

Notes for Sept 28, *Environment* Chs. 8 and 9, not to be covered in class but fair game for the midterm

Ch. 8: Population Change

- Why is the example of AIDS on p. 172 showing the ‘right population trend’ for the wrong reasons?
- The **growth rate** (r) of a population equals the birth rate (b) minus the death rate (d)
 - Accounting for **dispersal** (immigration and emigration at the local level)
- What are the different factors that affect an organism’s **intrinsic rate of increase**?
 - The intrinsic rate of increase is controlled by **environmental resistance**. How?
 - What does it mean to say that **carrying capacity** is dynamic?
- Environmental resistance combined with the intrinsic rate of increase results in the S-shaped **logistic population growth** curve that is common for most organisms
 - If ‘K’ (from Figure 8.3(b)) is exceeded, overshoot and collapse often follows. The example given of the reindeer on the Pribilof Islands is the most commonly cited example
- Prominent **density-dependent factors** controlling population include predation, disease, and competition. What makes these factors ‘density-dependent’? (see pp. 178-9 for lemming and wolf/moose examples)
- **Density-independent factors** are primarily “random weather events” like fires, blizzards, hurricanes, etc.
- What kinds of tradeoffs (i.e., what “energy compromises”) are involved in determining a creature’s **life history strategies**? How do different species’ life history strategies result in the “three main survivorship curves recognized by ecologists” (p. 181)
- “**Demography** is the science of population structure and growth. The application of population statistics is called **demographics**.” (p. 183)
- The current population rise is due as much (or more) to a decline in the death rate than to an increase in the birth rate (as Hans Rosling’s video demonstrates: “small families and long lives”.) In this respect, ‘solving’ the humanitarian crises of short lives creates another demographic crisis of carrying capacity. This is an example of why we need a systems perspective to understand environmental crises.
- How does a country’s level of industrialization relate to its birth rate and infant mortality rates? Put differently, how does a country’s level of development relate to its **doubling time**?
- Do you think that Hans Rosling’s video shows that the **demographic transition** hypothesized by Princeton demographer Frank Notestein is happening throughout the world? (i.e., the passage from preindustrial to transitional to postindustrial stages)
- Look carefully at the **age structure** chart on p. 189 (Figure 8.17 and 8.18)

Ch. 9: Addressing Population Issues

- What are the causes of **food insecurity**? Where is it most prevalent?
 - Why does the book differentiate between famines and chronic hunger? Which causes more deaths each year?
- The text states that “if a country is to raise its standard of living, its economic growth must be greater than its population growth.” Why is this (usually) the case?
- How do gender roles and other cultural factors affect fertility rates in different cultures?
- What are some of the causes and effects of gender inequality?
 - How do marriage age and education affect fertility? What implication does this have for the crafting of public policy about family planning?
- What is **microcredit**? Why is it becoming so popular?
- How does **gender inequality** affect the quality and availability of **family planning services**? (see Figure 9.7(b))
- China’s **one-child policy** (1979) – incentivized later marriages and one-child families with free school, cash bonuses, retirement, and better housing. Corresponding fines accompanied the birth of second children. (and it worked: from a TFR of 5.8 in 1970 to 2.1 in 1981) Do you think that other countries could use the carrot without the stick? How did the Chinese policy affect the male/female birth ratio in China? Why?
- Why would family planning in **India** be more difficult than in China?
 - Failed attempts at compulsory sterilization (of fathers with 3 or more children); focus now is on girls’ education
- Why is the demographic situation in Nigeria so problematic? What is being done to address the problem?
- Do you agree with the “pronatalist” view that European society is at risk of cultural decline in the face of immigrants with high birth rates?
- What are the **Millennium Development Goals (MDGs)**? Are they succeeding?