Teaching and Educational Methods

Teaching Principles of Microeconomics with the Economics Media Library

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Abstract
We provide eleven short exercises that can be used in a principles of microeconomics classroom that incorporate media clips from the Economics Media Library (http://econmedialibrary.com/). The exercises have been used in both small and large classroom settings and take less than 15 minutes to complete. These teaching guides can be a helpful first step for educators interested in introducing small activities to engage students in the classroom.

1 Introduction

In his fifteen theses on teaching economics, Ken Elzinga (2001) proclaimed that "good lectures need good stories." Since his address at the Southern Economic Annual Meetings, educators have published material aimed at improving the content delivered in the economics classroom.[1] Despite growth in the number of resources available for educators to use in the classroom, there does not seem to have been an equivalent growth in research focused on how to use those resources to teach the concepts. Many of the published resources still rely on educators to determine how to integrate that material into their classrooms.

Providing engaging and relevant examples for students in the economics classroom could lead to an increased interest in the subject, as well as an increase in the number of majors. For example, Calkins and Welki (2006) found that students ranked interest in the subject as a top reason for deciding what major to select, even ahead of reasons like marketability of degree and future earnings. Becker (2003) argued that the economics profession loses majors to other business-oriented degrees because of a stubborn refusal to move from a traditional lecture to a more discussion-based classroom focused on using real-world examples and case studies. He suggested that economics could begin to attract creative students to the discipline by restructuring courses to focus on active learning and using examples that are relevant to students.

Using media in the classroom, particularly when assessments follow the same storyline, has been shown to increase quiz scores (Chu 2014) and result in increased student satisfaction at the end of the semester (Vidal, Mungenast, and Vidal 2020). A lot of the focus in education has adopted the Biggs (1996) paradigm that focuses on how students learn material rather than what topics instructors chose to teach. Teaching has transformed to more of a student-centered approach in an attempt to engage students with the learning process (Fung 2017, p. 182). The current model is to have students become more active participants in the learning process (Healey and Jenkins 2009, p. 152; Dal Bianco 2020), and educators across disciplines have developed resources to improve courses through small changes to the delivery of content (Lang 2016).

We provide a series of short teaching guides that can be used in the principles of microeconomics

[1] For a review of various pedagogical approaches to teaching economics, see Hoyt and McGoldrick (2019), Picault (2019), or Wooten et al. (2021).

classroom using media clips hosted on the Economics Media Library (Wooten 2018). These short guides have been used as part of independent practice during recitation sections and as part of group assignments in large lectures. We provide a brief background on teaching with media and then summarize the teaching guides as a collection of resources. Each guide has been included in the appendix.

2 Teaching with Media

The use of media in the classroom can largely be divided into two streams: broad and specific applications. Broad applications involved taking a media source like a single television series, a collection of movies, or musicals and finding a variety of teaching examples within the content that can be applied across a variety of economics courses. Television shows like *Seinfeld* (Ghent, Grant, and Lesica 2011) and *The Big Bang Theory* (Tierney et al. 2016) were some of the first television shows that were analyzed in depth for content. Websites like Dirk's Media Library (Mateer 2012) and the Economics Media Library (Wooten 2018) aggregate clips from a variety of television shows, movies, music videos, and commercials. The goal of these sites, however, is to highlight economics across a wide variety of media. While some sites provide teaching guides for particular clips from their site (Geerling et al. 2018), most provide only a description of the scene.

The other stream of literature focuses on specific topics that can be taught using media. The focus of this work is instead on the economic theory and then supplemented with corresponding media. Hoffer and Crowley (2013) uses a single episode of *South Park* to demonstrate the free-rider problem associated with voting. Kuester and Mateer (2018) and Rousu (2018) focus on teaching the benefits of free markets using scenes from *The Office* (Kuester, Mateer, and Youderian 2014) and Broadway musicals (Rousu 2016). Murphy, Schuler, and Wooten (2020) use a specific scene from the 1950s Western *Have Gun—Will Travel* to highlight externalities and Coasian bargaining. Finally, Wooten and White (2018) developed a simulator around a project designed to teach students the concepts and criticisms of marginal revenue product themed after the movie of *Moneyball.*

Using media in the classroom can make the material presented come across less dismal, which, anecdotally, is many students' first impression with economics. Both Harter (2003) and Hoyt (2003) have suggested that using popular media can help instructors connect with and can help explain concepts in ways that are more familiar to their students. It is important to meet students where they are because many students bring misperceptions to the classroom, which can make learning economics principles difficult (Busom, Lopez-Mayan, and Panadés 2017). The concepts taught in principles may not necessarily be intuitive to new learners, providing examples of the content in popular media provides an opportunity to build on prior knowledge. Having exercises that reinforce concepts in simple, approachable ways can be valuable to developing intuition behind certain topics in economics. Using popular media familiar to students, instructors can leverage the influence of scaffolding by building upon students' pre-developed knowledge of the media to focus teaching of new content (Van de Pol, Volman, and Beishuizen 2010).

