

ECONOMICS OF INFORMATION, THE INTERNET AND E-COMMERCE
ECON 456/556
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Public perceptions of e-commerce have gone up and down like an amusement park roller coaster. Until the mid-1990s, most individuals knew little or nothing about e-commerce even though behind the scenes, its use was expanding significantly. It wasn't the hot thing; it was closer to nothing to most people. This circumstance changed dramatically in the latter half of the 1990s when Internet use skyrocketed, dot.com firms sprouted by the thousands, and individuals possessing nothing more than an intriguing idea made amazing fortunes and the Internet was said to be the foundation for "a new industrial order." Faster, frictionless, better---nearly all aspects of human behavior would be improved by e-commerce using the Internet. "Irrational Exuberance" clearly applied to some highly visible aspects of e-commerce.

Then, in 2001, the "Internet Bubble" began to deflate and e-commerce bankruptcies and Silicon Valley retrenchments became so common that they were fodder for nightly jokes by Jay Leno and David Letterman. The conventional wisdom with respect to e-commerce was that it was "over rated, over sold and over hyped."

By mid-2003, however, the e-commerce shakeout was largely over and it was now clear that rumors of the demise of consumer e-commerce were greatly exaggerated. Far from declining, online consumer purchases now account for 4.5 percent of all retail sales, up from 3.6 percent in 2002. Virtually every major U.S. firm now utilizes e-commerce to an extent that seemed impossible only a few years previous; B2B e-commerce is expected to top \$2.4 trillion in 2003. Further, a hardy and often profitable cohort of e-commerce firms such as Google and eBay has developed and many firms clearly have found profitable, expanding niches. An estimated 70 percent of online sellers were profitable in 2002, a tidy increase from 56 percent in 2001.

How do we explain these oscillations and the development of e-commerce? What are the economic realities that will determine the future of e-commerce? The answers to these questions are the subject of this book. The focus is on providing common sense economic explanations to sometimes confusing phenomena. There is strong emphasis on examples. The economic and business principles involved are figuratively coated with sugar by means of illustrations and intuitive arguments. The goal, literally, is to have the reader say, "Yeah, I never did understand that before, but this makes sense to me."

Textbook: David Van Hoose, *E-Commerce Economics* (Thomson, 2003).

This area is changing so rapidly that any textbook is soon out of date. Van Hoose's book is no exception; however, his discussions of the economic principles underpinning the Internet are substantially unhampered by the passage of time. In any case, we will supplement Van Hoose liberally with up to date outside readings from *Business Week*, *the Wall Street Journal*, *Fortune*, *the New York Times*, etc., to capture current developments.

Reading Assignments, Etc.

The most important thing you can do is to read the assignments prior to our covering them in class. That will be particularly important where the applications articles are concerned. Typically, they are not complex and are only a few pages, but constitute a very useful means for us to see how the Internet actually works.

Weekly Problems and the Reports

Nearly every week, you will have a problem or exercise to hand in to me. These problems will require you, indeed force you, to apply economic principles and analysis to current Internet situations. There are eleven problems. I will assign ten points to each problem and will eliminate your lowest scoring problem. Thus, you'll have ten problem grades.

In addition, you'll do a presentation and a report on an industry or an Internet firm. The presentation will be graded as the equivalent of two problems (20 points) and the report likewise will be graded as the equivalent of two problems (20 points). Hence, the total number of points you may score in this section of the course will be 140.

Here are some examples of the firms worthy of examination:

- Akamai
- Double Click
- Skype
- Big Champagne

Here are some examples of the industries worthy of examination:

- Automobiles (how the industry relies on the Net)
- State governments
- Professional sports (e.g., MLB)
- Newspapers
- Universities (admissions)

I'll divide the class into teams of approximately four individuals per team. Each team will make a presentation (probably PowerPoint or something similar) to the class and will provide me with a written report with supporting data and analysis. Your presentation will be

weighted the equivalent of two weekly problems and your written paper will be weighted the equivalent of two weekly problems.

