

This exam has 25 points. There are six questions on the exam. Most of the questions are worth 4 points, but one is worth 5 points.

Put your answers to the exam on blank sheets of paper, preferably white. (They may be lined or unlined.)

You have the entire class period (that is, until **3:20pm**) to take this test.

After the test is over, e-mail your answers to me as soon as possible.

Answer the questions using as much precision and detail as the time allows. *Correct answers which are unsupported by explanations will not be awarded points.*

More exam rules:

- Turn on your smartphone Zoom video feed so I can see you and your computer screen as you work. I understand that when you have finished your exam, you might have to close your smartphone's Zoom app in order to take pictures of your exam to send to me. If you have not been able to send me your exam by 3:35, please turn Zoom on (either on your smartphone or on your computer) so I can see you and talk to you about any technical problems which are causing the delay.
- Any time during the exam, you can call me on my landline at 801-883-0134 if you have questions. (If it's busy, I'm talking to one of your classmates; just call back a bit later.)
- Take your exam using black ink.
- Write nothing within about 1/8 inch of the edges of the paper.
- Do not put the answer to more than one question on a single sheet of paper.
- Make sure that each of your answer pages has the question number on it near the top. For example, "Qu. 3" or "Qu. 2 continued" or "Qu. 3 page 2."

- You should send me your exam in the form of a single PDF file. Arrange your answer sheets in the correct numerical order before preparing the file.
- Put your name on the first page of your exam.
- E-mail the finished PDF file to lozada@economics.utah.edu.








Scanning instructions over →

- Retain your original paper copy of your answers in case there are legibility problems. You may have to mail me the originals, though this is not likely.

Instructions on how to scan your exam with a smartphone.

Android

Scan a document

1. Open the Google Drive app .
2. In the bottom right, tap Add .
3. Tap Scan .
4. Take a photo of the document you'd like to scan.
 - Adjust scan area: Tap Crop .
 - Take photo again: Tap Re-scan current page .
 - Scan another page: Tap Add .
5. To save the finished document, tap Done .

iPhone

Step 1: Locate the Files app on your phone. That's where you can view all of your iCloud files so you're not dancing the document shuffle.

Step 2: With the app open, select the *iCloud Drive* location.

Step 3: Swipe down on the screen and tap the three-dot *More* icon.

Step 4: Select *New Folder*, name your folder *Scan* and then tap *Done*.

Step 5: From your new *Scan* folder, swipe down again to tap the three-dot *More* button and select *Scan Documents* to activate the camera.

Step 6: Position the document on a surface and hover the phone above it until it's recognized by the Camera app. The document is highlighted in blue. Most often, the app will take the photo automatically, but there's also a shutter button in case it doesn't grab your document right away.

Step 7: Tap the *Save* button and your scan goes into the *Scan* folder, where it will be visible everywhere you can access iCloud. From there, you can tap the document to rename it.

Scanning multiple documents in sequence

Step 1: Arrange your documents in a stack so they're scanned in order, one after the other.

Step 2: After the camera shoots the first page, the app reads *Ready next scan* along the bottom. Remove the first page so it can capture the second page.

Step 3: Repeat Step 2 until you finish all scanning.

Step 4: Tap *Save* and all your scanned pages will save to a single document. A badge will indicate how many pages are included.

Don't worry about getting the scanning angle right, as the app will automatically correct the view to flatten the scan. When you view the finished scans, they will be properly aligned with a high-quality representation of the contents.

After completing your scan, there are even more options you can tweak. Just tap on the page at the bottom left and use the trash can icon to delete a page completely. The *Retake* button lets you fix a single page in a series without having to restart a multi-page scan. You can further crop or alter the document edges, use a filter, or rotate it so it looks exactly the way you want it.