3 Economics Media Library

The Economics Media Library[2] is an online repository of popular media segments that are available to instructors and students. There are currently over 550 scenes posted to the site with clip descriptions and tags for ease of navigation. Most of the clips on the site are not the same clips found on show-specific websites like Economics of Parks and Recreation (Wooten and Staub 2019), Economics of Modern Family (Wooten, Staub, and Reilly 2020), or Economics of Breaking Bad (Muchiri, Paraschiv, and Wooten 2021). All posts on the site are divided into categories for principles of microeconomics and macroeconomics topics, as well as field courses in behavioral, game theory, labor, health, and econometrics. Clips have

[2] The site can be accessed at http://econmedialibrary.com

been collected from media sources including television shows, comedy specials, movies, commercials, music, and other online media. The site provides a search feature to help users identify particular concepts that they may be interested in finding and provides a dedicated section to teaching with media and accessing the clips on the site.

4 Teaching Guides and Considerations

Each teaching guide included in the appendix contains seven key parts: an objective, an intended audience, a teaching strategy, a specific clip from the Economics Media Library, clip information, a set of questions or activities associated with the clip, and suggested answers to those questions. The exercises have been developed and used by the authors in their principles of microeconomics courses. The exercises have been used in large lecture classes as a means of active learning in the classroom, as well as a part of a weekly recitation section associated with a large lecture classroom. Most of the guides outlined below are modeled as think-pair-share activities, which have been shown to help students become more effective problem solvers (Kitaoka 2013).

Most of these exercises were used at the start of a lecture or recitation to review material covered from a previous class or as a starting activity to introduce concepts that would be covered in that day's lecture and recitation. The exercises are intended to be completed in the first 15 minutes of a session; however, they could be used in a wide range of classroom delivery modes with minor adaptations. For example, a large lecture may ask students to respond using a classroom response system instead of on an actual piece of paper. Classroom response systems, whether with traditional remotes (Calhoun and Mateer 2011) or with online platforms (Wooten, Acchiardo, and Mateer 2020), can be set up to engage students in a variety of classroom sizes, particularly in large lectures (Salemi 2009).

The teaching guides could also be used in an online or remote classroom with minor adjustments. For courses taught asynchronously, the clips and questions can be embedded in a content page of the course management system. Whether the material is part of a graded assessment would be at the purview of the instructor. For faculty teaching their courses synchronously, they could use breakout room functionality to have students work in small groups and then reconvene to solve the question in the main meeting room. The use of media in this way is just one method of connecting students in online courses who may feel isolated from their peers (Wooten, Geerling, and Thomas 2020).

The exercises cover most of the foundational topics in a principles of microeconomics course, which leads us to believe that they would be beneficial to a wide audience and not specific to content taught at the authors' respective universities. Using media throughout a lecture can be a form of active learning that allows students to stay engaged with the content (Hoyt 2003; Wooten 2020). Table 1 provides an overview of the topics and media included in each teaching guide.

Although the Economics Media Library has compiled numerous clips that can be utilized across various economics courses, we believe some instructors may find it difficult to know exactly how to incorporate the clips into the classroom. Goffe and Kauper (2014) find that a majority of instructors they surveyed do not believe pure lecturing is the best way for students to learn; however, half of them lecture because it is cost effective. Our intention with these teaching guides is that these exercises provide a low-cost method of incorporating media into a lecture.

Student responses are generally positive regarding the use of these teaching guides to supplement lectures and recitations. The video segments are short enough that students do not lose interest, but they take them seriously since they know an activity will follow the segment. A secondary consideration is the teaching style of the faculty member using the clip segments. Both authors use media regularly in the classroom and are comfortable showing clips from various media sources with and without the accompanying questions. Because a heavy number of media is used over the course of an entire semester, it is difficult to parse out the marginal effect of any single teaching guide.

Because all the clips are available on the Economics Media Library website, it is helpful to provide links to students who may want to review the segments to prepare for an exam. This can be done with a

Table 1. Teaching Examples in the Appendix Using Clips Posted on Economics Media Library

Appendix	Topic	Corresponding Clip Source	Clip Length (min:sec)
A	Opportunity Cost	T-Mobile commercial	0:30
B	Trade and Trade-Offs	Walmart commercial	0:30
C/D	Supply and Demand	The Hudsuckers Proxy	3:12
	(2 parts)	Always Sunny in Philadelphia	1:28
E	Elasticity	Nutella Commercial	1:20
F	Market Efficiency	Young Sheldon	1:42
G	Market Intervention	Saturday Night Live	0:30
H	Market Failures	The Good Place	2:28
I	Production & Costs	Argo	0:57
J	Perfect Competition	Horrible Bosses	1:01
K	Market Structure	The Simpsons	1:31
L	Game Theory	Golden Balls	3:53

dedicated "Exam Resources" page in a learning management system that has links for the various clips used. This has been really helpful for students who speak English as a second language. All of the segments used in the teaching guides are captioned, which can assuage any accommodation concerns.

