

Population, Energy & Resources: Take Home Exam #2

Due in class on Thursday, March 2

This exam consists of questions pulled from material from weeks 4-8. The exam's purpose is for you to demonstrate that you understand concepts by using them in a new context or by supplying new examples that force you to investigate the concepts more deeply. In answering the questions, you should use your own words, and take your arguments beyond the material from lecture and texts.

Each question should be answerable in 500 words or less. Short is better: concision forces precision of thought. However, you need to explain yourself sufficiently to firmly support your arguments and ideas.

Feel free to discuss this exam with other students in the class until you begin actually writing your answers. At the point that you have begun writing, do not discuss your answers with other students, but you may, and should, use other sources.

Number your pages. Double-space the text. If you cite anything outside of class readings, give the full bibliographic citation. If using a reading from class, citation of the (lead) author is sufficient.

1. Describe, in detail, three human activities not mentioned in lecture that may be contributing to hypoxic conditions in Hood Canal. Which of these activities would be the easiest to modify or regulate?
2. What are three characteristics of a harvested species that influence how that species or populations within the species will be affected by harvest? Provide examples for each.
3. Based on the seminar readings, describe two positive and two negative aspects of community-based regulation of fishery resources.

4. CO₂ is the main greenhouse gas responsible for global climate change. The following questions consider different aspects of the sustainability issues raised by current CO₂ emissions.

a. Do you think the CO₂ emissions targets that would be set under a policy of “strong” (or “hard”) sustainability would be similar to or different from those that would be set under “weak” or (or “soft”) sustainability? Explain your answer. (It is the explanation that matters here, not your conclusion.)

Here are some 2000 data for three countries:

| Country | GDP (in \$B PPP) | Population (in M) | CO ₂ emissions (mt) |
|---------------|------------------|-------------------|--------------------------------|
| Brazil | 1,253 | 170 | 308 |
| Germany | 2,095 | 82 | 786 |
| United States | 9,593 | 282 | 5,602 |

b. Suppose these three countries made up the entire world, and that the sustainability target for CO₂ was 1,000 megatons (mt). What would be the “equitable sustainable share” for each of these three countries? Express your answer as country totals. What extent of per capita reduction would be required for citizens of the US on average? Would this target have policy implications for Brazil? Explain.

c. Consider this table from the perspective of the $I = P \cdot A \cdot T$ decomposition. Based only on the above data, how important do you think each of these three factors is in determining carbon emissions? Explain your reasoning.