Lecture 13: Externalities

December 3, 2024

Overview

1. Administrative Notes
2. Ripped from headlines
3. Externalities
   - 3.1 Lecture
   - 3.2 Group discussions

Course Administration

1. Please come to office hours
   - if you scored less than 50 on the midterm, I expect to see you
2. Lecture 14 summary assignment posted
   - Please don't use # in file names as it causes download problems
3. Problem Set 12 posted
4. Some Chapter 10 End-of-Chapter questions posted
5. Evaluations
   - Please do online evaluation before 12/11
   - Thanks to 1 afternoon and 2 evening students who have completed
   - TA evaluation here and by email
6. Any other questions or outstanding issues?

PS 9: Examples of Barriers to Entry and Exit

NYT:

Despite It All, Two New U.S. Airlines Prepare to Fly

There are risks to starting an airline in any economic climate. But during a pandemic? The entrepreneurs behind the budget airlines Avelo and Breeze Airways see an opportunity.

- passenger airline is a high fixed cost industry
- $\rightarrow$ difficult to enter
- pandemic makes gates cheaper
- employees – pilots, attendants, mechanics – cheaper
- (from Leah) planes cheaper

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Investopedia:


ALTERNATIVE INVESTMENTS > MARIJUANA INVESTING

Biggest Challenges for the Cannabis Industry in 2024

By MATTHEW JOHNSTON Updated March 09, 2024

Reviewed by THOMAS BROCK

- Cannabis business is difficult to enter
- need regulatory approval
- federal regulatory regime unclear
- banking access limited
- need access to capital to invest

How What You're Learning is Policy-Relevant

Ripped from Headlines presentation(s)

As a reminder, next week
Send the article by Wednesday midnight for approval

Afternoon

Done!

Evening, individual presentation

Finder	Presenter
Kate B.	Abimbola O.

Today's Ripped from the Headlines

Afternoon, joint presentation – last one!

Finder	Presenter
Michael J.	Elly H.
	Corey D.

Evening, individual presentation

Finder	Presenter
Ramadan A.-A.	Katelyn H.

Today: Externalities

1. Identifying Externalities
2. The Problems Externalities Cause
3. How to Solve Those Same Problems
4. Externalities and Policy

1. Identifying Externalities

Defining Externalities

Externality $\equiv$ cost or benefit accruing to party not involved in economic transaction

Rosen and Gayer, *Public Finance*

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Positive externalities

- positive benefits from a transaction for non-participants

Negative externalities

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Examples, please!

Prices and Price Changes are Not Externalities

- For example, home prices rise in your city
- Is the harm to you from these rising prices an externality?

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- Put differently: price lets you take everything into account
- Externalities only occur when price doesn't fully signal all underlying costs and benefits

2. Problems Externalities Generate

Externalities and Market Failure

Market failure

- $\equiv$ when markets fail to reach the efficient equilibrium

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  - example?
- Supply side
  - private marginal cost is borne by producer
  - external marginal cost borne by any who is not the producer
  - example?

Externalities: A Wedge Between Private and Social Costs and Benefits

When externalities exist

- demand $\neq$ marginal social benefit
- and/or
- supply $\neq$ marginal social cost

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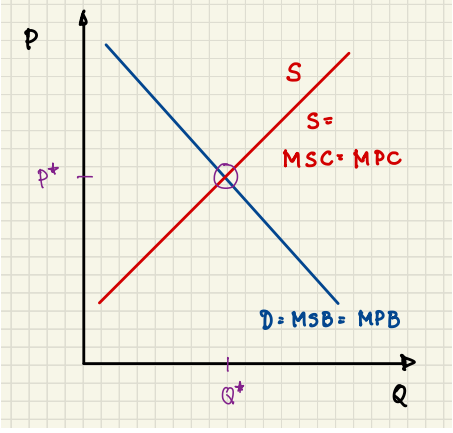
Therefore: **Externalities cause market failure**

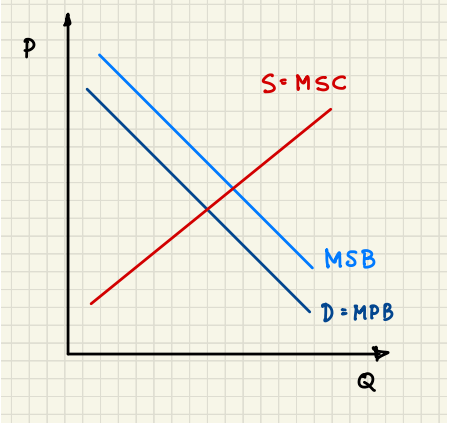
Best of All Worlds: $D = MSB$ and $S = MSC$



- When demand includes all private and social benefits
- AND
- When supply includes all private and social costs
- Market equilibrium is efficient outcome
- Generates maximal social surplus

Impact of External Benefits on Equilibrium Outcomes

- Suppose demand is $\neq$ marginal social benefit
- Where is the market equilibrium?
- Where is the socially optimal equilibrium?



