Critical Review Papers

- Critical Review #1 – Due: Thurs. 9/26 (2:30PM to BB Dropbox)

- Argumentative Essay (*take a position*!) Summarize <u>and</u> evaluate an academic article

- Key element – STRONG <u>THESIS STATEMENT</u>
  - Evaluation Criteria Element: "The thesis statement is clear, significant, and challenging."

Article Discussion – Summarize & Evaluate

Step 1: Summarize the Article

<u>Focus on:</u>
- The author's ***purpose*** for writing the article
- The ***key arguments*** made by the author
- The ***evidence*** the author uses to support his/her argument

Step 2: Evaluate the Article

<u>Focus on:</u>
- What does the author **do well**? What does the author **need to improve**?
- Does the author's **argument convince you**? Why or why not? Provide examples
- Does the author provide: **Good data? Enough data? Convincing data?**
- What does this analysis **contribute to the study of Geography?** How? Why?
- What **future research avenues** could be opened up by this article? Provide examples
- How could this article be **improved?**

The Thesis Statement

- What should the thesis statement include in a Critical Review Paper?
  1. Clearly state your overall position on the article
  2. Summarize the main arguments that you make in the <u>evaluation section</u> of your paper

- What makes a strong and compelling thesis statement?
  - Detail
  - Clear and concise writing
  - The thesis statement should be consistent with the rest of your paper!

- A student example:
  - "I was convinced by Pulido's argument because she uses a wide variety of data to back up her ideas and provides clear definitions of key concepts. This article also opened up a new way to look at environmental racism which led to further research by others."

A Debate:
Population, Consumption & Scarcity

Source: Vladimir Wrangel/Shutterstock

Ecological Footprint

- **What is the Ecological Footprint (EF)?**
  Measures how much biologically productive land and sea is used by a given population or activity, and compares this to how much land and sea is available.

- **What does the Ecological Footprint measure?**
  The EF asks a specific research question: _How much of the biological capacity of the planet is demanded by a given human activity or population?_

  To answer this question, EF measures the amount of biologically productive land and water area an individual, a city, a country, a region, or all of humanity uses to _produce the resources it consumes_ and to _absorb the waste it generates_ with today's technology and resource management practices.

Ecological Footprint Discussion

In a small group, take 5 minutes to discuss the following:

- What surprised you most about your ecological footprint?

- Did the calculator account for lifestyle choices you were not expecting?

- Are there feasible changes you can make to your lifestyle to reduce your ecological footprint?

- Are you motivated to make certain changes? Why/why not?

- What does this make you think about population growth?

A Complicated Relationship

What is the relationship between population growth and environmental change?

There are several competing theories that link population to environmental issues…

Can the Planet Support 10 Billion People?

How 10 Billion Can Survive

Jamais Cascio is a research fellow at the Institute for the Future in Palo Alto, Calif., and a senior fellow at the Institute for Ethics and Emerging Technologies. In 2009, Foreign Policy named him one of its Top 100 Global Thinkers.

UPDATED MAY 5, 2011, 2:35 PM

Population projections 90 years out – even 40 years out – are risky. There are big challenges to human civilization already under way this century, such as climate disruption and food sustainability, and more on the horizon. If any of them hit as hard as we fear, or if our responses are insufficient, there's little likelihood that Earth's population would get to 10 billion people. In a way, getting there would be a sign of successful navigation of this century's problems.

Educate the Masses

Warren Sanderson is professor of economics and of history at Stony Brook University. He is also a senior research scholar at the International Institute for Applied Systems Analysis in Austria.

UPDATED MAY 5, 2011, 2:32 PM

In 2001 and 2008, Wolfgang Lutz, Sergei Scherbov and I published world population forecasts in the journal "Nature," in which we showed that there was a high likelihood that the world's population would reach a peak during this century.

World population growth is coming to an end not because of an environmental calamity, but because people are voluntarily choosing to have fewer children. The medium-range U.N. forecast puts the world's population at 9.9 billion in 2075. Our comparable forecast has it peaking in that year at around 8.9 billion.

