Welcome to Econ 1

Otherwise known as
Principles of Microeconomics
Goals Today

1) Definition of Economics
2) Introduction to Economic Thinking
You live in a world of scarcity.
Your wants are greater than your resources can provide. So you have to make choices.

My name is Eric and I spent $850 on textbooks last semester. With that $850, I could go on a cruise to the Bahamas!
But not just you, America as a whole has to make choices too. Where are we going to put our resources?

According to Business Insider, Bill Gate’s mansion used half a million board-feet of lumber.

Should you be impressed?
Yes!

For that we could have built 39.7 slightly smaller than average houses (2,000 square feet).

Or we could have just saved 663 trees.

https://www.thehousedesigners.com/articles/how-many-trees-does-it-take-to-build-a-house.asp
Economics is the study of decision making when our wants are greater than our resources.
When are our wants greater than our resources? Almost always. And its not just money and material goods.
How many people you meet have all the traits you desire?

**WHAT MEN WANT**

**Essential characteristics:**
- Mutual attraction and love
- Dependable character
- Emotional stability

**Important characteristics:**
- Education and intelligence
- Good looks
- Ambition

**Desirable characteristics:**
- Good financial prospect
- Good cook and housekeeper

**Unimportant characteristics:**
- Similar political background
- Chastity

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**WHAT WOMEN WANT**

**Essential characteristics:**
- Mutual attraction and love
- Dependable character
- Emotional stability

**Important characteristics:**
- Education and intelligence
- Desire for home and children
- Ambition

**Desirable characteristics:**
- Good looks
- Refinement

**Unimportant characteristics:**
- Similar political background
- Chastity

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So, what are you willing to settle for?

Don’t you settle for your car ... your apartment ... why not your spouse?
Because of scarcity, everything has an opportunity cost.

Opportunity cost is what must be given up to attain something that is desired.
Sometimes the opportunity cost is represented by money. What do you want for your 40 bucks?

or

or
Sometimes the opportunity cost is not money. Often it is time.

or                         or
Sometimes it is even the chance of your death.

99.9999%  .0001%
The world as economists see it is one of continually comparing costs versus benefits.
Let’s look at an example of something that can be explained by thinking in terms of benefits versus opportunity costs.

The textbook says people with bachelor’s degrees earn $63,648 a year while high school diplomas only earn $34,528. So why doesn’t everyone go to college?
Of course there is a cost. Tuition, fees, and textbooks in 2016-17 are:

In-state 4 year public school - $10,900
Private school - $34,710

Average with 75% in public – $16,855

What other large cost is there?

https://trends.collegeboard.org/college-pricing/figures-tables/average-estimated-undergraduate-budgets-2016-17
https://nces.ed.gov/programs/digest/d15/tables/dt15_301.10.asp
That’s right – the time cost!

You are giving up 4 or 5 or 6 years of earning.
<table>
<thead>
<tr>
<th>Age</th>
<th>H.S. Dip</th>
<th>B.A</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 yrs old</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>24 yrs old</td>
<td>$172,640</td>
<td>-$84,275</td>
</tr>
<tr>
<td>29 yrs old</td>
<td>$345,280</td>
<td>$233,965</td>
</tr>
<tr>
<td>34 yrs old</td>
<td>$517,920</td>
<td>$552,205</td>
</tr>
</tbody>
</table>

Getting an B.A. pays for itself by the early 30s.
But only 1/3 of adults have one.

http://thehill.com/homenews/state-watch/326995-census-more-americans-have-college-degrees-than-ever-before

Why doesn’t everyone choose to do it?
A person may know that college is a good deal in the long-run, but where is the money for food and rent and clothes for the kid coming from this year?
Why are these students leaving college early without a degree?
Less Extreme Examples

I don’t hate school. I just hate the teachers, the homework, the exams and waking up early in the morning.

http://TheFunnyPlace.net

Watching TV for $75,000
Cleaning toilets for $80,000
Which do you choose?
Everyone is not average
It doesn’t do anyone any good to spend a year failing a bunch of classes.
So to sum up – why might someone rationally choose to not go to college:

1) Don’t have the money/time right now.
2) Better other opportunities.
3) Hate, HATE, HATE!!! School
4) Not book smart.
Aren’t these the same reason you won’t go to medical school?
One last question on choosing to go to college. Would this work?