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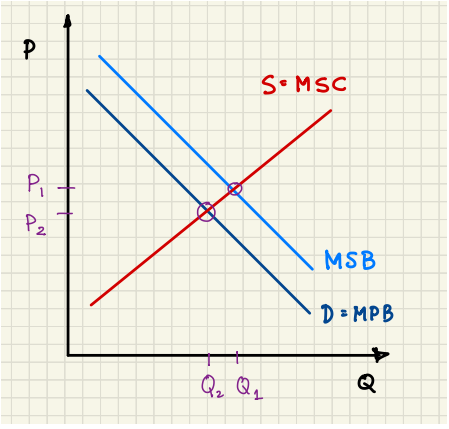

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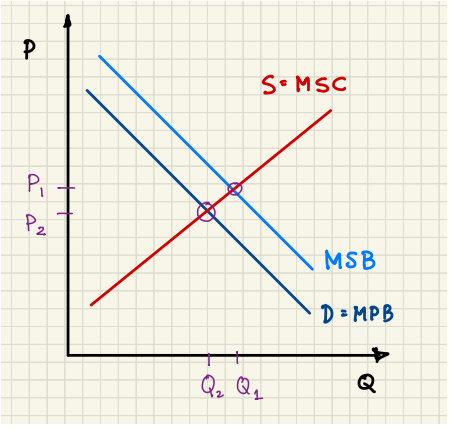

$\rightarrow$ Market underproduces products with positive externalities

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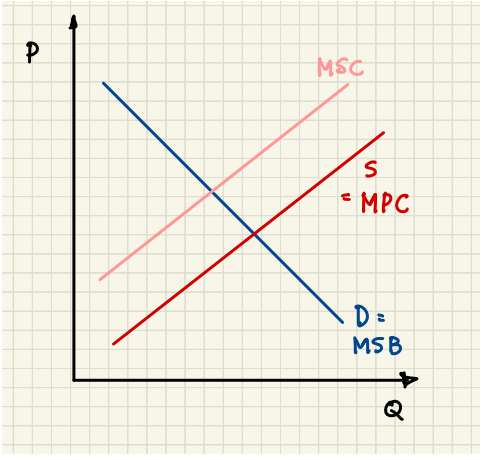

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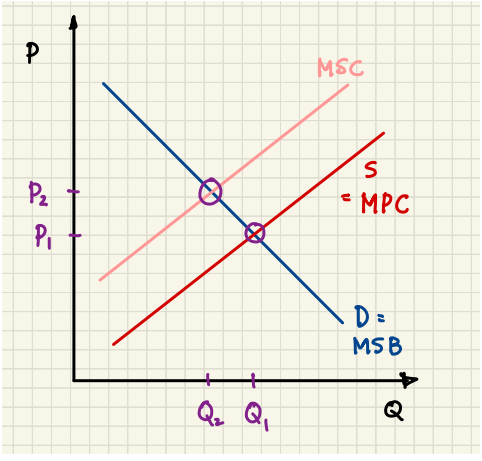

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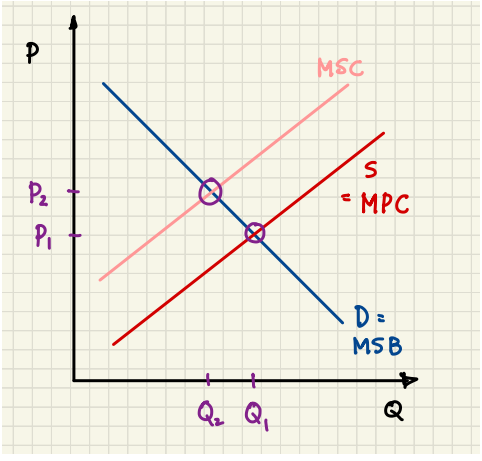

$\rightarrow$ Market overproduces products with negative externalities

Note: Socially Optimal Pollution Not Zero

- Pollution activities go hand-in-hand with production outcomes we like
- For example, electricity requires some pollution
- How much is socially optimal?
- Probably not zero

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Example: WWI US Steel Production

- Steel production is dirty
  - increases infant mortality
  - estimate: $+3\%$
- Steel production is lucrative
  - increased incomes and public services
  - $\rightarrow$ decrease infant mortality
  - estimate: -2%
- On net, local steel production harms outweigh benefits

Thank you Mark Van Orden's paper.