More educated people have fewer children. They also are more able to adapt to environmental changes.

Technology and Population

Brad Allenby is the Lincoln Professor of Engineering and Ethics and the founding chairman of the Consortium for Emerging Technologies, Military Operations, and National Security at Arizona State University.

UPDATED MAY 12, 2011, 12:37 PM

Global levels of human population and the general state of technology are correlated. That implies, not surprisingly, that the carrying capacity of the world with respect to our species is at least in part dependent on available technologies.

We Can Change the Future

Joel E. Cohen is professor of populations and head of the Laboratory of Populations at the Rockefeller University and Columbia University. He is an applied mathematician and author of "How Many People Can the Earth Support?"

UPDATED JULY 7, 2011, 1:24 PM

The demographic future is not carved in stone.

If women have, on average, half a child more or half a child less than assumed in the U.N.'s medium projection from now to 2100, the population projected for 2100 rises to 15.8 billion or falls to 6.2 billion, which was the world's population around 2001.

Africa's Daunting Challenges

David E. Bloom is a professor of economics and demography and chairman of the department of global health and population at Harvard University. He spoke about population growth at the World Economic Forum meeting this week in Cape Town, South Africa.

UPDATED MAY 5, 2011, 2:32 PM

In many respects, the figures for Africa represent the most disconcerting aspect of the United Nations report on population growth. Africa's population today stands at 1 billion. According to the U.N., that number will increase to 2.2 billion by 2050 and 3.6 billion by 2100. It took humankind more than 50,000 years to reach 1 billion, and now Africa alone will be adding more than that number in just four decades.

More Efficient Food Production

Jason Clay is a senior vice president at the World Wildlife Fund and an expert in global markets and natural resources management. He is the author of "World Agriculture and the Environment."

UPDATED MAY 5, 2011, 2:32 PM

The new United Nations projection shows a troubling trend of increased population and rising consumption on a planet with finite resources. Research conducted by the World Wildlife Fund indicates that if we continue with business as usual, by 2100 we will need three planet Earths to support human activities.

https://www.nytimes.com/roomfordebate/2011/05/04/can-the-planet-support-10-billion-people

Perspective 1: "Geometric" Growth

Thomas Malthus argued that:

- Population grows **exponentially**
  - 2, 4, 8, 16, 32
- But, resources grow **linearly**
  - 2, 4, 6, 8, 10

Thomas Malthus (1766-1834)

- Therefore, population will outgrow food supply
- Following this perspective, disease, famine, and war are natural corrections to slow down rapid population growth
- What is troubling about this perspective?

Population, Violence, and Injustice

- Malthus called for greater restraints on women, but it has been shown that expanding women's rights (ex. education, reproductive choices) actually slows population growth

- Malthusian thinking has led to population control efforts that target the poorest and most marginal populations, even though the poorest are often not the primary cause of degradation
  - Example: India's forced sterilization program

- Targeting the poor and women diverts attention away from systemic causes of degradation
  - Ex: wildly uneven levels of consumption!

Uneven Global Consumption Patterns
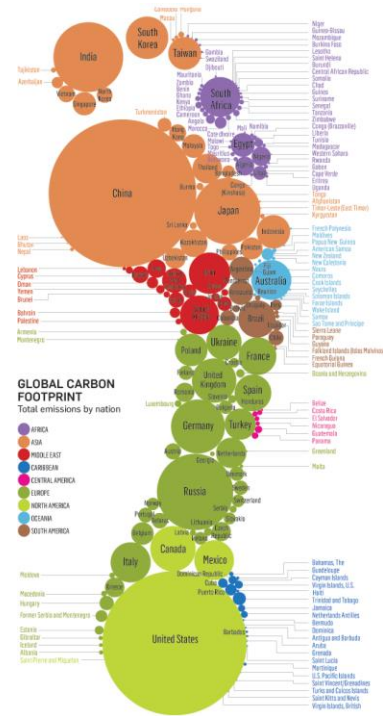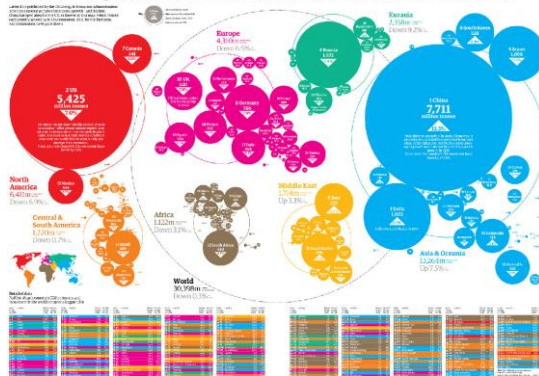
What is Misleading about this Graph?