Examinations, Etc.

Nearly every week, I will give you a question to answer or an exercise to complete that will be due the next class period. Your answer should not exceed two typed pages, single-spaced. You will do eleven of these during the semester. I will discard your lowest score before computing your average on these questions. This will allow you to miss a problem, or mess up, at least once. Two of the beneficial effects of the questions are that they require you to come to grips with specific important material, and they require you to write coherently.

We will have two midterm examinations and a final examination. The first midterm likely will occur in mid-February and will cover Sections I through IV. The second midterm likely will occur during the first two weeks of April and will cover Sections V through X. Each separate midterm examination will account for 25 percent of your final grade.

In contrast to the two midterm examinations, the final examination is open book, open notes. On or about 30 March, I will supply you with a list of about 50 questions from which I will select all of your final examination questions on the actual examination day (which is 1 May). You are encouraged to spend exorbitant amounts of time studying and preparing answers to these questions, and you may work in groups with other students, and collude and conspire, in order to do so. However, once you enter the classroom for the final examination, all collusion with other students must end. You may bring any materials you wish to the final examination, including semi-prepared or fully prepared answers. However, you must rewrite the answer for me on the final examination day. If this class imitates the behavior of other classes, it is likely that most students will spend more time preparing for this final examination than almost any other. The final examination accounts for 25 percent of your final grade.

You will not be graded on your class participation; however, it will be taken into account to "tip" you from one grade to the next when you are on the borderline.

Grade Determination

Problems and Exercises	25 percent	(Your reports are included here.)
Midterm I	25 percent	
Midterm II	25 percent	
Final Examination	25 percent	

Note that I will average the letter grade you receive on each of these four course segments in order to arrive at your final grade. The points you are assigned on one examination are non-comparable to the points you receive on another examination, on the problems, or on the final examination. Further, I do not grade on a 90 to 100 = A, 80 to 90 = B, etc., basis. Your final point total, then, is not the determinant of your grade, but your letter grades are. I do assign + and - grades.

Important Dates

First Class Day	Tuesday, 9 January
Midterm I	Probably about 15 February
Last Drop Day	13 March
No Class: University Vacation	6 March and 8 March
Midterm II	Probably about 10 April
Last Day of Class	Tuesday, 24 April
Final Examination	Tuesday, 1 May at 8:30 a.m.

Some Ground Rules

You are responsible for everything that is covered in every class. However, class attendance is not required and you will not be graded on class attendance.

Please ask questions if you want clarification or you missed something.

Please do everything in your power to avoid missing either a scheduled examination or the due date for a writing assignment. If you find that you must miss the examination, or turn a writing assignment in late, please call me beforehand to state your case. I can be convinced, but you will need some evidence. Use e-mail whenever possible to alert me if you have a problem.

Except for the final examination, you may not use any book, notes, or electronic devices or any kind to answer questions on the in-class examinations. Needless to say, if you do so and are discovered, then not only will you receive an F for the examination, you also will receive an F for the course and I will turn the evidence over to the appropriate University disciplinary authorities.

Your weekly problems are due at 9:35 a.m. on the due date and should be placed on the desk in the front of the room. Typically, we will discuss the problem at the beginning of the class. No problem will be accepted after we have begun to discuss that problem. In emergencies, you may e-mail me your problem ahead of time, but any problem with a time stamp after 9:35 a.m. will not be accepted.

You may feel free to call me at my home to discuss any matter relating to the course. In addition, I encourage you to utilize e-mail at any time to talk with me. It's a great way to stay in contact and you may submit your weekly problems via e-mail.

Please **turn off all cell phones** (and other communications devices) when you enter the classroom. Active cell phones disrupt the class and exhibit disrespect both for other students and for the professor. The same rules apply to instant messaging, MySpace, and the like---don't do such things in this class. Leave the room if you are so inclined. You are subject to dismissal from the class if you violate these rules.

