

Spring 2009

Soc 305
Demography: Population and Health (Spring 2009)

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I ABSTRACT

This course is designed to identify, examine the nature and evaluate the evidence regarding key population problems affecting modern societies. The course emphasizes the use of population models as a tool to frame, define and investigate these problems. Examples of problems studied include: relations between population growth and emergence of new diseases, population growth and environment, and population growth and socioeconomic development.

II COURSE CONTENT

The course begins with an introduction to the nature of population models. To be properly formulated these models must resolve three problems: (a) determine the boundaries of influence of biology and social and economic factors, (b) define basic concepts and specify their measurement and (c) articulate a representation of the mechanisms through which biology, social and economic factors determine population dynamics, e.g. changes in basic properties of a population and its environment. Ultimately, these models address the following question: how do individuals and their behavior affect population characteristics and viceversa? We discuss the fundamental properties of population models and, as an illustration, apply them to the study of pre-industrial and post-industrial population dynamics.

We start with a key question: what role, if any, does population dynamics play in the birth, development and eventual collapse of societies? We turn to an examination of the properties of the 'population model'. We then introduce sequentially the following themes:

=the emergence of HIV/AIDS

=nature of new diseases; we evaluate the commonly made claim that these are events that result from population growth *per se*.

= relations between population growth and composition, economic growth, technological development and environmental degradation. Relations in pre-industrial and post-industrial periods; how does relation shifts over time.

=population, environment, climate change and the impact on global health;

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=persistent, strong, universal health and mortality disparities by social groups everywhere in the world. Why? These disparities continue to be with us despite large increases in wealth, great technological advances, and massive changes in the financing of public health systems. We pose a potentially remarkable possibility, namely, that such disparities are reproduced across generations. We identify the mechanisms that make this possible.

=is population aging dangerous? Determinants and consequences of population aging in the US, other developed countries and the developing world.

III COURSE REQUIREMENTS

There will be an in-class midterm that will take place during the first week of May. The midterm will consist of a set of questions requiring very short answers. This midterm will count for 50% of your final grade. There will be a take-home final which will count for 50% of your final grade. The take-home final will be an expanded version of the midterm

To familiarize you with the style of midterm and final I will distribute 3 or 4 take-home tests that will not be graded. In addition, these will be useful for you to judge your understanding of materials.

IV COURSE ALERT

I will be away on Thursday April 30th. I will propose alternative dates to recoup this class.

V. REQUIRED READINGS

You should purchase one text book (NU Bookstore): Joel E. Cohen. 1995. **How many People Can the Earth Support?** New York: Norton and Company. Other readings are either on Library reserve or will be uploaded in Blackboard. A star (*') preceding a reading item indicates this is optional. All other readings are required.

All my class notes will be posted on Blackboard. These are mostly (but not solely) power point presentations and should help you keep track of the material

VII. COURSE CONTENT AND READINGS

A. An introduction: why do societies collapse? (Week 1)

=The collapse of societies: what's the role of population?

1. Diamond, J. 2005. **Collapse: How do societies choose to fail or succeed.** Penguin Books: Prologue, Chapters 5 and 10. **{Library Reserve}**

5. Stevens, W.K. 1997. "Evolution of humans may at last be faltering" In R.W. Sussman (ed), **The Biological Basis of Human Behavior**, Ma: Simon and Schuster. **{Blackboard}**

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2. Cohen Chapter 16 {**Required Text**}

B. The population model (1): Population and biology: what are the relations? (Weeks 1 and 2)

=Population and biology: reproduction, health and migration

=Biological foundation of behavior

=Evolutionary view of population dynamics

=Some examples of interplay with biology: fertility, longevity, intergenerational transfers

1. Keyfitz, N. 1984. "Introduction" in Nathan Keyfitz (ed) **Population and Biology**, Liege: Ordina:1-7 {**Blackboard**}

2. Udry, R. J. 1995. "Sociology and biology: what biology do sociologists need to know?" **Social Forces**, 73(4):1267-1278 {**Blackboard**}.

Greenspan, R.J. 1997. "Understanding the genetic construction of behavior" In R. W. Sussman (ed) **The Biological Basis of Human Behavior**, Ma: Simon and Schuster. {**Blackboard**}

5. Wilson, E, 1997. "Sociobiology: a new approach to understanding the basis of human behavior" in R.W. Sussman (ed), **The Biological Basis of Human Behavior**, Ma: Simon and Schuster. {**Blackboard**}

6. Gould, S.J. 1997. "Sociobiology: the art of storytelling" In **The Biological Basis of Human Behavior**, Ma: Simon and Schuster. {**Blackboard**}

*7. National Research Council, 2001. Cells and Surveys: Should Biological Measures Be Included in Social Science Research? Chapter 3 (by Kaare Christensen), pp. 42.63 {**Blackboard**}