3. Solutions to Externality Problems

Multiple Possible Solutions

1. Private bargaining
2. Corrective taxes and subsidies
3. Cap and trade
4. Direct control: Laws and regulations

Solution 1: Private Bargaining

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- Examples where this does and doesn't hold?

Solution 2: Corrective Taxes and Subsidies

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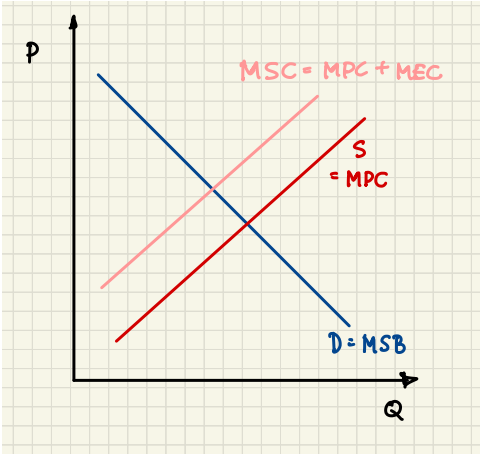

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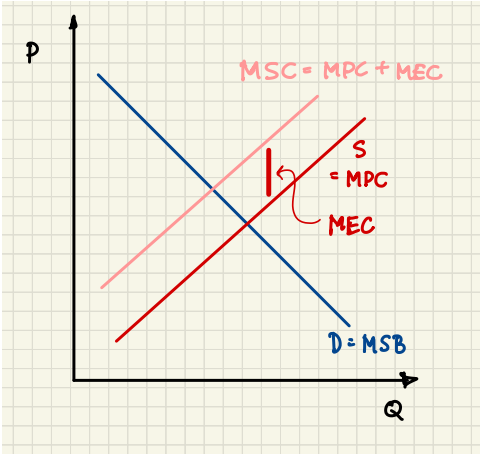

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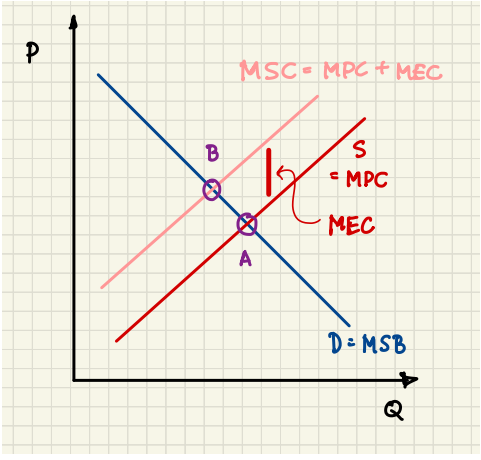

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- How to force "internalization"?
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- "Pigouvian" tax or subsidy
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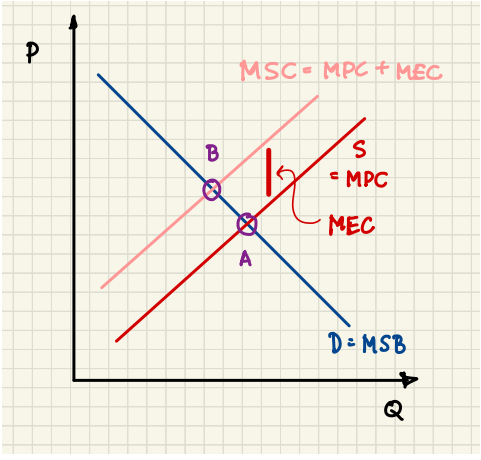

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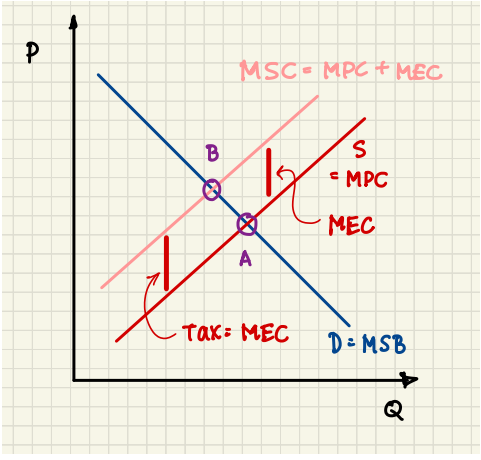