Research and Citations

You commit a serious violation of the University's academic policies and the University's Honor Code if you plagiarize information or sources (i.e., do not provide appropriate citation for the work of others that you have used). When you write for me, I will assume your thoughts are your own. If not, then you must cite your sources---which is an excellent idea in any case if you want to buttress your answer. The Internet is a wonderful tool; however, if you quote from it or any outside source, then you must provide me with a searchable citation that shows the source of your material. Failure to do so will result in your receiving an F for the course. Take this obligation seriously.

The Web Site

Most of this class is on Blackboard. However, you can find many of the same materials at this web site: Its address is: www.odu.edu/~jkoch.

The Web Site contains the following:

- Syllabus
- Copies of the Weekly Problems
- Copy of the Final Examination Questions
- Copies of most tables, graphs and data sets distributed in class
- Library citations for most books, articles mentioned in class

Other Web Sites

- There are hundreds of excellent Internet web sites, though some contain propaganda and significant errors---Wikipedia, for example. Caveat Emptor!

I. E-COMMERCE OVERVIEW (9 January)

E-commerce, some contended, was “an unstoppable tidal wave” that would dramatically increase the power of consumers, make markets more competitive, help firms contact previously unreachable consumers, and even enhance democracy. The impact of the Internet (the “Net”) has been compared to the printing press and the telegraph. Even so, others see it differently and contend it is the most over hyped technological development since World War II, not the least because many of the

dreams just noted disappeared after the demise of so many dot.coms in 2000 and 2001.

Read: Van Hoose, Chapter 1

“2006 in Review: Part I: Mapping the New Media Landscape,” *E-Commerce Times* (30 November 2006), www.ecommercetimes.com/story/54482.html.

II. INTERNET PLUMBING AND HEATING (11 January)

What is the Internet, anyway? What’s the World Wide Web and how does it relate to the Net? How do individuals and firms obtain Web sites and addresses? What are http and TCP/IP? How do Web browsers such as Internet Explorer and Netscape work and how do they influence Net behavior? Why has the Net been described as typifying a “Wild West” culture?

III. ECONOMIC FUNDAMENTALS (16,18,23 January)

Read: Van Hoose, Chapters 2,3,4

IV. SEARCH: THE KEYSTONE OF INTERNET ECONOMICS (25,30 January)

Searching for and finding information easily is the most frequent way Net users utilize the Internet. They may want airline ticket prices, weather forecasts, bibliographic information, pictures, or ... just about anything that is digitizable. Many Net users begin their Net activities by using a search engine such as Google or Ask. How do search engines work? Do they generate trustworthy results? Do they always benefit consumers? This section approaches these subjects by contrasting the “old” searches consumers used to conduct when they purchased items with bricks-and-mortar sites with “new” search engines on the Net.

Read: Van Hoose, Chapter 5

“2006 in Review, Part 2: Search Wars Raged, Did Anything Change?” *E-Commerce Times* (7 December 2006), www.ecommercetimes.com/story/54582.html.

Saul Hansell, “Looking for a Gambit to Win at Google’s Game,” *New York Times on the Web*, nytimes.com (9 December 2006).

Om Malik, “Growing the Shadow of Google,” *Business 2.0*, 7 (December 2006), 40.

V. THE INTERNET AND NETWORK ECONOMICS (1 February)

The Net is a network of networks. We've learned that network economies of scale constitute a very important influence on network behavior and success. Big networks usually yield proportionately more benefits to users than small networks. Even so, many networks are quite vulnerable to attacks by intruders and disgruntled users, in which case large network size turns out to be detrimental. Network congestion can be a major problem. The most pressing network problems in the future will deal with network security and who should be held liable when network security fails—network owners, network users, or producers of software and hardware?

Read: Van Hoose, pp. 82-90

Robert D. Hof, "There's Not Enough 'Me' in MySpace," *Business Week* (4 December 2006), 40.

