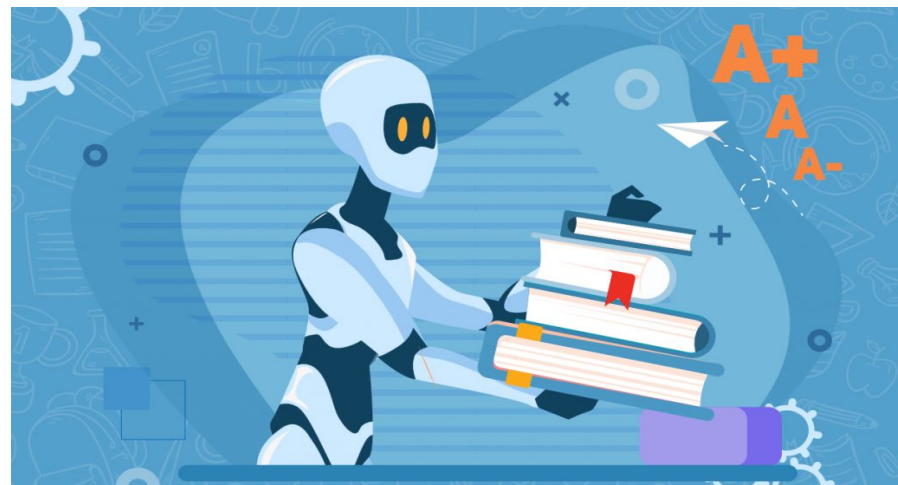


# Teaching Economics and Generative AI

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# Introduction & Motivation

- Generative AI: a technology that can generate text, images, and other types of data
- College students are using ChatGPT in various ways (Yu, 2023)
  - 89% use Chat GPT to complete *homework* tasks
  - 53% use the tool for writing *papers*
  - 48% use Chat GPT during *exams*
  - 22% use Chat GPT to generate *paper outlines*

# My View

- It's inevitable! Students will use generative AI, a revolutionary technological advancement.
- Educators need to rethink the focus of education in order to meet future social and career demands.
- How can educators redesign learning activities to incorporate the new technology and prepare students for the AI-driven future?

# Current Literature

## Advantages

- Improved efficiency—immediate feedback
- Facilitating collaboration among individuals by providing tools for brainstorming and idea sharing

## Limitations

- Ethical considerations
- Data privacy breaches
- Dishonesty, plagiarism, difficulty in verifying results—no sources provided
- Algorithmic unfairness, biased results and promotion of certain ideology without transparency

# Applications in Economics Teaching

## Sample Activities

I have incorporated generative AI in several activities in various economics courses.

### 1. Principles of Microeconomics class

#### ❑ Price elasticity of Demand application

- This activity is an application of an economic concept, where students are guided to recognize the concept in the lyrics of a song. Then the instructor guides students to use generative AI and critically analyze its output

# Learning Goals

- Students develop their analytical and critical thinking skills, in an engaging and collaborative way
- Students explore and assess generative AI's output, while fostering creativity, and analytical and critical thinking

# Assignment 1: Application of Elasticity

Consider Tim McGraw's song "[Just to see you smile.](#)" It tells the story of a young man who is willing to give up his job and his home in order to be with his girlfriend in another city.

- Think about his elasticity of Demand for the girl, as you are enjoying the song . . .

# Just To See You Smile by Tim McGraw

You always had an eye for things that glittered  
But I was far from being made of gold  
I don't know how but I scraped up the money  
I just never could quite tell you no

Just like when you were leavin' Amarillo  
Takin' that new job in Tennessee  
And I quit mine so we could be together  
I can't forget the way you looked at me

Just to see you smile  
I'd do anything that you wanted me to  
When all is said and done  
I'd never count the cost  
It's worth all that's lost  
Just to see you smile

When you said time was all you really needed  
I walked away and let you have your space  
'Cause leavin' didn't hurt me near as badly  
As the tears I saw rollin' down your face

And yesterday I knew just what you wanted  
When you came walkin' up to me with him  
So I told you that I was happy for you  
And given the chance I'd lie again

Just to see you smile  
I'd do anything that you wanted me to  
When all is said and done  
I'd never count the cost

It's worth all that's lost  
Just to see you smile  
Just to see you smile  
I'd do anything that you wanted me to

When all is said and done  
I'd never count the cost  
It's worth all that's lost  
Just to see you smile



# Assignment 1: Application of Elasticity

1. Consider the phrase, *“Just like when you were leavin’ Amarillo  
Takin’ that new job in Tennessee  
And I quit mine so we could be together.”*
  - a) Does his decision depend on his opportunity cost?
  - b) What must he think about his opportunity cost of staying in Amarillo?

# Assignment 1: Application of Elasticity

2. Consider also the phrase: *“Just to see you smile, I would do anything... I’d never count the cost. It’s worth all that’s lost. Just to see you smile.”*
  - a) What does it imply about his willingness to pay and the slope of his Demand curve?
  - b) What about his price elasticity of demand for spending time with her?