A final challenge of teaching with media involves the "flow" of the classroom. The video files can be embedded into PowerPoint slides so that a faculty member can seamlessly integrate the media and not have to rely on an internet connection to play the video.[3] Video embedding is not available for faculty using Beamer and thus requires switching between a PDF viewer like Adobe Acrobat and a web browser like Chrome. The files can still be downloaded to a USB drive and played from a media player if instructors have unreliable internet connections.

5 Conclusion

These exercises provide benefits to both educators and students. For educators, the exercises bridge the gap between the desire to use media in the classroom and the actual process of teaching with media in the classroom. Educators can use the exercises as-is or can use the exercises to spur development of similar methods of incorporating media into a lecture. These exercises create good stories to help educators teach students not only to understand concepts in the classroom, but how to apply those concepts outside the classroom in their everyday lives. Perhaps by engaging students with a more active teaching approach and incorporating examples that they find interesting; we may also be able to increase the number of students opting to take additional economics courses.

For students, these exercises and the use of media in the classroom, provide a method to understand how economics is connected to their lives. Economics can be defined as the study of choice under conditions of scarcity, but that definition comes across irrelevant because our students face constrained choices daily, and yet they do not consider their choice set to be within the realm of economics. Students struggle to understand the relevancy of concepts covered during introductory courses but using popular media makes those topics more approachable.

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[3] Instructions are provided on Economics Media Library.

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Appendix A: Opportunity Costs

Objective: Identify opportunity costs
Intended Audience: Principles of Microeconomics
Teaching Strategy: Utilizing Technology in the Classroom, Cooperative Learning
Clip Title: "T-Mobile – Ariana or Maps?" (be sure to hide the title of the clip!)
Media Type: Commercial – T-Mobile
Clip Length: 30 seconds
Clip Link: https://econ.video/2019/06/13/t-mobile-ariana-or-maps/

Activity: Play the clip listed above and have students work independently to answer the following questions:

1. What were the driver's choices in the video? What choice did the driver make?
2. What is the opportunity cost of that choice?
3. What does T-Mobile want you to choose?
4. Describe the opportunity cost of that choice.

Have students share their work with another student and compare their answers. If the students have different answers (particularly to #2 and #4), have them work together to determine the appropriate answer.

Suggested answers:

1. Listening to music or using GPS. She chooses to use the GPS.
2. The opportunity cost of using GPS is that she gives up the ability to listen to music.
3. T-Mobile wants you to choose T-Mobile (specifically, they want you to switch from Verizon).
4. Yes! The opportunity cost of switching phone carriers could be what you would do with your time instead of going to the T-Mobile store to switch, what you could do with any money you have to spend to switch, etc.

Appendix B: Trade-Offs and Trade

Objective: Identify absolute and comparative advantage, calculate opportunity costs
Intended Audience: Principles of Microeconomics
Teaching Strategy: Utilizing Technology in the Classroom, Cooperative Learning
Clip Title: "Walmart – Negotiations"
Media Type: Commercial – Walmart
Clip Length: 30 seconds
Clip Link: https://econ.video/2019/11/03/walmart-negotiations/

Activity: Assume that children going out to trick-or-treat earn different amounts of candy based on how long they stay out. Initially, the groups can produce the following payoffs for each hour they stay out.

	# Small Candy in 1 Hour	# Large Candy in 1 Hour
Spiderman Group	5	1
Princess Group	10	5

Based on the information provided in the table, answer the following questions in pairs.

1. Which group of children has the absolute advantage in collecting small candy? What about the collection of large candy? Why did you select the groups as you did?
2. Calculate the opportunity cost for each group for both small candy and large candy.
3. Which group has the comparative advantage in collecting small candy? What about large candy?

Suggested Answers:

1. The Princess group has an absolute advantage in both small and large candy collection because they can collect more of each compared to the Spiderman group. Absolute advantage is based on how much can be produced with the same number of resources.
2. The opportunity cost of each item is:

	Small Candy Opp. Cost	Large Candy Opp. Cost
Spiderman Group	⅕ of a large candy bar	5 small candy bars
Princess Group	½ of a large candy bar	2 small candy bars

3. Comparative advantage is based on which group has the lowest opportunity cost. The Spiderman group has the comparative advantage in collecting small candy, because their opportunity cost is lower (⅕ < ½). The Princess group has a comparative advantage in collecting large candy bars (2 < 5). If the two groups wanted to maximize their candy collection, the Spiderman group should focus on collecting small candy bars, and the Princess group should focus on collecting large candy bars.

