

## **(DRAFT) INHL 685 Population – Environment Theory and Evidence**

March 11-April 29 (Second Session) 2008

Tuesday & Thursday, 5:00- 7:00 PM

Tidewater (room)

3 Credits

### **Instructor: Laura Murphy, PhD**

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### **Overview of Course**

Climate change is now on the agenda everywhere: what are the development and population-based determinants of global warming? What are the consequences for human well-being? How can we preserve forests in the face of growing populations and demand for food? Is “over-population” cause loss of biological diversity, or do the causes lie in economic and social policies, or globalization? How do people respond to scarcities of resources and degraded environments? How can we improve urban livability with the continued sprawl and in-migration of city residents? How can we manage the environmental impacts of rising levels of consumption around the globe? Especially significant for public health professionals: Can family planning and development programs contribute to better management of natural resources? Does “integration” of programs make them more effective?

These questions address the relationship between human populations and the environment, and have been the subject of heated debate academic, policy and technical debates for decades. The consequences of how we ask questions and frame the responses have particular implications for project designs, policies for development and public health.

This course (1) critically examines approaches in the social sciences (economics, anthropology, geography, history) to the understanding relationships between human populations (and health) and environmental change. We survey major theoretical approaches that influence research and national and international policy today: neo-Malthusian theories, contrasting Cornucopian models, and Boserupian population-induced intensification, and the ‘population-poverty-degradation’ nexus. Political ecology approaches highlight the role of structural factors (policies, historical context) in mediating demographic dynamics and environmental changes through the micro-level efforts of human actors, such as farmers, fishermen, and urban residents.

The course is also (2) a survey of major environmental *concerns* and their relationship to population dynamics and human health. These environmental concerns are shaped by social perspectives, the scale of analysis, and our scientific ability to discern trends. Finally, we also are introduced to (3) proposed *solutions* to problems, from different disciplines and perspectives.

The links between human population dynamics and the natural environment are not direct, obvious and immediate, but are affected by political, social, technological and economic systems and by expected standards of living (values). The relationship is two-way: changes in the environment can stimulate people to change their demographic, social and economic behavior. These relationships touch upon human and environmental concerns of paramount importance: health, well-being and sustainability of life and environmental services. Actions are needed at many levels of society, and from many actors, to

ameliorate (if not reverse) the implacable changes that human behaviors inscribe upon the earth and her natural systems.

We conclude with critical reflection and integration of theories, problems, and cases: what does it mean for researching and approaching population-environment-health interactions in an age of rapid and widespread globalization and integration of markets, ideas, and disease vectors? What are feasible solutions? How can population-environment debates advance beyond sterile, old (yet persistent) debates about “over-population” and population control?

### **Who is this class for?**

- Graduate (MPH, doctoral) students from any department of SPHTM, Payson, and Latin American Studies who are interested in the natural and built environment and/or development (as a complement to INHL 720);
- MPH students interested in the experiences of public health programs with an environmental component, i.e. climate change mitigation and/or integrated FP/RH and development/conservation programs;
- Upper-level undergraduates in public health, development, international studies, area studies, environment studies (Please: contact the instructor first).

### **Goals & Objectives**

The goal of the course is to provide a theoretical and empirical foundation for appreciating scientific research and policy and practical efforts at the intersection of (1) the impacts of human populations on the natural environment, and (2) the impact of environmental changes on demographic behavior and human health. The course will help prepare students for inter-disciplinary research, program planning and/or research dealing with these immediate and long-term problems.

Objectives: By the end of the course, students will be able to:

1. Identify and describe current major demographic and environmental trends affecting public health and development efforts around the world, at different scales;
2. Summarize relevant scientific evidence about specific population-environmental relationships;
3. Identify and use appropriate theoretical models and empirical evidence from scientific research to aid in project design, evaluation and proposal/grant-writing;
4. Identify and apply models and lessons from NGO work at the community level in integrated population-environment programs for use in project design and grant proposals; and
5. Identify appropriate data, variables, unit of analysis, and research methods for conducting scientific population-environment research on different topics.

### **Readings and Resources**

#### **Required Text Books (Order and Purchase from Amazon.com)**

(1) Harrison, P. and F. Pearce. 2001. *AAAS Atlas of Population and the Environment*. University of California Press, Berkeley. Also available FREE online at <http://atlas.aaas.org/index.php?sub=intro>

(2) Pollan, Michael. 2006. *The Omnivore's Dilemma: A Natural History of Four Meals*. The Penguin Press, New York.

**Electronic Readings:** There is no coursepack to purchase. Download required required readings from Blackboard. Handouts and lectures will be posted on blackboard.