“Every American who has the desire and ability should be able to get an affordable college education. That’s why I am working to end tuition at public colleges and universities around this country.”

Bernie
Tuition - Free
Textbooks - Free
Rent - ?
Food - ?
Clothes - ?
<table>
<thead>
<tr>
<th>Tuition and Textbook Cost for 5 Years</th>
<th>Time Cost for 5 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>$85,275</td>
<td>$172,640</td>
</tr>
</tbody>
</table>
Are there other things that can be explained by the idea of opportunity cost?
Study abroad at Virginia Tech ...

Tai Gui Le! - Kristen Mankosa

“In the US, when you see a price tag, end of story. In China, price tags can be just the beginning. Here are my 5 best tips on how to score the biggest deals...
1. Never act excited.
2. Cut the price in half, then half it again.
3. You’re not stealing their money.
4. Don’t be afraid to walk away.
5. Shop Around.”
A partner in a top Wall Street law firm can charge $1250 an hour = $20.83 a minute. Does he really want to stand around arguing over his taxi fare?

http://www.abajournal.com/news/article/top_partner_billing_rates_at_biglaw_firms_nudge_1500_per_hour
Wages Per Minute

Top Wall Street lawyer = $20.83
American average = $0.37
Chinese Average = $0.06
Mexican Average = $0.06

https://qz.com/538056/the-country-china-outsources-to-when-chinese-labor-gets-too-expensive/
https://tradingeconomics.com/united-states/wages
What do Americans bargain over?
Coupons are America’s bargaining.
The same opportunity cost reasoning explains why people may turn down “free” money by not picking up a penny.
Even when human life is at stake?
What should the speed limit be? Gas and lives saved benefits versus additional time on the road loss.
Table 1. Figures obtained from percentage changes in deaths and killed or seriously injured (KSI), applied to the totals for 1982

<table>
<thead>
<tr>
<th>Road user group</th>
<th>Change in deaths</th>
<th>Change in KSI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Car drivers</td>
<td>-18</td>
<td>-267</td>
</tr>
<tr>
<td>Front seat passengers</td>
<td>-25</td>
<td>-165</td>
</tr>
<tr>
<td>Rear seat passengers</td>
<td>+27</td>
<td>+80</td>
</tr>
<tr>
<td>Pedestrians</td>
<td>+8</td>
<td>+150</td>
</tr>
<tr>
<td>Pedal cyclists</td>
<td>+13</td>
<td>+38</td>
</tr>
<tr>
<td>Total</td>
<td>-3.6</td>
<td>-164</td>
</tr>
</tbody>
</table>

https://openstax.org/details/books/principles-microeconomics-2e
What we did today:
1) Defined economics.
2) Defined opportunity cost.
3) Learned economics analysis is often about comparing costs and benefits.

Your homework:
1) Read chapter 1. Note in the calendar what you don’t have to read.
2) Go over lecture notes (every class).
3) Quiz on Wednesday.
Welcome to Day 2

Principles of Microeconomics
What we did last class:
1) Defined economics.
2) Defined opportunity cost.
3) Learned economics analysis is often about comparing costs and benefits.
Goals Today

1) The production possibilities frontier model.
2) The law of increasing opportunity cost.
3) Productive and allocative efficiency.
4) Knowing which choices have to be better.
Building Our First Model
A model is a simpler version of reality that can be used to understand how parts of the economy function.

We are going to start with a model that imagines choosing between only 2 things.
A budget constraint is all your possible consumption choices, given your income and the prices of goods. It is often represented on a graph for the case of choosing between 2 goods.
The textbook makes it seem hard with its algebra formulas. It’s actually easy.
The Production Possibilities Frontier Model or PPF Model

How much can we produce from our society’s resources (land, labor, natural resources, machines, factories)?
You are the ruler of a kingdom of 4 people. These 4 people can make 2 things for you: butter and calculators.