Appendix C: Supply and Demand, Part 1

Objective: Distinguish between the components of the supply and demand curves
Intended Audience: Principles of Microeconomics
Teaching Strategy: Utilizing Technology in the Classroom, Cooperative Learning
Clip Title: "The Hudsucker Proxy – The Hula Hoop"
Media Type: Film – Hudsucker Proxy
Clip Length: 3 minutes, 12 seconds
Clip Link: https://econ.video/2017/10/18/1136/

Activity: Have students draw a hypothetical competitive market for hula hoops. Be sure they label the price and quantity axis, the supply and demand curves, and the initial equilibrium price and quantity. After they have their own market graph drawn out, show the video clip above and have students work in pairs to answer the following questions:

1. Why does the supply line slope up and to the right?
    a. As prices increase, the quantity sellers are willing to supply decreases.
    b. As prices decrease, the quantity sellers are willing to supply increases.
    c. As prices increase, the quantity sellers are willing to supply increases.

2. Why does the demand line slope down and to the right?
    a. As prices decrease, the quantity consumers are willing to purchase decreases.
    b. As prices increase, the quantity consumers are willing to purchase decreases.
    c. As prices increase, the quantity consumers are willing to purchase increases.

3. Based on the clip, when the price of a hula hoop was initially set at $1.79, which of the following was likely true about the market?
    a. The quantity supplied exceeded the quantity demanded at the initial price, creating a shortage.
    b. The quantity demanded exceeded the quantity supplied at the initial price, creating a shortage.
    c. The quantity supplied exceeded the quantity demanded at the initial price, creating a surplus.
    d. The quantity demanded exceeded the quantity supplied at the initial price, creating a surplus.

4. Based on the clip, what is the most likely reason for the change in demand for hula hoops?
    a. Change in income
    b. Change in preferences
    c. Change in the price of substitutes
    d. Change in the price of hula hoops

Suggested Answers:

1. B
2. B
3. C
4. B

Appendix D: Supply and Demand, Part 2

Objective: Demonstrate shifts to supply and demand curves
Intended Audience: Principles of Microeconomics
Teaching Strategy: Utilizing Technology in the Classroom, Cooperative Learning
Clip Title: "Always Sunny – Supply Shifts for Fish" (be sure to hide the title of the clip!)
Media Type: TV Show – Always Sunny in Philadelphia
Clip Length: 1 minute, 28 seconds
Clip Link: https://econ.video/2018/01/15/always-sunny-supply-shifts-for-fish/

Activity: Have students work in groups to answer the following questions:

1. Based on the discussion in the clip, which curve in our supply and demand model is affected? Why do you think that?
2. Which direction does that curve shift?
3. What happens to the market equilibrium price and quantity relative to its initial equilibrium?

Suggested Answers:

1. The supply curve is affected because the waiter mentions an issue with their fish supplier.
2. The supply curve shifts left because there is an issue with the fish supplier, which suggests that there has been a decrease in the supply of fish.
3. The equilibrium price should increase, and the equilibrium quantity will decrease. While the group members may still want fish, other customers may not be willing to pay the higher price.

Note: You may want to reiterate to your students to not overcomplicate the purpose of the competitive model. While the characters in the clip still want their fish, other patrons in the restaurant may not be willing to pay the higher price. This is a good chance to remind students that models are a simplification of a more complex system and that just because a group of people do not change their behavior does not mean it is true for the entire market.

Appendix E: Elasticity

Objective: Discuss the determinants of price elasticity of demand
Intended Audience: Principles of Microeconomics
Teaching Strategy: Utilizing Technology in the Classroom, Cooperative Learning
Clip Title: "TIME – Nutella Riots After Price Drop"
Media Type: News segment – Time, Inc.
Clip Length: 1 minute, 20 seconds
Clip Link: https://econ.video/2018/01/27/time-nutella-riots-after-price-drop/

Activity: First have students work in pairs to enumerate the four determinants of price elasticity of demand. Ask students to then consider the product, Nutella, which is a chocolate hazelnut spread that is very popular across Europe. A 13 oz. jar typically costs around $4 at local supermarkets in the United States. Imitation versions of the product may be slightly cheaper.[4]

Tell students the typical price of a jar of Nutella, but then tell them that you have been told by your neighbor that your local store is planning to cut the price in half tomorrow. What response should the grocer expect? Have students work in pairs to determine if the response is likely to be elastic or inelastic based on the determinants they have listed.

