Sample Questions for

Comprehensive Exam in Environmental Politics and Policy Analysis

Format: This is a six-hour, closed notes exam that will take place about three weeks before the end of the semester (e.g. in November or April for fall and spring semesters, respectively). Students are expected to answer three questions. The location is to be announced by the graduate program directors.

Sample Substantive Questions:

1. Identify and classify the available environmental policy instruments in a way which is useful for the reader to understand the relevant distinctions among them. Be sure your answer includes the efficiency perspective of the environmental economics instrument choice literature. Why are monitoring and enforcement aspects important? Are there any property rights differences that might affect the political feasibility of instruments, as well as the applicability of instruments to different contexts (e.g. land management vs. pollution control)?

2. Environmental problems have assumed positions of primacy in American politics, alongside other social and economic concerns. Write a critical essay outlining the defining features of environmental problems in America. What are the political dynamics that enable some environmental problems to be successfully addressed by policy-makers (e.g. air pollution), and others to remain unresolved (e.g. green-house gas emissions)? Discuss how science, economics, and value systems have informed problem definition and facilitated (or hindered) different policy solutions. What does existing scholarship have to say about the role of government in addressing environmental problems?

3. Environmental policies can be defined as collective choices backed by the coercive powers of the state. Write an essay discussing how the design of government power shapes the outcomes of environmental policy-making in a federal system. What government institutions are charged with crafting environmental policy? How do the culture and political environment of government institutions (e.g. Congress, the President, the bureaucracy, and the courts) influence the procedural and substantive nature of their choices? Choose a specific environmental case/controversy from the last 5 years to illustrate your points.

4. How does the scale of a problem (e.g. climate change or regional fisheries management) affect the policy tools and processes involved in addressing a problem? Address how an analyst examines the spatial and temporal scales of environmental problems. How does risk and uncertainty affect the analysis of problems at diverse scales? How should a policy analyst approach questions of risk and uncertainty when doing a benefit-cost analysis? Provide an illustration from the realm of environmental policy-making to substantiate your arguments to the last question.

a. Compare and contrast institutional arrangements to redress (remedy, put right) environmental collective action problems at regional and global *scales*. Please, illustrate your answer with real or hypothetical cases.

5. If you were to design a seminar in environmental policy, how would you organize the course and why? What organizing principles would tie the course together? What approaches to environmental policy analysis would you tackle in the course and why? What major readings would your select and why? List and describe at least 5 readings (articles, books, etc.). What is it that you would want to be sure the students had learned by the end of the semester?

6. Recommendations for policy tools such as, Individual Transferable Quota systems (ITQs), voluntary environmental programs, or government ownership are based on the presumption that individuals are maximizers of short-term material returns. Thus, it is expected that citizens cannot utilize resources in an efficient and equitable manner. They will compete to get the most for themselves and destroy resources in the process. How should a policy analyst or a practitioner address this dilemma? Simply continue with the model of short-term self-interest? Or, are there alternative theories of human behavior that can be used?
    a. Considerable research has examined some of the conditions under which individuals may learn norms of reciprocity that would lead them to seek long-term joint results rather than short-term individual gains. What are some of these conditions and why might they generate more positive outcomes than others?

Sample Research Design Question:

You have been contacted by the Chesapeake Bay Program (CBP) Implementation Committee "Maintain Healthy Watersheds" with a request for a research study. The team wants to know what factors explain differences in local policies to reduce urban-suburban runoff, as well as which policies have been most effective in changing people's perceptions and practices. With as much detail as possible explain how you would approach this request. What type of study will you do? What might be the most appropriate research design that can validly and reliably answer the committee's questions? Make sure to address the following in your response:

a) What will be the specific research question(s) or objective(s) of your study?

b) What theoretical framework, theory, or model will you ground your study in?

c) Are there any working hypotheses that the theoretical literature or existing/empirical evidence can help you generate? If so, what are your hypotheses? (this does not have to be an exhaustive list)

d) How would you go about systematically studying these questions and/or testing the above hypotheses?

e) What type of data will you need to gather? Explain the data collection strategies you will use. Are there any validity or reliability issues with your chosen approach?

f) How will you analyze the information?

g) What are the strengths and potential weaknesses of your research design?

h) How will you ensure that your findings are logically derived from the information you analyzed? Are there any potential threats to the validity of your findings?

i) Finally, what resources will you need to carry out this study?