### Assignments & Evaluation

- 50% Short writing assignments (memos, essays) of 1-2 pages on specific topics relating to course readings: 6 memos @ 5 points each (30 points total)
- 10 % Assist with in-class activity. Sign up for a specific date and topic/reading: you are responsible for presenting key content in the assigned readings to students through a short formal powerpoint presentation, class activity, etc. We will discuss this further individually.
- 10% Class participation & attendance: Attend class regularly, keep up with readings, be actively engaged in the classroom during discussions and exercises. This is a small class and somewhat participatory; excessive absence and/or tardiness will be noted.
- 30% Individual final paper/project: 8-12 pages (1 inch margins, 1.5 spacing, Times Roman 11 point font). A critical review of a book on a relevant topic of your choice (to be approved by me). More detailed instructions and suggestions will follow. (Incomplete) Potential Books for Final Book Review/Project. Sample titles:

<i>Charles C. Mann</i>	<i>1491: New Revelations of the Americas</i>
<i>Mike Tidwell</i>	<i>Bayou Farewell, The Ravaging Tide</i>
<i>Vandiva Shiva</i>	<i>Stolen Harvest</i>
<i>John Barry</i>	<i>Rising Tide</i>
<i>Marq De Villers</i>	<i>Water: The Fate of Our Most Precious Resource</i>
<i>Melissa Leach &amp; James Fairhead</i>	<i>Misreading the African Landscape</i>
<i>Simon Maxwell</i>	<i>Food Security in Sub-Saharan Africa</i>
<i>John McNeil</i>	<i>Something New Under the Sun</i>
<i>Paul Hawkin</i>	<i>Natural Capitalism</i>
<i>William McDonough</i>	<i>Cradle to Cradle: Remaking the Way We Make Things</i>
<i>Jared Diamond</i>	<i>Guns, Germs, and Steel</i>
<i>Jared Diamond</i>	<i>Collapase: The Rise and Fall of Great Civilizations</i>
<i>David Saitherwaite</i>	<i>Environmental Problems in an Urbanizing World</i>
<i>Wolfgang Sachs</i>	<i>Greening the North</i>
<i>Thomas Princen</i>	<i>Confronting Consumption</i>

## CLASS SCHEDULE AND CONTENT

### March 11 & 13: Overview

**Key concepts:** population dynamics, fertility, migration, mortality, morbidity, population structure, demographic change; environment, natural resources, environmental services, values, globalization, theory, conceptual models, social science, scale, threshold effects, IPAT, (Neo)Malthusian, well-being, sustainable human development, capabilities, security

### Readings

(“Atlas”) Harrison, P. and F. Pearce. 2001. *AAAS Atlas of Population and the Environment*. Oxford University Press. Main text, purchase in bookstore. Foreword, Part 1: Overview (pp xi - 40);

De Souza et al 2003 *Critical Links: Population, Health and the Environment*

UNEP *GEO-4* Chapter 1: Environment and Development

Hartmann, Betsy, 1999. “Population, Environment, and Security. A New Trinity.” Chapter 1 In Jael Silliman and Ynestra King (eds) *Dangerous Intersections. Feminist Perspectives on Population, Environment and Development*. South End Press, Boston.

Cincotta, R. et al 2003. *The Security Demographic. Population and Civil Conflict after the Cold War*. Read Summary and Key Findings, browse the full report either as UPLOADED to blackboard site, or read it ONLINE at Population Action International’s website:

<http://www.populationaction.org/resources/publications/securitydemographic/index.html>

## **March 25 through April 3: (Global) Food Systems & Food Security**

**Key concepts:** Thomas Robert (Bob) Malthus, neo-Malthusianism, carrying capacity, Boserup, agricultural intensification, agricultural extensification, livelihoods, the ‘population-poverty-environmental degradation’ nexus, land degradation, sustainable agriculture, food, food security, entitlements, famine, trade, social capital, impacts of HIV/AIDS, technology, remittances, migration

### **March 25: Concepts and Debates**

Case: Machakos, Kenya: Population Growth and Agricultural Intensification

Atlas Part 2: Natural Resources, Land use, Ecosystems, Biodiversity (skim all, read Foodcrops; Croplands & Pastures)

Dyson, Tim. *World food trends and prospects to 2025*. Proceedings of the National Academy of Sciences, USA (96) 5929-5936. (Colloquium on “Plants and Population, Is There Time” December 5-6, 1998, Irvine CA. <http://www.pnas.org/content/vol96/issue11/index.shtml#COLLOQUIUM>)

Tilman, David. 1999. “Global environmental impacts of agricultural expansion: The need for sustainable and efficient practices.” National Academy of Sciences Colloquium: Plants and Population: Is there time? <http://www.pnas.org/content/vol96/issue11/index.shtml#COLLOQUIUM>

Tiffen, M. and M. 1992 “Mortimore, Environment, Population Growth and Productivity in Kenya: A Case Study of Machakos District”. *Development Policy Review*, 1992. **10**: p. 359-387.