<table>
<thead>
<tr>
<th></th>
<th>Calculators</th>
<th>Butter (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amy</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Bart</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Carla</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>David</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Calculators</td>
<td>Butter (lbs)</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
<td></td>
</tr>
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<td>Amy</td>
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<td>Bart</td>
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<td>3</td>
</tr>
<tr>
<td>Carla</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>David</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

If you want 5 calculators, who is the best person or people to move?
Transfer Amy and get 5 calculators for 12 pounds of butter lost.

Transfer Bart and get 5 calculators for 3 pounds of butter lost.

Transfer Carla and David together and get 5 calculators for 7 pounds of butter lost.
Think about shopping. You want to get your candy bars at the store that costs you the least dollars per candy bar gained.

$5 lost to get 4 candy bars means a per bar cost of $5/4 bars = $1.25 dollars lost per bar gained.
You want to get your calculators from the person who costs you the least butter given up per calculator gained.

If you give up 12 lbs. of butter to get 5 calculators, your cost per calculator is $12 \text{ lbs.}/5 \text{ calc.} = 2.4 \text{ lbs. of butter lost per calculator}$. 
<table>
<thead>
<tr>
<th>Calculators</th>
<th>Butter</th>
<th>Lbs butter lost per calculator (lbs) gained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amy</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Bart</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Carla</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>David</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

What is the best order to move these people from butter to calculator production?
When you do this yourself (and you will), start at one extreme, where everyone is doing the same thing. Then move your workers one at a time, starting with the lowest cost worker and continually moving to the next lowest cost.
On your graph, you will gain in one direction what the new worker is now making, and lose direction what they have stopped making.
Note that no one point marks what an individual worker is producing.

Instead, the points are marking what total production of the society is at each step. If your PPF line bows in, check that you have not moved the workers in the opposite order.
Why does this PPF constraint line bow out when the previous budget constraint line was straight?

The more calculators we are already producing, the greater the cost in butter lost. In terms of this graph, the larger the movement to the left for each given move up.
This is an illustration of The Law of Increasing Opportunity Cost.

The more of a good already being made, the greater the cost of making one more unit.

This is because each additional worker is worse for making this product than the previous worker.
The law of increasing opportunity cost is not saying that as you add more resources to making something, you get less of it.

It is saying that as you add the same additional amount of a resource to making it, the increase becomes smaller and smaller.
This is happening because some workers have a comparative advantage over other workers.

Comparative Advantage - When a person or country can produce a good at a lower cost in terms of other goods or when they have a lower opportunity cost of production.
Bart has a comparative advantage over everyone else. David has the comparative advantage compared to everyone but Bart.

Is it always the person fastest at the job that has the comparative advantage?
You have to look at what you give up as well as what you gain. For example, a lawyer can type faster than her secretary. Should she type her own letters?
It's not just workers. Think of the different qualities of farm land. One acre is likely to have a comparative advantage in growing wheat compared to another. And you'd always want to use the land that grows the most wheat per acre for growing wheat, right? (Hint: Wrong)
You are the ruler of a country that makes wheat and aircraft carriers. Who is the best type of person to transfer from farming to ship building?
Here is a table with increasing opportunity cost. Is it increasing opportunity cost of wheat or carriers?

<table>
<thead>
<tr>
<th>Point</th>
<th>Carriers</th>
<th>Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>20,000</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>30,000</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>37,000</td>
</tr>
<tr>
<td>E</td>
<td>0</td>
<td>40,000</td>
</tr>
</tbody>
</table>
Can we be at point Z?
Can we be at point Z?
Yes – Two Ways

1. Unemployed resources (macroeconomics)

2. Inefficient use of resources (microeconomics)
Building a carrier in Maine by ship builders costs 3,000 bushels of wheat given up. That moves us from point E to D.