VI. INTERNET ADVERTISING, BRANDING AND NON-PRICE COMPETITION (6,8 February)

The relevance of the famous 19th century statement of John Wannamaker, "Half the money I spend on advertising is wasted and the trouble is, I don't know which half," has declined significantly because of the Net. Advertisers now have the ability to determine precisely how effective their advertising is, if they advertise on the Net. They can determine who reacts to their advertising and how much. Further, they can experiment with different pricing schemes by, say, offering a lower price to every fiftieth customer, or offering every twenty-fifth customer a different bundled package of items for a single price. The Net already had changed advertising habits and bodes to become an experimental advertising and pricing laboratory for bricks-and-mortar merchants. However, some forms of Net advertising (pop-up ads and e-mail spam) provoke strong negative responses from consumers and the economics of these forms of Net advertising is examined closely.

In the early years of e-commerce, many argued that advertising and product branding would decline on the Net because consumers would ruthlessly search for low prices, not caring who sold them the product. In general, this hasn't happened. Product branding typically has assumed increased importance in e-commerce. Firms ranging from Target to Microsoft have significant advantages in e-commerce because of their established names and reputations. At the same time, a few firms that did not have "bricks-and-mortar" locations of established reputations (Amazon.com and eBay.com are outstanding examples) have competed successfully. What determines the importance of branding on the Net and why brands are important in some markets, but not others?

Service limitations mean that not all items are conducive to e-commerce and sale on the Net. Some items are "experience" goods and require some touching, testing, listening, observation, or even tasting. That's why most people wouldn't purchase a hair styling over the Net and only the daring would use eBay purchase an

Italian dinner for eight. Other items, however, are more standardized (they are “commodities”) and we readily use e-commerce to shop for them—books and computers provide illustrations. E-commerce is never likely to penetrate certain markets, but is ready for others. There are ways, however, for e-merchants to deal with the “experience goods” problem and make their items more attractive to Net users.

Read: Van Hoose, Chapter 6

Jefferson Graham, “Google Ad Sales Outpace All Comers,” *USA Today*, 24 (30 October 2006), 3B.

David Kesmodel, “Retailers Look to Cash In on Boom in Internet Ads,” *Wall Street Journal*, 258 (17 August 2006).

Bob Tedeschi, “Salesmanship Comes to the Online Stores, But Please Call It a Chat,” *New York Times on the Web*, www.nytimes.com (7 August 2006).

VII. DIGITIZED INFORMATION AND FILE COPYING (13,15 February)

Digitized information is easily copied, transmitted and stored. The means to do so are inexpensive and very difficult to stop. This has had the impact of a hurricane on how digitized information (including music and movies) are marketed and sold. For better or worse, conventional notions of property rights have been altered by technology and consumer behavior. Where is all of this headed? It’s clear that the record companies and the movie studios can continue to make money, but only if they change their strategies. They can’t put the genie back into the bottle, because the file-sharing phenomena now is international in character and largely beyond the reach of the American legal system. Much of this has occurred because of the peculiar characteristics of digitized information goods. We analyze the options open to the record companies and the movie studios.

Read: Van Hoose, Chapter 7

Mike Musgrove, “A Messy Age for Music,” *Washington Post*, www.washingtonpost.com (22 October 2006), F01.

Jeff Leeds, “Squeezing Money from the Music,” *New York Times on the Web*, www.nytimes.com (11 December 2006), C1,5.

FIRST MID-TERM EXAMINATION ON 20 FEBRUARY

VIII. DATA MINING (22,27 February)

Data mining describes the tendency of many firms and organizations to collect

astonishingly detailed information about the individuals and firms that use the Net. This is one of two consumer hot buttons concerning the Net, the other being e-mail spam. The most common forms of data mining are “cookies,” “web bugs” and “spy bots.” Far more data mining occurs on and off the Net than most individuals realize. Curiously, most Net users state they place a high value on their privacy, but nonetheless give up their privacy to a variety of e-commerce firms and Web site operators. Data mining can personalize products and tailor users’ Net experiences to their preferences. However, it also can result in price discrimination and tracking of behavior far beyond the expectations of consumers.