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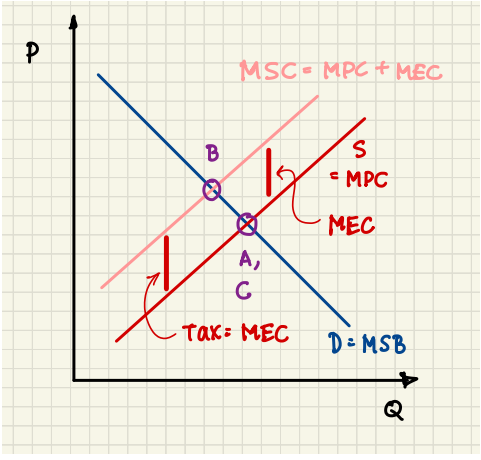

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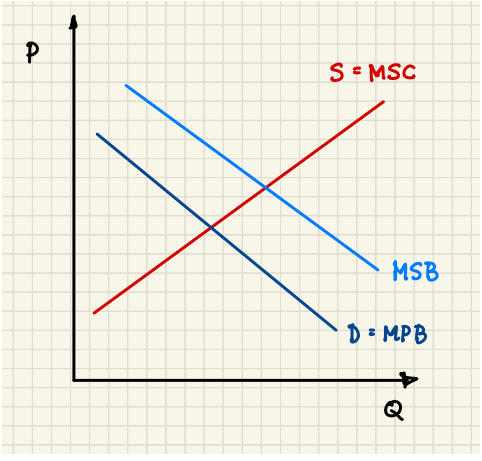

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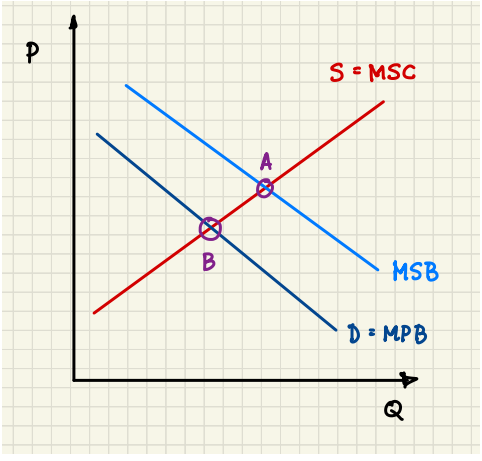

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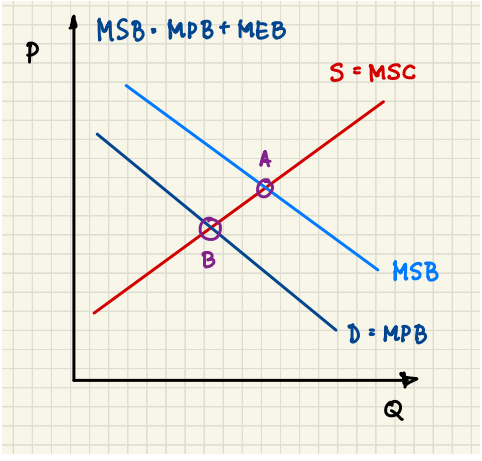

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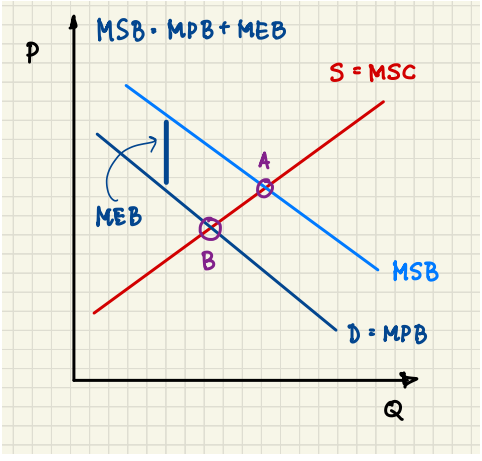