Building a carrier in Kansas by farmers costs 20,000 bushels of wheat. That is the move from B to A.
If we build our first carrier in Kansas by farmers, we go from point E to Z.
An economy is producing efficiently when it is impossible to make more of one thing without making less of something else.

An economy is producing inefficiently when it is possible to make more of one thing without making less of something else.
Two simple rules:

1. All efficient points are on the PPF line.

2. All inefficient points are inside/under the PPF line.
Production efficiency is achieved when resources are used best as indicated by their comparative advantage.

What happened on your homework if you moved someone out of their comparative advantage (or lowest opportunity cost) order?
In the world economy, this means counties should specialize in what they are best in. Then the world can have more stuff overall.
Should countries necessarily totally specialize, i.e. Brazil only make sugar and U.S. only grow wheat?

(a) Brazil production per acre (tons)  
(b) U.S. production per acre (tons)
Are efficient production points necessarily better than inefficient ones?
Allocative Efficiency – When the mix of goods represents the mix that society most desires.

Z is most likely better than A even though A has production efficiency, because it has very inefficient allocation.
So are points like Z that have mixture always better than corner points?
Suppose we don’t know very well what people want, only that they do like these goods. Can we still say something about what points will be better than others?

In other words, what can we say about better or worse choices based only on production efficiency.
Points B, C, and D are necessarily better than point Z because they have more of both things.

Points A and E may be better, but also may be worse because they have more of one thing but less of the other.
Two theorems about production efficiency and being better

1. Not every efficient production point is necessarily better than every inefficient point.

2. For every inefficient production point, there are always some efficient points that are better.
To know which points have to be better than Z, draw a line straight up and straight out. All points in the "piece of pie" have to be better.
Hand out homework #1. This is due at the start of the next class. If you are late, hand it in when you arrive. I will not take it at the end of class.
What we did today:
1) Individual budget constraints.
2) How to construct a PPF diagram.
3) Law of increasing opportunity cost.
4) Definition of comparative advantage.
5) Productive and allocative efficiency.
6) Knowing which points are better.

Your homework:
1) Read chapter 2
2) Do Homework assignment #1
3) Prepare for quiz #1 on Wednesday.
Welcome to Day 3

Principles of Microeconomics
What we did last class:
1) Examples of cost vs. benefit thinking.
2) Individual budget constraints.
3) How to construct a PPF diagram.
4) Law of increasing opportunity cost.
5) Definition of comparative advantage.
6) Productive and allocative efficiency.
6) Knowing which points are better.

Start of class today:
1) Hand in homework assignment #1.
3) Take quiz #1.
Goals Today

1) Law of demand and demand curves.
2) Law of supply and supply curves.
3) Equilibrium.
4) Things that shift the demand curve.
5) Importance of Incentives.
6) New equilibrium when the demand curve shifts.
Chapter 3
Supply and Demand
A Useful Tool

[Graph showing supply (S) and demand (D) curves intersecting at point P, with Q on the horizontal axis and P on the vertical axis.]
The Law of Demand

A higher price leads to a lower quantity demanded of a good and a lower price leads to a higher quantity demanded, all other variables held constant.
Demand Schedule – A table that shows a range of prices for a good and the quantity demanded at each price.

Fast Food Hamburgers

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity demanded</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0.50</td>
<td>100</td>
</tr>
<tr>
<td>$0.75</td>
<td>75</td>
</tr>
<tr>
<td>$1.00</td>
<td>25</td>
</tr>
</tbody>
</table>
Demand Curve

Price

Quantity
1. Demand curves always slope down.

2. The can bow out, bow in, be straight, or any combination as long as they slope down.

3. Demand refers to the curve and quantity demanded refers to a specific point on the curve.
Is there a Law of Supply?

What do we know about how businessmen behave?

1. They do what makes a profit.
2. They make a profit when the price of a good is above the cost of making it.
Cost to make each individual pizza

1\textsuperscript{st} pizza - $4.50
2\textsuperscript{nd} pizza - $5.50
3\textsuperscript{rd} pizza - $6.50
4\textsuperscript{th} pizza - $7.50
5\textsuperscript{th} pizza - $8.50

Why is each pizza costing more than the pizza that came before?
How many will you want to make and sell at each price?