### **March 27: AIDS & Food security in rural Africa**

Case Study: western Kenya

Murphy, L. 2008. Gardens and AIDS. *Population and Environment*.

Murphy (others TBD)

De Waal, Alex and Alan Whiteside. 2003. New variant famine: AIDS and food crisis in Southern Africa. *The Lancet*, October 11, 2003

Gillespie, Stuart, Lawrence Haddad, Robin Jackson. 2001. "HIV/AIDS, Food and Nutrition Security. Impacts and Actions." Report of IFPRI.

### **April 1 & 3: Industrial Systems-Focus on Food**

Atlas: "Trade " 67-70; "Natural Resources & Energy" 43-50

Pollan, 2006, Section 1 (minimum, read more if you can)

Boddiger, D. 2007 "Boosting biofuel crops could threaten food security" *The Lancet*, Volume 370, Issue 9591, 15 September 2007-21 September 2007, Pages 923-924

Movie: Fast Food Nation

## **April 8 through April 17: Global Climate Change**

Key Concepts: energy regime, industrial transformation, material flows, global climate change, emissions, greenhouse gases, carbon sequestration, sea-level rise, precautionary principle, population policy, Kyoto protocol, vulnerability; environmental refugees, security, population and conflict, commodity chains, resilience...

### **April 8: Definitions, concepts and main debates**

Movie: "An Inconvenient Truth"

*Atlas* "Population and Atmosphere (95-102); Migration, pp 87-90; Urban 91-94

Haines A, 2006. Harben Lecture: Climate change and human health: impacts, vulnerability, and mitigation *Lancet* 2006; 367: 2101-09.

IPCC 4<sup>th</sup> Assessment Report 2007 <http://www.ipcc-wg2.org/1-396> (Read: Working Group I and II Summary for Policymakers)

McMichael, A. Woodruff, S. Hales 2006 "Climate change and human health: present and future risks" *The Lancet* 2006; 367: 859-69

Lendrum, D. and C. Corvalan. 2007. "Climate Change and Developing Country Cities: Impact on Environmental Health and Equity." *Journal of Urban Health: Bulletin of New York Academy of Medicine*. Vol. 84. No.1

### **April 10: Security and Vulnerability**

UNEP GEO-4 Chapter 7, "Vulnerability of People and the Environment: Challenges and Opportunities"

Barnett, J and N. Adger. 2007. "Climate Change, Human Security, and Violent Conflict." *Political Geography* 26 (2007) 639-655.

Cincotta, R. et al 2003. *The Security Demographic. Population and Civil Conflict after the Cold War*. Read Summary and Key Findings

Hartmann, Betsy, 1999. "Population, Environment, and Security. A New Trinity." Chapter 1 In Jael Silliman and Ynestra King (eds) *Dangerous Intersections. Feminist Perspectives on Population, Environment and Development*. South End Press, Boston.

Blanco, R. 2006. "Local initiatives and adaptation to climate change." *Disasters* 2006 (30) 140-147. Overseas Development Institute.

Guest Speaker: Ann Yoachim: "Population/Environment/Health Linkages in New Orleans"

### **April 15 & 17: Industrial Systems-Consumption**

Atlas "Air Pollution" and Population, waste, and chemicals" (107-118)

Garner, Andy, G. Keoleian. 1995. *Industrial Ecology: An Introduction*. National Pollution Prevention Center for Higher Education. November 1995.

IPCC, Chapter 7 "Industry, Settlement and Society"

Pollen, 2006, Sections 2 (by the 15<sup>th</sup>) and Section 3 (by the 17<sup>th</sup>)

Princen, T, 2002 "Confronting Consumption" (excerpts TBD)

## **April 22 & 24      Integrated Population, Health & Environment Programs**

Case Study: Philippines

D'Agnes, H et al. 2005. "[Gender Issues within the Population-Environment Nexus in Philippine Coastal Areas](#)" *Coastal Management Journal*. August 2005.

Castro, J. La. D'Agnes C. Angel, 2004, "Mainstreaming Reproductive Health and Integrated Coastal Management in Local Governance: The Philippines experience" (USAID EHP)

Case Study: Madagascar

Kleinau, E., Randriamananjara, O., & Rosensweig, F. (2005). "*Healthy People in a Healthy Environment: Impact of an Integrated Population, Health, and Environment Program in Madagascar.*" Washington, D.C./USAID: Environmental Health Project.

Mogelgaard K. and K. Patterson 2005 "Linking Population Health and Environment in Finarantsoa Province, Madagascar" *Policy Link*. Population Reference Bureau. November 2006.