Read: Jessica E. Vascellaro, “Online Retailers Are Watching You,” *Wall Street Journal*, 258 (28 November 2006), D1,3.

Jeffrey M. O’Brien, “You’re Sooooo Predictable,” *Fortune*, 154 (27 November 2006), 224-6, ff.

Matt Kelley, “Feds Sharpen Secret Tools for Data Mining,” *USA Today*, 24 (20 July 2006), 5A.

IX. INTERNET PRICING: DIFFERENT STROKES FOR DIFFERENT FOLKS (1,13,15 March)

The focus here is on “dynamic pricing” and price discrimination on the Internet. We analyze how firms use data mining and sophisticated price optimization software to gauge consumer demand and price resistance in order to set and quickly reset their most profitable prices. As a consequence, many consumers end up paying higher (not lower) prices on the Net, even though they necessarily don’t know this is true. Many e-commerce firms “bundle” goods together as a package that they sell for a single price because the Net the Internet. Many e-commerce firms “bundle” goods together as a package that is then sold for a single price. The Net is especially well suited to such sales strategies. We’ll see lots more bundling in the future, but at the same need to recognize that the Net enables profitable unbundling as well.

Read: Van Hoose, Chapter 4

James V. Koch, “Are Prices Lower on the Internet? Not Always!” *Business Horizons*, 46 (January-February, 2003), 47-52.

Steven Pearlstein, “Internet Realigns Market for Tickets,” *Washington Post*, washingtonpost.com (6 October 2006), D01.

Paul Davidson and Laura Petracca, “A la Carte Cable Could Be a Tough Sell,” *USA Today*, 23 (30 November 2005), 3B.

X. GOING DIRECT TO THE SOURCE: (DIS)INTERMEDIATION (20 March)

For many, the Net was the way for ordinary individuals to “bypass the middleman” and deal directly with the source---the firms who produce goods and services rather than wholesalers and retailers who add on their own markups and make items more expensive. This is labeled “disintermediation” and has occurred in many situations. However, quite the opposite (“intermediation”) also has occurred in e-commerce and many consumers think it a good idea, for example, where a site such as Orbitz connects air travelers with many different airlines. We explain why some e-commerce firms have eliminated middlemen, but others have prospered precisely because they have added them.

Read: David Leonhardt, “Filling Pantries Without a Middleman,” *New York Times on the Web*, nytimes.com (22 November 2006).

SECOND MID-TERM EXAM ON 20 MARCH

XI. AUCTIONS (22 March)

Everybody likes a good deal and millions of individuals utilize Internet sites such as eBay.com and Priceline.com in an attempt to find that good deal. Both are examples of auctions. This section examines the most common kinds of auctions on the Net and reveals why e-commerce is so suitable to auctions. Many individuals end up much better off after participating in e-commerce auctions, but problems such as “auction fever” can cause auction participants to pay higher prices and end up worse off. Auction fraud has emerged as a problem of increasing importance. We examine the most common types of auction fraud. Finally, the future of Net auctioning is considered. Lots of attention is paid to eBay, which has 75 million members in its “community.” The Priceline model also is given its due.

Read: Mylene Mangalindan, “EBay Merchants Seek Management Change,” *Wall Street Journal*, 254 (21 August 2006), C1.

Greg Wiles, “The EBay Ripple Effect,” *Honolulu Advertiser*, www.honoluluadvertiser.com (20 November 2005).

XII. INTERNET FRAUD AND SAFETY ISSUES (27 March)

The Net often is likened to the Wild West---ill-defined property rights, few laws and infrequent law enforcement. It is not surprising, therefore, that fraud, ID theft and illegal activities have proliferated on the Net. In this section, we examine the current state of the world in this area and discuss questions of liability and optimal law enforcement.

