20-58.

- +4. Southgate, Graham, and Tweeten, Chap. 2, The Demand Side: How Population Growth and Higher Incomes Affect Food Consumption.

## **Weeks 5-6 World Food Problems: Supply**

### Food Supply considerations

- historical views on food production
- overview of world food problems, producing regions
- climate and soils
- food, agriculture, and economic development
  - Schultz's hypothesis
  - Productivity of labor and market integration
- policy biases against agriculture: high-income and low-income countries
- the political economy of agricultural policies
- effect of food aid on producers
- new seed varieties - The green revolution
- green revolution in East and Southeast Asia and in Africa
- energy, fertilizer, and other chemicals
- bio-technology

Video on the World Food Problem

### **Reading Assignments** (on closed reserve at the Main Library)

1. T. W. Schultz, Transforming Traditional Agriculture. Chapter 3, "The Allocative Efficiency of Traditional Agriculture" (scan), pp. 36-52.
2. Foster and Leathers, Chaps. 11, 12, 17, 18, 19 and 20.
3. Amartya K. Sen, "The Political Economy of Hunger," in Ismail Serageldin and Pierre Landell-Mills (eds.), Overcoming Global Hunger, Washington, D.C.: The World Bank, 1993, pp. 85-90.
4. Yujiro Hayami, "Assessment of the Green Revolution," in Carl Eicher and John Staatz (eds.), Agricultural Development in the Third World, Baltimore: Johns Hopkins University Press.
- +5. Southgate, Graham and Tweeten, Chap. 3, The Supply Side: Agricultural Production and its Determinants.
- +6. Southgate, Graham and Tweeten, Chap. 4, Aligning the Consumption and Production of Food over Time.
- +7. Southgate, Graham and Tweeten, Chap. 6, Globalization and Agriculture.
- +8. Southgate, Graham and Tweeten, Chap. 7, Agriculture and Economic Development.

### **First Midterm Exam**



## Weeks 7-8      **The Environment and Issues Related to Population and Food**

### Sustainable Development

- Bruntland Commission
- ecosystems
- economic sustainability: choices
- Conflicts of interest
- Conservation
- Renewable and non-renewable resources

### Natural Resources/Environment

- stock vs. flow resources
- thresholds
- carrying capacity, safe minimum standard
- technological change, population growth, and social institutions

### Environmental Economics Concepts

- inter-temporal choices
  - discounting
  - inter-generational equity
- property rights/entitlements
- private vs. social costs - externalities
- marginal social product
- market failure
- policy failure and rent-seeking

### Contemporary Environmental Issues, Policy Options

- deforestation
- soil erosion
- endangered species
- global warming
- water quantity and quality
- policy options

Video: "Our Threatened Heritage"

Video: "Trees of Hope"

### **Reading Assignments** (on closed reserve at the Main Library)

- +1. Theodore Panayotou, Green Markets: The Economics of Sustainable Development. Chapters 1, 2 and 3.
- +2. Dixon, John A. and Fallon, Louise A. "The Concept of Sustainability: Origins, Extensions, and Usefulness for Policy," Society and Natural Resources, Vol. 2, 1989, pp. 73-84.

+3. Southgate, Graham, and Tweeten, Chap. 5. Agriculture and the Environment.

**Weeks 9-10** Integration and Summing Up  
-main points of interdependence  
-general policy recommendations  
-policy implementation  
Video: "Biodiversity and Development"

**Reading Assignments** (on closed reserve at the Main Library)

+1. Panayotou, Green Markets: The Economics of Sustainable Development.  
Chapter 4.

**2nd Midterm Exam**