1\textsuperscript{st} pizza - $4.50  
2\textsuperscript{nd} pizza - $5.50  
3\textsuperscript{rd} pizza - $6.50  
4\textsuperscript{th} pizza - $7.50  
5\textsuperscript{th} pizza - $8.50  

Price = $6.00?  
Price = $8.00?  
Price = $4.00?
The Law of Supply

A higher price leads to a higher quantity supplied and a lower price leads to a lower quantity supplied, all other variables held constant.
Supply Curve – Slopes up because of the law of supply.
So in a market economy, how is it decided we end up at A, B, C, ...?
Supply and demand for fast food hamburgers.
Equilibrium

The combination of price and quantity where there is no economic pressure from surpluses or shortages that would cause price or quantity to change.
Let’s talk about incentives and the two main types of economies: command and market (remember, from section 1.4?).

Why do you do something? What’s in it for you?

In a market economy ...
Cha-Ching!

There’s money in it.
The more stuff they sell, the more money Albertsons makes.

The DMV does not make more money when it provides better service.
http://www.yourememberthat.com/media/2384/Moscow_On_The_Hudson/#.UivuffPn_X4
According to the *Sydney Morning Herald*, in the Russian famine of 1921-22, 9 million people died.

This was topped by the 15 million who died in The Great Chinese Famine of 1958-1962.
The command economies of Soviet Russia and Eastern Europe fell in part because they could not produce what the western economies could.
What has to happen on this diagram for the equilibrium price to change?
What besides price affects how much of something you buy?
1. Taste Shift
   a. Change in life circumstances.
   b. Advertising.
   c. People changing their minds.
Demand Curve for umbrellas in an unusually rainy winter
When the whole demand curve shifts, this is called a change in demand.

Moving up and down an unmoving curve is called a change in quantity demanded.
2. Price of a related good.
Pepsi has a big Super Bowl sale.

Increase in Quantity Demanded of Pepsi

Decrease in Demand for Coca-Cola
Substitutes are goods used in place of each other

Complements are goods used together
3. Income

Normal Goods – Demand increases when income rises.

Inferior Goods – Demand decreases when income rises.
Get a big raise.

Normal Good

Inferior Good

Steak

Top Ramen
4. Demographics

Change in number or characteristics of your population.
What happens when the U.S. Navy arrives in Hong Kong?

= Beer
5. Buyer Expectations

This is what is happening to the demand curve now as buyers expect a lower price, not what happens in the future when the lower price gets here.
Factors That Affect Demand

1. Taste Shift.
2. Price of a Related Good.
3. Income.
4. Demographics.
5. Buyer Expectations.

Are there others? Yes, but you don’t have to worry about them in this class.
Now we are equipped to predict the future.
What happens to the price and quantity of umbrellas in a rainy winter?

The graph shows the supply (S) and demand (D) curves for umbrellas. The equilibrium price is at $8.00, and the equilibrium quantity is at 100,000 units.

- At a price of $4.00, the quantity demanded (Q1) is at 100,000 units.
- At a price of $14.00, the quantity supplied (Q1) is at 100,000 units.

The graph illustrates the inverse relationship between price and quantity demanded, and the direct relationship between price and quantity supplied.
Rainy Winter Increases Demand
Price rises from $7.80 to $10.00
Quantity rises from 100,000 to 150,000.

Will price and quantity always go up when demand increases?
Hand out homework #2. This is due at the start of the next class. If you are late, hand it in when you arrive. I will not take it at the end of class.
What we did today:
1) Law of demand and demand curves.
   2) Law of supply and supply curves.
   3) Equilibrium.
4) Things that shift the demand curve.
   5) Importance of Incentives.
6) New equilibrium when the demand curve shifts.

Your homework:
1) Read assigned parts of chapter 3.
   2) Do Homework assignment #2.
   3) Prepare for quiz #2 on Thursday.