Read: Pat Regnier and Jeanne Sahadi, "The Complete Layman's Guide to Cyber Safety," *Money*, 35 (December 2006), 121-27.

XIII. PUBLIC POLICY ISSUES AND REGULATION (29 March)

One of the reasons why some people shop on the Net is simple---they don't have to pay any sales tax. In a location such as New York City, this could represent an eight percent savings. But, certain large firms such as Target and Wal-Mart do collect sales taxes on their e-commerce sales. Of course, this is a contentious issue and we evaluate the ins and outs of the national discussion about imposing sales taxes on nearly all consumer e-commerce purchases. But, it's also illegal to purchase certain goods (such as wine) over the Net in certain states. The Net has not proved to be as borderless as some forecast. We examine these and a set of other public policy issues here.

We'll also look at Net banking in this section---payment means, safety, liability, etc.

Still another important public policy topic relates to intellectual property rights. Who owns, or should own, Net material? Who should run it? How reliable are open source Internet resources?

Read: Van Hoose, Chapters 9,10,11 and 12

Erika Brown, "Credit Card Killer," *Forbes*, 178 (11 December 2006), 69-70.

"Google's Digital Library Project Stirs Controversy," *E-Commerce Times* (20 December 2006), www.ecommercetimes.com/story/ebiz/54818.html.

Brock Read, "Can Wikipedia Ever Make the Grade?" *Chronicle of Higher Education*, www.chronicle.com (27 October 2006).

XIV. INTERNET WINNERS AND LOSERS (3 April)

Some dot.coms (furniture.com) failed miserably, while others have succeeded, but are encountering problems (eBay.com), while still others have been marvelously successful (google.com). Some rely extensively on e-commerce, but only have been marginally profitable (amazon.com). Here we examine why some forms of e-commerce are profitable, while others are losers. A goal is to emerge with a good sense of what forms of e-commerce---pure play, bricks-and-clicks, etc.---are likely to succeed in this decade.

XV. THE BEST THING SINCE SLICED BREAD? (5 April)

This is my “What does it all add up to?” section of the course. How much has the Net really changed how we conduct our lives? Is e-commerce simply another channel for doing business, much like the Sears Catalog was a century ago? What’s really distinctive about e-commerce and how does it differ from conventional bricks-and-mortar activity? Has the Net actually improved the productivity of users, firms and the entire economy and, if so, what is the quality of the empirical evidence supports this notion?

Around 2000, a variety of authors proclaimed that the Net had established a new set of economic principles that invalidated many well-established economic principles relating to economies of scale, pricing, costs, and the like. The *Wall Street Journal* even implied that supply and demand had gone down the rat hole. We now know these assertions were foolishness. Nevertheless, the Net has changed many things about the way economies run, the ways we do business with each other, and especially how we conduct our financial affairs. We’ll focus on such things here.

Here we do some analysis and evaluation and venture some forecasts for the future, including a discussion of how the Net is likely to be priced in the future and what our options are as we increasingly come to understand that the Net is not really free and we must decide how to allocate its scarce resources.

Read: Van Hoose, Chapters 13, 14

XVI. REPORTS (10,12,17,19,24 April)

This is the part of the course where you demonstrate that you understand what the Net and e-commerce are all about. Individual students, or groups of students, will report on their research on a not so mainstream or well-known firm or industry involved with Net. Within the month of January, we will jointly agree upon the firm or industry that you are going to examine and your task will be to follow that firms or industry for the remainder of the semester. You’ll acquire information about them, gain an understanding of their business model, ascertain their success, examine threats to their existence and forecast their future. This will culminate in a report to the class (probably using PowerPoint and probably no more than twenty minutes, followed by questions and discussion of perhaps ten minutes). Then, after you have digested the comments, you must provide me with a written version the next time the class meets. You will be graded as a group and hence will sink or swim in a cooperative fashion. I will construct the student groups.

FINAL EXAMINATION AT 8:30 A.M. ON TUESDAY, 1 MAY 2007