Have students work in pairs to determine if they believe the demand for the product is either relatively elastic or inelastic. You may also want to press them on clearly stating whether it is a necessity or luxury. You will likely find that students can justify Nutella as having characteristics of both. Given that the price reduction is 50 percent, would they expect a more than 50 percent increase in purchases (making it an elastic response) or less than 50 percent increase (an inelastic response). Split the room in half as a way of voting for one side or the other and allow students to sort based on what they think will happen. Have students also consider what will happen to store revenue based on their choice.

Play the clip above from Time, which shows the dramatic response to the price reduction in France. Based on the response, it appears Nutella may be more elastic that some students may realize.

Suggested Answers:

The four determinants of price elasticity of demand are generally considered:

1. The availability of close substitutes.
2. Whether an item is a necessity or luxury.
3. The share of income spent on the good.
4. The time elapsed since the price change.

Price reduction for Nutella considerations:

- There are close substitutes (*more elastic*)
- It probably isn't a necessity (*more elastic)*
- It's a small share of a person's income (*more inelastic*)
- The price change is happening soon, so not a lot of time to adjust (*more inelastic*)

For price reductions on inelastic goods, revenue should fall. Revenue should increase if the product is elastic.

[4] Depending on class size, you could revisit this lesson at the end of the semester and have students taste test different jars of chocolate hazelnut spread in an attempt to rank them by quality. Students are unlikely to be able to differentiate between brands, which could be used to discuss the role of product differentiation.

Appendix F: Market Efficiency

Objective: Calculate market efficiency including consumer, producer, and total surplus
Intended Audience: Principles of Microeconomics
Teaching Strategy: Utilizing Technology in the Classroom, Cooperative Learning
Clip Title: "Young Sheldon – Haggling"
Media Type: TV Show – *Young Sheldon*
Clip Length: 1 minute, 42 seconds
Clip Link: https://econ.video/2018/11/05/young-sheldon-haggling-skills/

Activity: In the scene, Georgie finds a lamp that he thinks is overpriced at $10. He thinks it's probably worth closer to $3. Meemaw was given the lamp as a gift, so she'd be willing to give it away just to clear out space. Suppose a customer stops by and is able to negotiate the lamp down to $5, but actually would have been willing to pay the original $10 price tag.

After showing the clip, have students work in pairs to calculate the following:

1. Customer's consumer surplus.
2. Meemaw's producer surplus.
3. Total surplus generated from the exchange.

Suggested Answers:

1. Consumer Surplus = Willingness to Pay – Price
   Consumer Surplus = $10 – $5 = $5
2. Producer Surplus = Price – Marginal Cost
   Producer Surplus = $5 – $0 = $5
3. Total Surplus = Consumer Surplus + Producer Surplus
   Total Surplus = $5 + $5 = $10

Appendix G: Market Intervention

Objective: Discuss costs and benefits of price floors
Intended Audience: Principles of Microeconomics
Teaching Strategy: Utilizing Technology in the Classroom, Cooperative Learning
Clip Title: "Saturday Night Live – Chris Rock on Minimum Wage"
Media Type: TV Show – *Saturday Night Live*
Clip Length: 30 seconds
Clip Link: https://econ.video/2017/01/31/saturday-night-live-chris-rock-on-minimum-wage/

Activity: Have students work together to answer the following questions.

1. Minimum wage, as Chris Rock has described it, is an example of which government intervention?
    a. Price ceiling
    b. Price floor
    c. Quota
    d. Taxes

2. Which of the following will likely be true about the effects of a minimum wage in a competitive labor market?
    a. Income will increase for all workers
    b. Income will decrease for all workers
    c. Income will increase for some workers, but decrease for others
    d. Income will remain unchanged for all workers

3. Some people argue that a minimum wage is good because it would lead to better service at places hiring minimum wage workers. This would most likely represent an example of:
    a. Inefficiently high quality
    b. Wasted resources
    c. Inefficient allocation of sales among sellers
    d. Illegal activity

4. Some potential employees spend hours applying for jobs and changing the fonts on their resumes to help them stand out. This would most likely represent an example of:
    a. Inefficiently high quality
    b. Wasted resources
    c. Inefficient allocation of sales among sellers
    d. Illegal activity

Suggested Answers:

1. B
2. C
3. A
4. B

Appendix H: Market Failures

Objective: Distinguish between marginal private costs, marginal private benefits, marginal social costs, and marginal social benefits
Intended Audience: Principles of Microeconomics
Teaching Strategy: Utilizing Technology in the Classroom, Cooperative Learning
Clip Title: "The Good Place – Externalities and Unintended Consequences"
Media Type: TV Show – *The Good Place*
Clip Length: 2 minutes, 28 seconds
Clip Link: https://econ.video/2019/02/19/the-good-place-externalities-unintended-consequences/

Activity: Show the clip above and then have students work individually to complete the following questions. Afterward, have students work in pairs to compare answers and revise as necessary.