Sample Questions for Advanced Environmental Economics & Policy [ECO 5621]

[**1**] Suppose the aggregate marginal damage cost from emissions is

$$MD = 0.25E$$

where E is the aggregate level of emissions from two firms operating in a competitive market. The marginal abatement costs for the two firms are:

$$MAC^1 = 24 - e_1$$

$$MAC^2 = 24 - 3e_2$$

where e_1 and e_2 are the emissions levels of Firm 1 and 2, respectively. And $e_1 + e_2 = E$.

[**a**] What is the unregulated level of aggregate emissions (denote as E^u)?

[**b**] Write out the aggregate marginal abatement cost function for the two firms.

[**c**] What is the efficient level of aggregate emissions (denote as E^*)?

[**d**] If a regulator wanted to impose an emissions tax to reach the efficient level of emissions (your answer to Part **c**), what tax should the regulator set?

[**d**] If a regulator wants to reduce total emissions to **20** units *cost-effectively*, what level of emissions must each firm emit?

Firm 1 _____

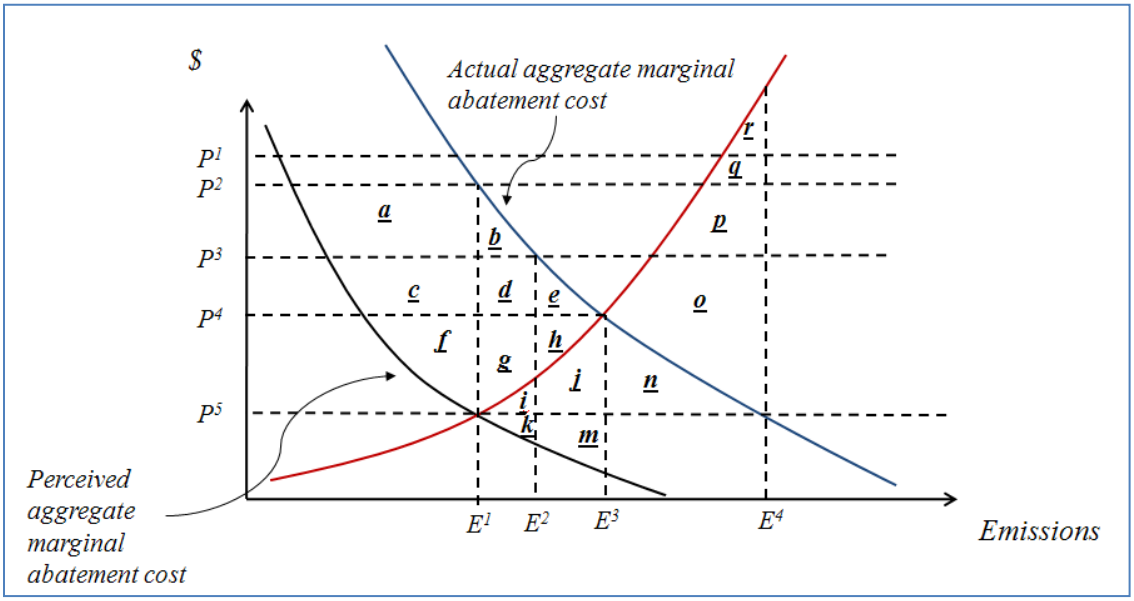
Firm 2 _____

[**e**] What is the total cost of abatement for each firm under their efficient emissions levels from Part **c**?

Firm 1 _____

Firm 2 _____

[**2**] Using the Figure below, suppose a regulator caps emissions at E^1 and issues that many permits to the industry. Which areas represent the total loss in welfare caused by the uncertainty in aggregate marginal abatement cost under this policy?



BCA Sample Question

[1] Consider an environmental restoration project that will lead to a new park. The project will require monthly maintenance that results in the purchase of 400 inputs at a per unit price of $10 each month. The park is expected to attract 1000 monthly park visits with a $5 entrance.

a) Given this information, what is the monthly net benefit and benefit-cost ratio for this project?
b) It is possible that the increased demand for inputs may increase the input price by anywhere from $1 to $10 (i.e., the maximum input price would be no more than $20). What is the net benefit and benefit-cost ratio in the worst case scenario?
c) Given the potential for higher input prices, what is the breakeven input price? In other words, if the benefits are greater than the costs, what is the input price increase that will make the benefits equal to the costs?

Suppose the estimated park demand is Q = 1050 – 10P, where Q is park visits and P is the entrance fee.

d) What is the monthly consumer surplus? What is the monthly net benefit and benefit-cost ratio for this project including nonmarket benefits (i.e., consumer surplus)?

e) Considering that the input price may rise, the government is considering raising the entrance fee to $50. How does your answer to a) change? How does your answer to d) change?
f) Should the government raise the entrance fee? Thoroughly explain your answer using your answer to e).