Countries with the Largest and Smallest Ecological Footprint
Ranked by Global Hectares in 2013

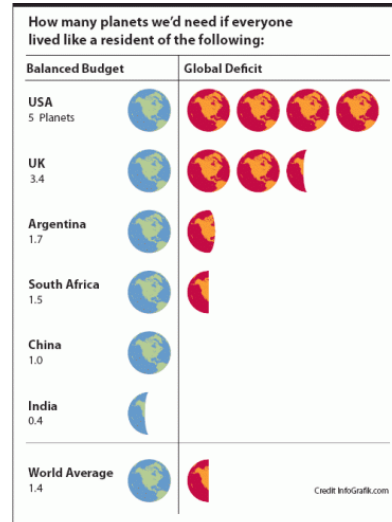| Largest Ecological Footprint				Smallest Ecological Footprint		
Rank	**Country**	**Global Hectares**		**Rank**	**Country**	**Global Hectares**
1	China	5,009,653,687		1	Montserrat	27,374
2	United States of America	2,724,596,444		2	Nauru	29,543
3	India	1,360,535,262		3	Wallis and Futuna Islands	30,761
4	Russian Federation	820,211,113		4	Cook Islands	80,243
5	Japan	633,212,872		5	British Virgin Islands	83,525
6	Brazil	615,872,753		6	Dominica	161,736
7	Germany	439,951,137		7	Saint Kitts and Nevis	239,948
8	Indonesia	363,759,396		8	Sao Tome and Principe	295,127
9	France	323,422,025		9	Tonga	304,041
10	United Kingdom	322,976,418		10	Cayman Islands	322,308

Montserrat has 4,900 people (27,374/4,900 = 5.58 global hectares per capita)

It does not take into account population in each country!

Per Capita Consumption is Important!

Country	Eco Footprint (Country)	Population	Eco Footprint (per capita)
China	5,009,653,687	1.397 billion	3.58
United States	2,724,596,444	325.7 million	8.36
India	1,360,535,262	1.324 billion	1.02
Russia	820,211,113	144.3 million	5.68
Japan	633,212,872	127 million	4.98
Brazil	615,872,753	207.7 million	2.96
Germany	439,951,137	82.67 million	5.32
Indonesia	363,759,396	261.1 million	1.39
France	323,422,025	66.9 million	4.83
U.K.	322,976,418	65.64 million	4.92

*Unit of measurement for ecological footprint in the table is Global Hectares

How many planets we'd need if everyone lived like a resident of the following:

Balanced Budget / Global Deficit

USA 5 Planets
UK 3.4
Argentina 1.7
South Africa 1.5
China 1.0
India 0.4
World Average 1.4