1. Graph the market for roses based on 1534 Doug's experience. Be sure your graph contains both private and social curves. Identify the market equilibrium and the socially optimal equilibrium.
2. Graph the market for roses based on 2009 Doug's experience with the new information provided. Be sure your graph contains both private and social curves. Identify the market equilibrium and the socially optimal equilibrium.

Suggested Answers:

1. Based on the description in the clip, there doesn't appear to be any externalities in 1534, which means that 1534 Doug's marginal private cost (MPC) is equal to the marginal social cost (MSC) and the marginal private benefit (MPB) curve is equal to the marginal social benefit (MSB). The social equilibrium is where MSC and MSB are equal, which the market outcome is where MPB equals MSB. Since there are no externalities, the socially efficient outcome and the market outcome are the same.
2. For 2009 Doug, it appears that externalities have formed in the market for roses. Based on the provided list, the MSC is now greater than (above) the MPC. The market outcome is to the right of the socially optimal outcome, which means that too many roses are being produced and consumed. This is shown in the clip with negative happiness obtained in the 2009 version of Doug.

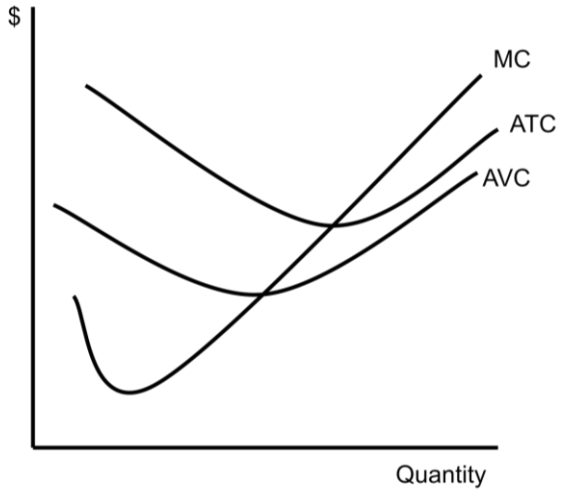
Note: This is a good opportunity to remind students not to overcomplicate models presented in class. The purpose of models is to simplify a relative complex environment by assuming some conditions. You can consider adding a question about what things could be included in the marginal external costs to see if they recall unintended consequences!

Appendix I: Production and Costs

Objective: Identify the relationship between marginal costs, average variable costs, and average total costs
Intended Audience: Principles of Microeconomics
Teaching Strategy: Utilizing Technology in the Classroom, Cooperative Learning
Clip Title: "Argo – The Best Bad Idea"
Media Type: Movie – *Argo*
Clip Length: 57 seconds
Clip Link: https://econ.video/2019/02/15/argo-the-best-bad-idea/?

Activity: The concept of "the best bad idea" helps explain why some firms may operate in the short run despite suffering a loss. This concept is typically one of the more difficult concepts to teach because students tend to associate all losses as something to be avoided. The goal with this lesson is to have students realize that there are "levels" of bad outcomes and that firms should make the best option, even if it seems like a "bad idea."

Have students first graph the costs curves on their own sheet of paper. Their answers will likely look something like:



Where MC represents marginal cost, ATC represents average total cost, and AVC represents the average variable cost for the firm. While firms would prefer to earn a positive profit, there are a few loss scenarios to consider as well. Divide the class into thirds, and assign one third to depict each of the following outcomes:

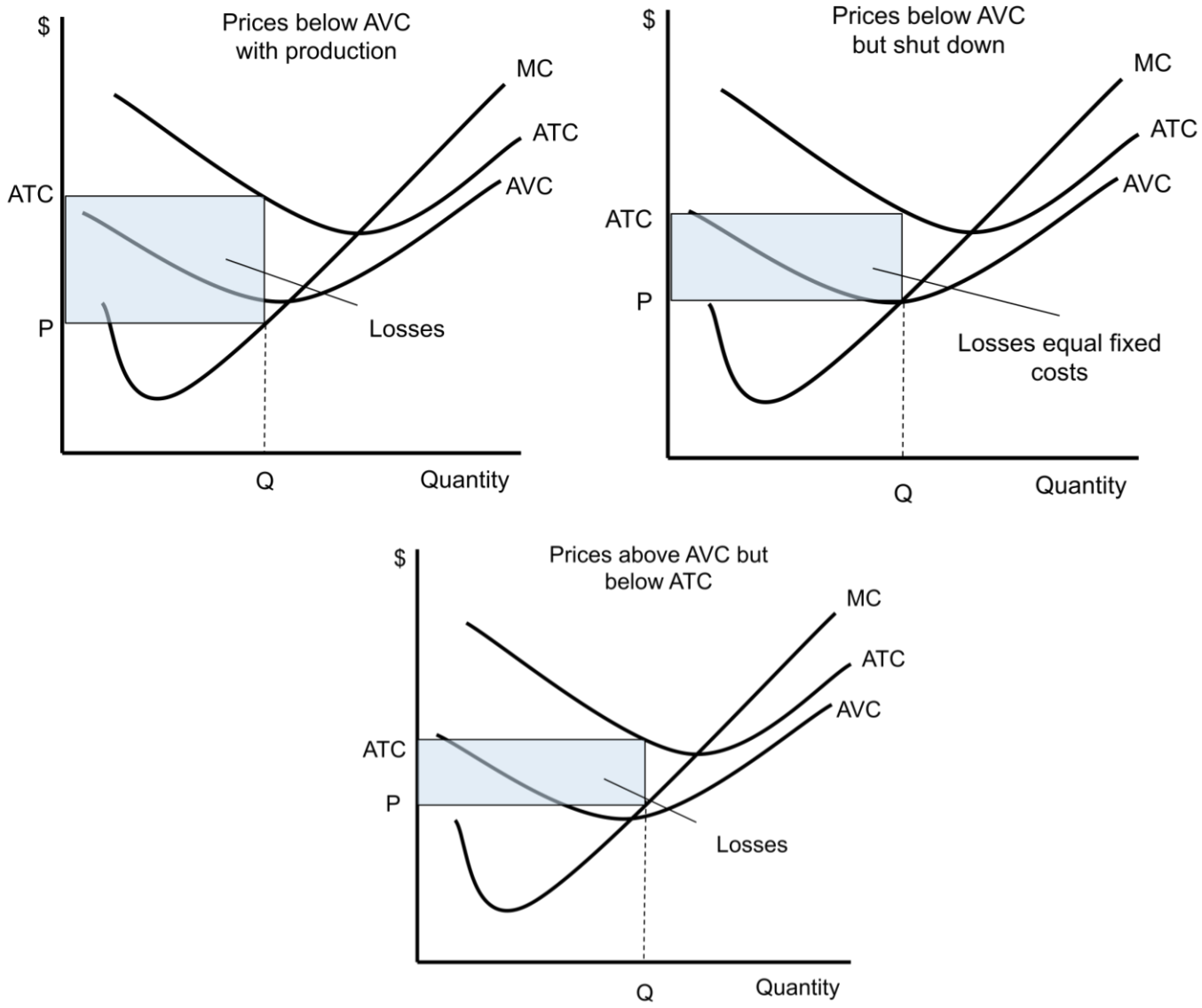
1. Prices are below AVC, and they decide to produce
2. Prices are below AVC, but they shut down
3. Prices are above AVC, but below ATC

Have students select a price that meets the condition they have been assigned and shade their graph to identify total revenue, total costs, and total losses.

Have students form triplets with one student from each of the above three conditions. Given what they have found, ask students to rank the options based on what's the "best of the bad" options they have been presented.

Suggested Answers:

The graph for shut down when below AVC is shown at the shutdown point.



Ranking

1. (WORST) Firms producing below AVC will have losses that include both their fixed costs and some of their variable costs that they could not recoup.
2. (BAD) Firms can shut down when prices are below AVC and have losses equivalent to only their fixed costs.
3. (BEST OF THE BAD) Firms can continue producing as long as prices are above AVC. They will cover their fixed costs, and only lose a fraction of their variable costs.

Appendix J: Perfect Competition

Objective: Calculate marginal revenue and marginal cost, discuss the relationship between marginal revenue and marginal cost
Intended Audience: Principles of Microeconomics
Teaching Strategy: Utilizing Technology in the Classroom, Cooperative Learning
Clip Title: "Horrible Bosses – Child Labor"
Media Type: Film – *Horrible Bosses*
Clip Length: 1 minutes, 01 seconds
Clip Link: https://econ.video/2018/07/30/horrible-bosses-2-child-labor/

Activity: Present the following information on a slide or passed out on a sheet of paper for review. Have students work in teams to determine their answers. You can split the class initially by Yes/No distinction then drill down further for the "why" portion.

Suppose you are one of the three owners of the production facility and are currently producing 100 cases of Shower Buddies. Your average costs per case is given in the table below:

Cases	Average Cost
100	$100
101	$101
102	$102
103	$103

A new customer would like to place an order for an additional case of Shower Buddies. This would increase your production to 101 cases.