C. The population model: rates, structures, and population dynamics (Weeks 1 and 2)

=Rates and the their determinants

=Population distributions: by age, by sex, by geographic location

=How rates determine distributions

1. Class notes: on the measurement of demographic entities {**Blackboard**}

2. Keyfitz, N. 1980. "Population appearances and demographic reality", **Population and Development Review**, 6(1):47-64 {**Blackboard**}

4. Coale, A.J. 1964. "How a population ages and grows younger" in R. Freedman (ed.) **Population: The Vital Revolution**". Anchor Books. {**Blackboard**}

D. HIV/AIDS: a disaster waiting to happen? (Week 3)

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1. Update on HIV/AIDS: http://data.unaids.org/pub/EpiReport/2006/2006_EpiUpdate_en.pdf

*2. Essex, M. 1994. "The etiology of AIDS". In M. Essex et al., (eds.) **Aids in Africa**. New York: Raven Press, pp:1-20. **{Library Reserve}**

3. Nowak, M.A. and A. J. McMichael, 1995. "How HIV defeats the immune system", **Scientific American**, August 1995:58-65. **{Blackboard}**

4. Piot, P., J. Goeman, and M. Laga, 1994. "The epidemiology of HIV and AIDS in Africa". In M. Essex op cit., pp: 157-172. **{Blackboard}**

*5. May, R., R. Anderson and S. Blower, 1989. "The epidemiology and transmission dynamics of HIV/AIDS", **Daedalus**, 118(2) **{Library Reserve}**.

6. May, R. and R. Anderson. 1987. "Transmission dynamics of HIV infection", **Nature**, 326:137-142 **{Blackboard}**

*7. Anderson, R. and R. May. 1988. "Epidemiological parameters of HIV transmission", **Nature**, 333:514-519. **{Blackboard}**

8. Anderson, R. 1995. "The transmission dynamics of sexually transmitted diseases: the behavioural component" In Tim Dyson (ed.) **Sex Behavior and Networking: Anthropological and Socio-Cultural Studies of the Transmission of HIV/AIDS**. Liege: IUSSP **{Blackboard}**

9. Palloni, A. 1995 "The Demography of HIV/AIDS" *Population Index* 62(4):601-652 (Winter) **{Blackboard}**

E. Machupo, Ebola and other hemorrhagic fevers: where do they come from? (Week 4)

=Plagues and people: something old and something new

=Population growth and plagues

=How does the future look like?

*1. McNeill, W. 1976. **Plagues and People**. Doubleday Anchor Book. (recommendation: read entire book) **{Library Reserve}**

2. J. Goldberg, 1996. "Flirting with disaster" **Details**, June 1996:108-147 **{Blackboard}**

3. Wade, N. 1994. "Method and madness: the next plague, and the next" **The New York Times Magazine**, September 25th 1994. **{Blackboard}**

4. Gibbons, A. 1993. "Where are 'new' diseases born?" **Science**, Vol 261: 680-681. **{Blackboard}**

5. Wilson, M.E. 1995. "Travel and the emergence of infectious diseases" **Emerging Infectious**

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Diseases, Vol 1(2):39-46 {Blackboard}

6. Krause, R. 1992. "The origin of plagues: old and new". **Science**, Vol 257:1073-1078. **{Blackboard}**

*7. Garret, L. 1994. **The Coming Plague**. Penguin Books. Chapter 1, 2, 5, 16 **{Library Reserve}**.

9. Karlen, A. 1995. **Man and Microbes**, Touchstone Book. Chapters 1 and 2. **{Blackboard}**

10. Farmer, P. 1998. **Infections and Inequalities**. University of California Press. Chapter 2 **{Blackboard}**

11. R. Levins et al., 1994. "The emergence of new diseases" **American Scientist** 82:52-60 **{Blackboard}**

12. Institute of Medicine , 1992. **Emerging Infections: Microbial Threats to Health in the United States** Executive Summary and Chapter 1 (pp 1-15 and 16-33) **{Blackboard}**

F. Demographic regimes: homeostatic balance, population explosion, and extinction (week 5)

=The Malthusian model: was Malthus right?

=Turning Malthusian theory on its head

= Population dynamics: with and without Malthusian constraints

1. T.R. Malthus, 1798(1826), "An Essay on the principle of population or a view of its past and present effect on human happiness. New York, A.M Kelley, pp:1-13 **{Blackboard}**

*(I recommend you to read Thomas Robert Malthus, 1959. **POPULATION: The First Essay** (with a foreword by Kenneth E. Boulding). Ann Arbor, Michigan: Ann Arbor Paperbacks, University of Michigan Press.)*

2. Coale, A.J. "The history of the human population" **Scientific American**, Special Issue on the Human Population **{Blackboard}**

3. Livi-Bacci, M. **A Concise History of World Population**. Cambridge: Cambridge University Press. Chapter 1. **{Blackboard}**