Credit InfoGrafik.com

Population Growth Rates are Declining

Fig. 2.2: World population since 1750

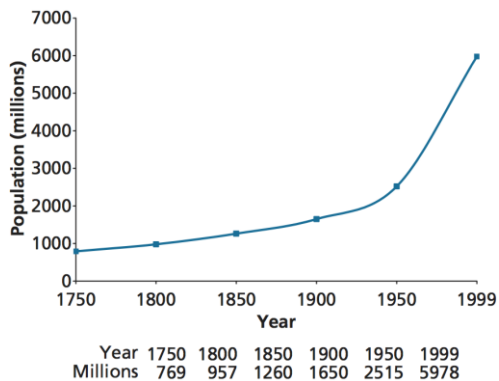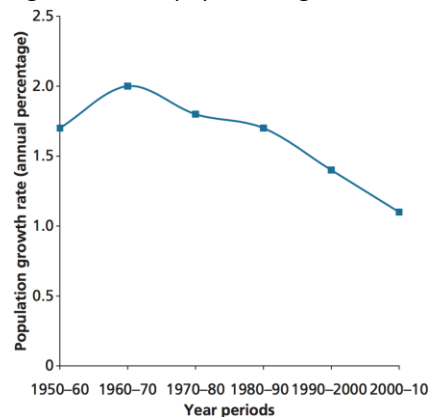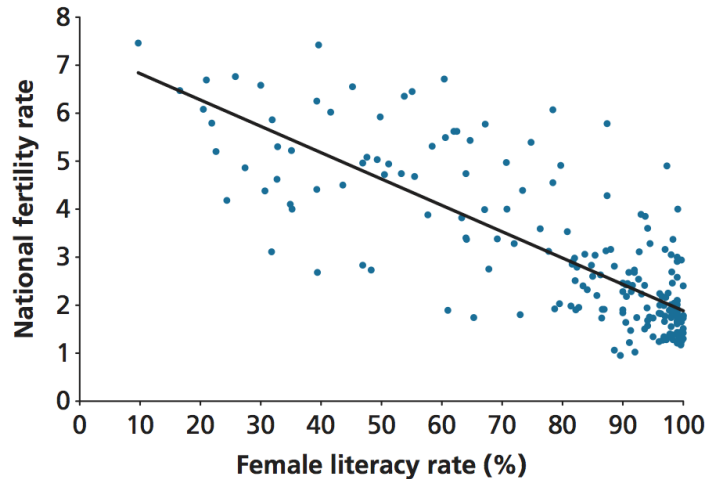| Year	1750	1800	1850	1900	1950	1999
Millions	769	957	1260	1650	2515	5978

Fig. 2.3: Global population growth rates

Source: After Demeny (1990)

Fig. 2.6: National fertility and female literacy rates around the world, 2006

Source: Analysis by authors; data: Population Reference Bureau (2008)

Perspective 2: Population, Development, and Environmental Impact

- **Neo-Malthusians** maintain that population is the factor that has the greatest impact on the environment, but that the effects of population are mediated by <u>differences in lifestyle</u>

- Hans Rosling Video <u>"Dynamics of Population Growth & Climate Change"</u>

The I=PAT equation

- Ehrlich and Holdren (1974) tried to account for these differences with the I=PAT equation

- I = impact on the environment
- P = population (often density)
- A = affluence (GDP or GNP per capita)
  - Wealthier people tend to consume more resources
- T = technology (energy consumption per capita)
  - Technology can either <u>reduce</u> environmental impacts (Ehrlich and Holdren, 1974) or <u>increase</u> them (Commoner, 1988)

Table 2.1 Who is overpopulated? Some comparisons of population, per capita gross domestic product, energy use, and other resource demands. Different places have widely divergent levels of population, affluence, and technology, with unclear implications for environmental impact.

Country	Total population (millions)[1]	GDP ($ per capita)[2]	Energy use (kg of oil equivalent per capita)[3]	Annual % total forest cover change (including plantations)[4]	Annual % forest cover change (natural forest only)[4]	Greenhouse gas emissions (tons of CO_2 equivalent per capita)[5]
China	1,294	3,936	861	+1.2	+0.6	3.91
USA	288	33,939	8,095	+0.2	+0.1	23.92
Bangladesh	143	1,527	133	+1.3	−0.8	0.38
Turkey	68	6,830	1,071	+0.2	. . .	4.07
UK	60	23,637	3,886	+0.6	+1.5	11.19
Kenya	32	1,003	489	−0.5	−0.5	0.81