# Assignment 1: Application of Elasticity

3. Now, go to [openai.com/GPT](https://openai.com/GPT) and generate an answer to the previous question. Write it down.

Use the following prompt: What does the phrase “*Just to see you smile, I would do anything... I’d never count the cost. It’s worth all that’s lost. Just to see you smile*” imply about his price elasticity of demand for spending time with her?

- a) How does your answer compare with the answer of chatGPT? Discuss.
- b) If ChatGPT’s answer is *correct*, can you use any elements to strengthen your answer?
- c) If ChatGPT’s answer is *incorrect*, try to manipulate the prompt to get AI to give you the right answer? Why do you think this output was incorrect? Did the prompt make a difference?

# Assignment 1: Application of Elasticity

## 4. ChatGPT generated the following answers for the Professor:

**ChatGPT1:** “The phrase suggests a very elastic demand for the partner, as the person values their presence and happiness highly and is willing to make significant sacrifices without considering the cost.”

**ChatGPT2:** “The phrase implies perfectly elastic demand for the partner, as the person's willingness to sacrifice anything to see their smile is limitless and unaffected by any cost.”

**ChatGPT3:** “The phrase suggests that the person's elasticity of demand for their partner is extremely high or elastic. The use of "never" implies that the person's willingness to bear any cost or make sacrifices for the sake of seeing their partner smile is unlimited and unconditional. The person places an incredibly high value on their partner's happiness, and their demand for the emotional connection and joy derived from seeing their partner smile is highly responsive to any situation or circumstance. This level of dedication and willingness to give up anything for their partner reflects a strong and elastic demand for her presence and happiness.”

- Do these ChatGPT answers align with the economic answer? Why do you think that's the case?

# Assignment 1: Application of Elasticity

## ANSWERS

4. ChatGPT generated the following answers for the Professor:

**ChatGPT1:** “The phrase suggests a very **elastic demand** for the partner, as the person values their presence and happiness highly and is willing to make significant sacrifices without considering the cost.” □

**ChatGPT2:** “The phrase implies **perfectly elastic demand** for the partner, as the person's willingness to sacrifice anything to see their smile is limitless and unaffected by any cost.” □

**ChatGPT3:** “The phrase suggests that the person's **elasticity of demand for their partner is extremely high or elastic**. The use of "never" implies that the person's willingness to bear any cost or make sacrifices for the sake of seeing their partner smile is unlimited and unconditional. The person places an incredibly high value on their partner's happiness, and their demand for the emotional connection and joy derived from seeing their partner smile is highly responsive to any situation or circumstance. This level of dedication and willingness to give up anything for their partner reflects a strong and elastic demand for her presence and happiness.” □

- Do these ChatGPT answers align with the economic answer? Why do you think that's the case?

# Assignment 1: Application of Elasticity

## ANSWERS

The *solution* is that this phrase showcases the concept of "*Inelastic Demand.*" 

# Assignment 1: Application of Elasticity

5. Compare each of these answers to your own answer and to the ChatGPT's answer you generated. Are they similar or different? Why do you think that's the case?
6. Do ChatGPT's answers align with the economic answer we have learned in this class? Why do you think that's the case?
7. Was using ChatGPT beneficial? Was this answer helpful to improve your own answer?
8. How do you plan to approach your use of ChatGPT? How would you validate and ensure the accuracy of its answers?

# Lessons Learned from the Activities

- ✓ Generative AI is very good for definitions and details.
- ✓ ...but not good for applying the theory.
- ✓ Generative AI is often VAGUE!
- ✓ Generative AI CAN be WRONG!
- ✓ Learning with AI can improve engagement.
- ✓ Learning with AI can be interesting and fun!
- ✓ Generative AI can help learning as it can provide detailed explanation about a concept.
- ✓ Critical analysis of generative AI's output is essential.
- ✓ Over time, AI's responses may improve.
- Advocate for *analytical* and *responsible* use of AI!



# Conclusion

- AI's revolutionary development and its use is inevitable.
- We can get ahead of the curve and introduce generative AI technology in class, or fall behind by trying to ban it.
- When inviting students to engage with AI, we can prepare them to use it *thoughtfully, critically and responsibly*.
- We can set rules and guidelines for generative AI's use to comply with ethical and institutional standards.

# Student Reflections

*“I enjoy using ChatGPT because it can often provide viewpoints and context for different questions that I would not know how to pursue efficiently on my own.”*

*“I find ChatGPT is best used for completing as well as giving information and ideas on topics that I know little about. For most things that require true creativity or deep content knowledge, ChatGPT is not as useful.”*

Students from the “Principles of Economics” class

# Student Reflections



By: Alex Feeley, Christian Kim, and Axel Orozco  
Econ 221 (Principles of Microeconomics),  
Spring 2024

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**THANK YOU**



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