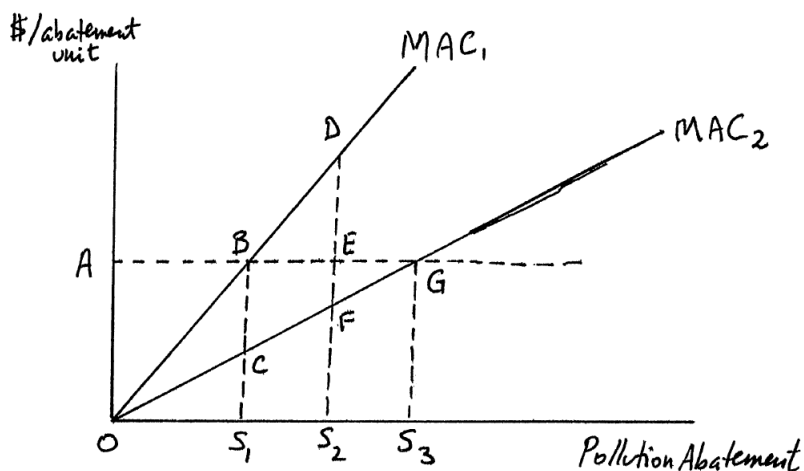


Figure 1.

Answer all of the following six questions.

1. **[5 points]** In Figure 1, suppose $BE = EG$. Will a tax or a standard minimize abatement costs if Society wants the total abatement to be $2S_2$? (Do explain how the firms behave under a tax or a standard, and explain why they behave that way.)
2. **[4 points]** Thoroughly explain what the following sentence means: "Tradeable permits may be suboptimal because they can constitute an objectionable (that is, an inefficient) barrier to entry."
3. **[4 points]** In a study of pollution control regulations on U.S. pulp and paper mills, your book reports in its Box 14.3 (which is reproduced as Figure 2 below) that the Net Benefits of:
 - technology-based standards was $-\$60,000,000$ in 1984 dollars;
 - ambient-based standards was $+\$1,400,000$ in 1984 dollars; and
 - benefits-based standards was $+\$31,100,000$ in 1984 dollars.

Why do these numbers make sense?

4. **[4 points]**
 - (a) Draw a graph of "births minus deaths" versus "population size" for a fishery.

Box 14.3 Benefits and costs of regulatory standards in the United States (1973–1984)

The results in Table 1 indicate that the technology-based standard for water pollution management failed on efficiency grounds, both in aggregate terms and in 57 of the 68 pulp and paper mills that were studied. The ambient-based standard for air pollution was more successful, yielding an aggregate net benefit and local net benefits in 22 of the 60 plants investigated. But the benefits-based standard was the most successful approach with an aggregate net benefit and local net benefits in 29 out of the 60 plants studied.

Table 1

Type of standard	Mills with $B > C$ /mills analyzed	Total benefits [\$ 1984 10 ⁶]	Total costs	Net benefits
Technology	11/68	\$36.6	\$96.6	\$-60.0
Ambient	22/60	\$25.2	\$23.8	\$1.4
Benefits	29/60	\$86.9	\$55.8	\$31.1

Source: Luken and Clark (1991)

- (b) On your graph, locate “carrying capacity” and “maximum sustainable yield.”
 - (c) Increases in fishing effort will cause what sort of movement on this graph?
5. **[4 points]** Why don’t neoclassical economists think exhaustible resource firms will keep producing the output that maximizes short-run profit as long as they can?
 6. **[4 points]** What is a “deposit-refund system” and why would one be used?

Answers to Exam 2, Econ. 3250, Spring 2021

1. Fall 2003 Ex. 2 Qu. 1
2. Making it necessary to buy pollution permits in order to enter a polluting industry is, in and of itself, not an objectionable “barrier to entry” because it represents an appropriate way to internalize the external costs of pollution. However, if the tradeable permits market is imperfectly competitive—for example, if there are only a few incumbent firms—then incumbent firms might collude to block a potential entrant from buying any pollution permits at all. This could be done either by refusing to sell the potential entrant permits at any price, or by conspiring to charge the entrant a much-higher-than-normal price for the permits. This would prevent the potential entrant from entering the market, thus constituting an objectionable “barrier to entry.”
3. Spring 2010 Ex. 2 Qu. 2. Note that the question was modified to clarify that the figures only pertain to “U.S. pulp and paper mills.”
4. Spring 2015 Ex. 2 Qu. 3
5. Spring 2005 Ex. 2 Qu. 5
6. Spring 2011 Ex. 2 Qu. 6