Movie: Forests and Family Planning in Madagascar

## **April 29: Student Projects & Wrap Up**

**Key concepts:** globalization, polarization, space of flows, space of places, interdependence, information age, networks, integration, communication

Readings

Student abstracts (Students present summary (poster or other format) of their final project/book review.)

## “COURSEPACK” READINGS: (FULL CITATIONS FOR READINGS LISTED ABOVE)

- Barnett, J and N. Adger. 2007. “Climate Change, Human Security, and Violent Conflict.” *Political Geography* 26 (2007) 639-655.
- Blanco, R. 2006. “Local initiatives and adaptation to climate change.” *Disasters* 2006 (30) 140-147. Overseas Development Institute.
- Boddiger, D. 2007 “Boosting biofuel crops could threaten food security.” *The Lancet*, Volume 370, Issue 9591, 15 September 2007-21 September 2007, Pages 923-924
- Cincotta, R. et al 2003. *The Security Demographic. Population and Civil Conflict after the Cold War*. Read Summary and Key Findings, browse the full report either as UPLOADED to blackboard site, or read it ONLINE at Population Action International’s website:  
<http://www.populationaction.org/resources/publications/securitydemographic/index.html>
- D’Agnes, H et al. 2005. “[Gender Issues within the Population-Environment Nexus in Philippine Coastal Areas](#)” *Coastal Management Journal*. August 2005.
- De Waal, Alex and Alan Whiteside. 2003. New variant famine: AIDS and food crisis in Southern Africa. *The Lancet*, October 11, 2003.
- Dyson, Tim. *World food trends and prospects to 2025*. Proceedings of the National Academy of Sciences, USA (96) 5929-5936. (Colloquium on “Plants and Population, Is There Time” December 5-6, 1998, Irvine CA.  
<http://www.pnas.org/content/vol96/issue11/index.shtml#COLLOQUIUM>)
- Garner, Andy, G. Keoleian.1995. *Industrial Ecology: An Introduction*. National Pollution Prevention Center for Higher Education. November 1995.
- Gillespie, Stuart, Lawrence Haddad, Robin Jackson. 2001. “HIV/AIDS, Food and Nutrition Security. Impacts and Actions.” Report of IFPRI.
- Grandia, L. 2005. “Appreciating the Complexity and Dignity of People’s Lives: Integrating Population-Health-Environment Research in Petén” *ECSP* Issue 10, November 2005.
- Haines A, 2006. Harben Lecture: Climate change and human health: impacts, vulnerability, and mitigation *Lancet* 2006; 367: 2101–09.
- Harrison, P. and F. Pearce. 2001. *AAAS Atlas of Population and the Environment*. Oxford University Press. Main text, purchase in bookstore. Also online at [www.aaas.org](http://www.aaas.org). **Cited in text as ‘Atlas’**
- Hartmann, Betsy, 1999. “Population, Environment, and Security. A New Trinity.” Chapter 1 In Jael Silliman and Ynestra King (eds) *Dangerous Intersections. Feminist Perspectives on Population, Environment and Development*. South End Press, Boston.
- IPCC, 2007: *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E.
- IPCC, 2007: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt,
- Kleinau, E. et al. 2005. “*Healthy People in a Healthy Environment: Impact of an Integrated Population, Health, and Environment Program in Madagascar.*” Washington, D.C./USAID: Environmental Health Project. May 2005.
- Lendrum, D. and C. Corvalan. 2007. “Climate Change and Developing Country Cities: Impact on Environmental Health and Equity.” *Journal of Urban Health: Bulletin of New York Academy of Medicine*. Vol. 84. No.1
- Mogelgaard K. and K. Patterson 2005 “Linking Population Health and Environment in Finarantsoa Province , Madagascar “*Policy Link*. Population Reference Bureau. November 2006.
- Pollan, M. 2006. *The Omnivore’s Dilemma: A Natural History of Four Meals*. The Penguin Press, New York
- Princen, T., M. Maniates, K. Conca Eds. 2002. *Confronting Consumption* MIT Press. Cambridge, Massachusetts

- Tiffen, M. and M. 1992 “Mortimore, Environment, Population Growth and Productivity in Kenya: A Case Study of Machakos District”. *Development Policy Review*, 1992. **10**: p. 359-387.
- Tilman, David. 1999. “Global environmental impacts of agricultural expansion: The need for sustainable and efficient practices.” National Academy of Sciences Colloquium: Plants and Population: Is there time?  
<http://www.pnas.org/content/vol96/issue11/index.shtml#COLLOQUIUM>
- UNDP 2007. *Global Environmental Outlook-4: Environment for Development*. November 2007.  
<http://www.unep.org/geo/geo4/media/>