1: 2002
2: 2000 (figures controlled for Purchasing Power Parity: equivalence of buying power in local markets)
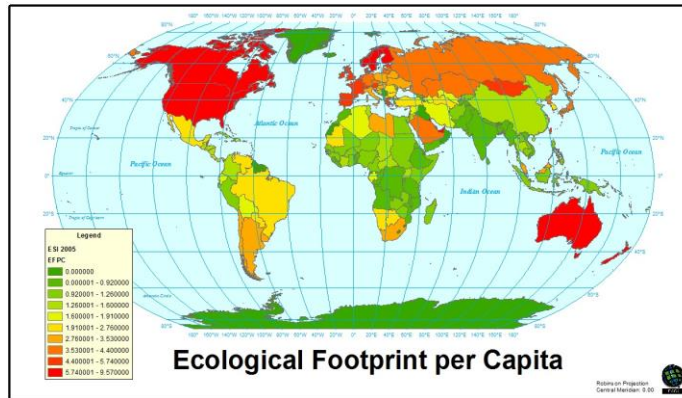3: 1999
4: 1990–2000
5: 2005
Source: Data from World Resources Institute Data (2005).

Applications of I=PAT

- **Ecological footprint** – the theoretical spatial extent of the earth's surface required to sustain an individual, group, system, or organization
  - A measurement of environmental impact

Ecological Footprint per Capita

Carrying capacity

Carrying capacity is the population of human or non-human organisms that could be sustained in an area over time

- Depends on the amount of consumption of the organisms (lifestyle, for humans)
- Determined in part by the **ecological footprint** of the organisms

Critiques of Carrying Capacity

- May be used to justify racist or xenophobic policies, such as refusing to accept migrants and refugees (ex. Australia)
  - The discourse of "carrying capacity" makes it seem as though there is a "natural" limit on how many people can be supported by a country, rather than a serious look at the consumption patterns of over-consumers

Time to Stabilize Australia's Population

JULY 12, 2015 BY PETER — 6 COMMENTS

The Productivity Commission's ongoing enquiry into migrant intake into Australia is a welcome opportunity to critically exa[...] contribution of immigration [...] Australia's high population rate, which is adding imme[...] pressure to infrastructure, [...] environment impacts, and [...] living (eg housing costs). T[...] contribution of immigration [...] population growth to these [...]

The cassowary in north Queensland is one of many species threatened by human population growth. Photo: Jeff Larson.

Carrying capacity is central to the immigration debate

By Guest in Australian Economy at 12:55 pm on March 29, 2017 | 31 comments

Cross-posted from *Independent Australia:*

We need to recognise Australia's very limited human carrying capacity before it's too late, writes Sue Arnold.

THE AUSTRALIAN'S Greg Sheridan writes that, as a nation, we would be better off with 40 million people 'rather than 28 million elderly people', who apparently ensure a declining economy. No surprises there.

The 2016 *State of the Environment Report* (SER) released by the Federal government projects a population of 35 million by 2050. In November 2013, The Australian Bureau of Statistics released a report projecting Australia's population to double to 46 million by 2075.

These are pretty scary figures. Sydney and Melbourne are predicted to reach 7.9 million each by 2053.

Perspective 3:
Population and Innovation

"Cornucopian" population theorists see population as a resource rather than a problem (e.g., Ester Boserup, 1965)

- When resources are scarce, people will innovate
- More people means more brains and hands working to solve problems
- Example: **Induced intensification** of agriculture, such as the techniques invented during the **Green Revolution**, led to greater crop yields

Critiques of Cornucopian thinking:
Ex: Costs of the Green Revolution

- Ignores the scale of processes such as food production
  - Different impacts on local communities compared to distant markets

- Some innovations increased agricultural food supply but damaged other ecosystems (especially aquatic ones)

- More food may be produced than is needed, but it is not distributed evenly

Discussion

- In the lecture, we learned about 3 competing perspectives on population growth and environmental change:
  1. Geometric Population Growth (Malthusian) Theory
  2. IPAT (Neo-Malthusian) Theory
  3. Population & Innovation (Cornucopian) Theory

- How does knowing your own ecological footprint impact how you view the different perspectives?