5. Cohen: Chapters 2, 3, 4, 6, 11 and 13 **{Required Text}**

6. Hardin, G. 1968. "The tragedy of the Commons" **Science**, New Series, Vol 162, Issue 3859: 1243-1248 **{Blackboard}**

*7. National Research Council, 1986. **Population Growth and Economic Development: Policy Questions**, Washington D.C.: National Research Council Press **{Library Reserve}**

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8. A. Coale, 1964. "Population and economic development" in P.M.Hauser (ed) **The Population Dilemma**, New Jersey: Prentice Hall: 46-69 **{Blackboard}**

9. P. Demeny, 1986. 'Population and the invisible hand' **Demography**, 23(4) **{Blackboard}**

*10. E. Boserup, 1990. **Population and Technological Change**. Chicago: University of Chicago Press: 3-28 and 200-11 **{Library Reserve}**

*11. J. Simon, 1977 **The Economics of Population Growth**. Princeton: Princeton University Press, 1977: 3-19, 474-506. **{Library Reserve}**

12. Lee, R.D. 1987. "Population dynamics of human and other animals" **Demography**, 24(4). **{Blackboard}**

G. Population growth, climate change and the future of life on earth (week 6)

*1. National Research Council, 2000. **Beyond Six Billion**, Washington D.C.: National Academy of Sciences Press. Introduction, Chapter 4 **{Blackboard}**

2. Cohen, chapters 7, 8, 9, 14, 15 16 **{Required Text}**

2. Lutz W., W. Sanderson and S. Scherbov. 2001. The end of world population growth. **Nature** 412(2 August 2001):543-545. **{Blackboard}**

3. Geist, H.J. and E.F. Lambin. 2002. "Proximate causes and underlying driving forces of tropical deforestation." **BioScience** 52(2): 143-150 **{Blackboard}**.

4. G. McNicoll, 1994. "Mediating factors linking population and environment" In United Nations **Population, Environment and Development**, New York: Department for Economic and Social Information and Policy Analysis, ST/ESA/SER/129 **{Blackboard}**

5. S.H.Preston,1998. "Population and the environment: the scientific evidence" In P.Demeny and G.McNicoll (eds.) **The Reader in Population and Development**, New York: St. Martin's Press **{Blackboard}**

6. N. Keyfitz, "Population and development within the ecosphere: one view of the literature," **Population Index** 57:5-22 **{Blackboard}**

7. J. Patz et al., 2005. "Impact of regional climate change on human health" **Nature**, 438:310-317**{Blackboard}**

H. Aging around the world (week 7)

1. Oeppen, Jim and James Vaupel. 2002. "Broken limits to life expectancy." **Science** 296 (10 May 2002): 1029-31. **{Blackboard}**

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2. Wilmoth, John et al. 2000. "Increase of maximum life span in Sweden, 1861-1999." **Science** 289: 2366-2368. **{Blackboard}**
 3. Wilmoth, John. 1995. "The future of human longevity: A demographer's perspective. **Science** 280(5362):395. **{Blackboard}**
 6. J.F. Fries 1980. "Aging, natural death and the compression of morbidity" **New England Journal of Medicine**, Vol 303: 130-135 **{Blackboard}**
 7. B.S. Singer and K. Manton, 1994. "What's the fuss about the compression morbidity?" **Chance**, Fall 1994 **{Blackboard}**
 8. S.J. Olshansky, B.C. Carnes, and C. Cassell, 1993 "The aging of the human specis" **Scientific American**, April 1993, pp.46-52 **{Blackboard}**
 9. Olshansky, Jay S. et al. 2005. A potential decline in life expectancy in the United States in the 21st Century. **The New England Journal of Medicine** 352(11):1138-1145 **{Blackboard}**
 10. Preston, Samuel 2005. Deadweight? The Influence of Obesity on Longevity. **The New England Journal of Medicine** 352(11): 1135-37 **{Blackboard}**
 11. Flegal, Katherine et al. 2005 Excess deaths associated with underweight, overweight and obesity. **JAMA** 293(15):1861-1867 **{Blackboard}**
 12. Bongaarts, J. 2004 Population aging and the rising cost of pensions". Policy Research Division Working Papers No 185, The Population Council, **{Blackboard}**
- I. The reproduction of health and mortality disparities (weeks 8 and 9)*
1. Michael Specter. 2005. What money can buy: Millions of Africans die needlessly of disease each year. Can Bill Gates change that? *The New Yorker*, October 24, 2005. **{Blackboard}**
 2. Marmot, Michael G. 1994. "Social differentials in health within and between populations." *Daedalus* 123(4):197-216. **{Blackboard}**
 3. Janny Scott. 2005. Life at the Top in America Isn't Just Better, It's Longer. **The New York Times**. May 15, 2005. **{Blackboard}**