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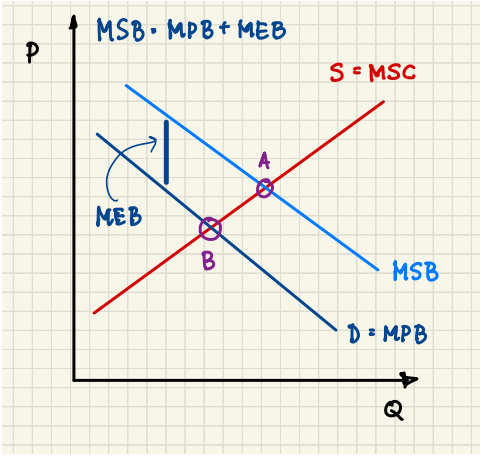

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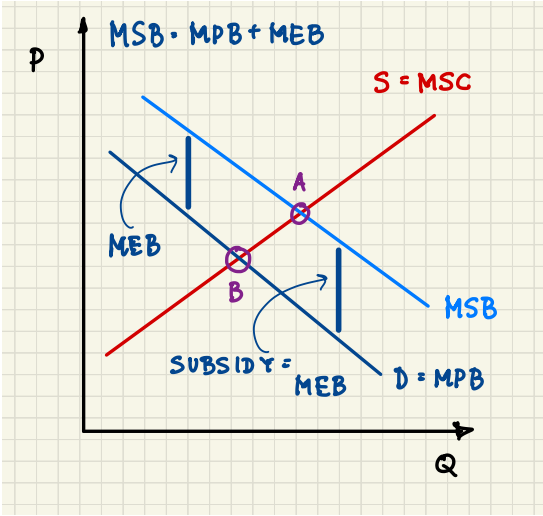

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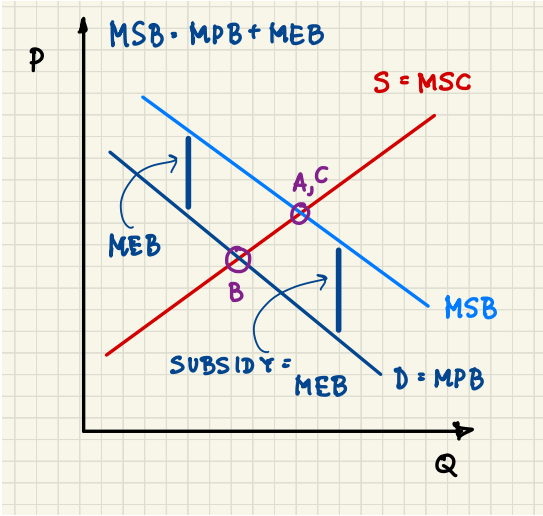

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- For implementation
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  - all firms external cost should be the same
  - Or be directly measurable
- Taxes cause redistribution that is not widely loved
- Only policy solution to this is to return taxes as rebates to harmed partiesl

Solution 3: Cap and Trade

The Scheme

- Suppose we know the optimal quantity of pollution
- Issue permits to anyone for the total optimal quantity of pollution
- Let permits trade in market

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Benefits of this scheme

- By construction, you get optimal pollution
- Because firms can sell credits
- And if firms differ in cost of reducing pollution
- Credits make cost of polluting per unit of pollution equal across firms

Quantity of pollution reduction across firms unequal

Two Cap and Trade Examples

1. Successful (for now): California and Quebec's carbon market
   - does seem to have reduced carbon
   - number of permits for sale decreases annually
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1. Successful (for now): California and Quebec's carbon market
   - does seem to have reduced carbon
   - number of permits for sale decreases annually
   - recent report criticizes geographical distribution of pollution
2. Unsuccessful (for now): European carbon market
   - failure in the sense that it has't reduced emissions
   - too many credits given out!
   - ... but big changes in 2021, prices for permits have risen markedly

Solution 4: Laws, Rules and Regulations

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- Examples? There are 1000s of examples!

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- Sometimes high transaction costs make government rules superior
- Sometimes prescriptive rules hinder more efficient outcomes

4. Externalities in the World

Externalities at Large

- Divide into groups – some for congestion, some for vaccines
- Answer the questions at the right
- Report back to the class at large

- What is the externality in the article?
- Positive or negative?
- To whom?
- What alternative policy could the government use to remove the externality?

In Sum: Externalities are Problematic & Problematic Solutions Exist

- Externalities are benefit or harm to those not involved in market transaction
- They divert us from the efficient equilibrium
- Solutions exist, each somewhat problematic
- Policy has a major role to play in the presence of externalities

For Next Class

- See you Dec. 10 – last class!
- Do case study, posted on website
- Read case and missing part of Chapter 10
- Read Ripped from Headlines articles

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I will

- post these lecture notes on my webpage
- post link to lecture recording on Blackboard
- anything else?