The customer offers $150 for the case. Should you produce it? Why?

Suggested Answers:
You should not produce this unit because MC > MR.

Marginal revenue is equal to $150, and MC can be calculated using the table above:

Total Cost @ 100 units = 100 × 100 = $10,000

Total Cost @ 101 units = 101 × 101 = $10,201

Marginal cost of the 101st unit is $201.

Common wrong responses include believing that production should occur since price is above average cost, while other students will believe you should not produce only because average cost is increasing.

Appendix K: Market Structure Review

Objective: Compare and contrast market structures
Intended Audience: Principles of Microeconomics
Teaching Strategy: Utilizing Technology in the Classroom, Cooperative Learning
Clip Title: "Simpsons – Mr. Plow"
Media Type: TV Show – *The Simpsons*
Clip Length: 1 minutes, 31 seconds
Clip Link: https://econ.video/2017/10/03/simpsons-mr-plow/

Activity: Homer starts as a monopolist in the snow clearing business for Springfield, but his profits are short lived. Barney learns that Homer has been successful and decides to enter the market. Have students start by answering the following question:

Why are Homer's profits so short lived?

A. It is relatively easy to start a snowplowing business
B. He has very low fixed costs of production
C. There is not a large demand for snowplow companies

By this point in the semester, each of the market structures has been covered, and students should be familiar with the characteristics of each market structure. Have students complete the following matrix that outlines the key characteristics of all four market structures:

Market Structure	# of Firms	Price Control	Differentiation	Barriers to Entry
Perfect Competition				
Monopolistic Competition				
Oligopoly				
Monopoly				

Consider again the market for snow clearance in Springfield. With Mr. Plow, Homer has a monopoly over the market. Once Barney enters the market, the two of them operate in an oligopoly providing identical services. Have students create market scenarios that would describe perfect competition and monopolistic competition in the snow removal market.

Suggested Answers:
Homer's profits are likely short lived because it's relatively easy to start a snowplow business. In the clip, Barney seems to have joined the market fairly quickly.

Market Structure	# of Firms	Price Control	Product Type	Barriers to Entry
Perfect Competition	Lots	None	Identical (homogenous)	None
Monopolistic Competition	Lots	Very little	Differentiated	None (or very low)
Oligopoly	A few	Some	Differentiated or Identical	High
Monopoly	One	Complete	Unique products	Entry is blocked

Market Scenarios

Perfect competition:
There are lots of firms providing snow removal services all for the same price based on the size of the driveway or sidewalks. This could be achieved if people attached snowplows to their cars, or if they did all the work using snow shovels. All firms would provide identical service, and customers would not be able to tell the difference in a company's performance.

Monopolistic competition:
Smaller lawn maintenance companies begin providing snow clearance in the winter, but they may offer differentiated services. Some may only clear snow at night, while others during the day. Some may offer to salt driveways or provide a discount if you sign up for grass mowing in the spring. Companies would brand themselves and spend a portion of their earnings trying to convince homeowners to switch services.

Appendix L: Game Theory

Objective: Identify payoffs
Intended Audience: Principles of Microeconomics
Teaching Strategy: Utilizing Technology in the Classroom, Cooperative Learning
Clip Title: "Golden Balls – Split or Steal"
Media Type: Game Show – *Golden Balls*
Clip Length: 3 minutes, 53 seconds
Clip Link: https://econ.video/2017/08/24/golden-balls-split-or-steal/

Activity: For this particular scene, break the video into parts by pausing at strategic moments to ask students to predict the outcome. Play the first 1 minute and 45 seconds, which involves the game show host describing the game setting. In general, Sarah and Steve are asked to select either a ball that indicates whether they want to split the jackpot or steal the jackpot. The potential outcomes are:

- Both split the jackpot of £100,150. Each would receive £50,075
- One steals the entire £100,150 jackpot, and the other receives nothing
- Both select steal and both earn nothing

At the break, ask students what they would do in this situation. You may have them write it on a note card or sticky note so that you can consider the percentage of the class that says they would split it to the percentage who believe the contestants will split it.

Play the clip from the stopping point, but stop just before the host reveals the outcome, around 2 minutes and 45 seconds into the clip. Ask students to predict the outcome. You can have students work together to complete a simultaneous game box:

		Sarah	
		Split	Steal
Steven	Split		
	Steal		

Have students start by considering only the payoffs associated with the jackpot from the show. Then have students consider nonmonetary costs of public embarrassment associated with leaving with nothing. This will allow for an interesting conversation about what is included in payoff tables and what assumptions economists make about payoffs.

Suggested Answers:

		Sarah	
		Split	Steal
Steven	Split	£50,075, £50,075	£0, £100,150
	Steal	£100,150, £0	£0, £0

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