

# Economics 452: Information Economics and the Internet

Syllabus, Spring 2003

## Contact Information

Class meetings	134 McClelland Hall MW 8:00-9:15am
Instructor	David Reiley <a href="mailto:reiley@eller.arizona.edu">reiley@eller.arizona.edu</a>
Office hours	Tues 1-3pm, or by appointment, 401cc McClelland Hall
Writing coach	Marilyn Johnson <a href="mailto:marilynj@dakotacom.net">marilynj@dakotacom.net</a>
Course home page	<a href="http://eller.arizona.edu/~reiley/econ452/home.html">http://eller.arizona.edu/~reiley/econ452/home.html</a>

## Course Description

What's really new about the New Economy? Although most standard principles of economics and management still apply, the Internet has created some fundamentally new market opportunities. In this course, we will focus on economic principles that help us understand competition and business strategy in these online markets.

Topics to be included in the course include the economics of information goods, the theory of the firm, the economics of intermediation, price competition, price discrimination, and auction theory. We will also study some marketing issues and some background on Internet technologies such as compression, encryption, and collaborative filtering, when relevant to our understanding of the economic problems.

We will emphasize two different aspects of markets most affected by the Internet. First is the online provision of information, in markets such as publishing, music, video, software, product reviews, search engines, and guide services/portals. Second is the use of new market transaction mechanisms made possible by the Internet, including new types of auctions and automated matching services, in both business-to-consumer and business-to-business electronic commerce.

We will discuss a number of important questions in the topic of online auctions, which represent the instructor's primary area of research. What value does an auction provide to the customer? What is it about the Internet that makes auctions more feasible? What do we know about the different auction formats that might be used in practice (ascending-bid, sealed-bid, multi-unit, etc.)? Why would a seller choose an auction instead of a posted price, and when would a posted price be more appropriate?

My goals are for each student in this course to:

- Internalize several unchanging economic principles relevant to the changing online economy.
- Learn product and pricing strategies relevant to information goods.

- Understand how the rules of an auction or other trading mechanism (a "visible hand") can affect market prices and allocations.
- Appreciate the value of experimentation in understanding markets.
- Become familiar with a variety of examples of online markets, and become an expert in at least two of them.
- Improve your writing skills significantly, through individual homework assignments and team projects.

The overall outline of the topics in the course is as follows:

- I. E-Commerce Overview
  - A. Institutions
  - B. Business Models
  - C. Infrastructure
  - D. Building a Web Site
- II. Information Goods
  - A. Pricing
  - B. Versioning
  - C. Digital Media and Bandwidth
  - D. Rights Management
- III. Online Market Mechanisms
  - A. Lock-In
  - B. Services
  - C. Retailing
  - D. Network Effects
  - E. Portals and Communities
  - F. Business-to-Business E-Commerce
  - G. Auctions
- IV. Standards and Policy Issues
  - A. Standards Setting
  - B. Security and Encryption
  - C. Antitrust and Tax Policies

## Teaching Philosophy

I believe in active rather than passive learning. In order to learn meaningfully, I believe students must engage the subject matter critically and take intellectual ownership of ideas. Rather than attempting to pour ideas into your heads (most of which would fall out after the final exam), I would prefer to be your guide in mastering material for yourselves.

I intend to guide the learning by choosing readings and written assignments for you, and to coach you through this learning process in a way that maximizes understanding with as little frustration as possible. For example, when you get stuck on a page of reading you don't understand; don't waste many hours on it, but instead note that you want to ask me about it in class or via an email message. The book can't interact with you, but I can, and that's what I'm here for. You may also find it valuable to ask questions of each other when studying.

Furthermore, in a subject as fast-moving as electronic commerce, no one person could ever hope to keep up with all of the interesting developments in the field. I expect you to be able to teach me a thing or two,

both from your own experience and from the research projects you will undertake for class. When you bring in your own detailed examples of markets, it will provide the entire class with a learning opportunity.

Therefore, I plan to avoid lecturing. Most of the one-way communication in this course will come in the form of assigned readings. Our class time, a precious resource, will be used mainly for two-way communication. In order to make this work well, I need your cooperation in the following ways:

1. Please complete each day's reading before coming to class. I have chosen the readings carefully to provide a foundation for our class discussions, and I do not intend to waste your time lecturing about them.
2. Please come to class ready to think and to participate. It will be useful to prepare questions about anything in the reading that puzzled you.

Whenever you don't understand something, either from the readings or from class, please ask a question — either via email or during class. Often other students are having the same difficulty as you are and all can benefit from the exchange. I need your feedback so that I can make the course meet your needs. Furthermore, if you're scared of the idea that I might cold-call you during class, a great defensive move is to come prepared to ask me something, so that I know you're actively participating.

I have high expectations of my students. I think you will find that by responding to my challenges, you will learn quite a lot in this course, and have a good time doing so. Please expect to spend about six to ten hours per week doing readings and assignments. If you find yourself having to spend more than ten hours a week on this course outside of class, please let me know so that I can do something to make the workload more reasonable.

Some students benefit more from my teaching style than others. If you know you prefer a traditional, lecture-based course, you might wish to consider taking a different course, or taking this course in a future semester when it might be taught by a different instructor.

## Readings

Readings will come from three primary sources:

- *Information Rules*, by Carl Shapiro and Hal R. Varian.
- *E-Commerce*, by Kenneth C. Laudon and Carol Guercio Traver.
- A reading packet of other articles.

The first text considers important economic principles for electronic commerce, while the second provides us with lots of real-world examples of electronic-commerce markets and institutions. The packet of articles gives an additional mixture of economic theory and real-world examples, including several articles written by your instructor on the topic of online auctions.

The readings for this course will be heavy, but not impossible. As a rough guide, you should expect to spend about 3 hours doing the readings for each class session. Previewing and reviewing your reading is generally a good idea. By carefully studying the outline of each chapter (in the table of contents) before you read it, and making good use of chapter summaries and questions for review after you've read it, you can get a lot more out of your reading.

The text by Shapiro and Varian has short, fun chapters to read. By contrast, the text by Laudon and Traver has some especially long chapters with lots of technical terms defined. In text, I would like you to read all

the case studies and featured boxes carefully. For example, in Chapter 1 this means the beginning-of-chapter case study on Amazon.com, the Insight on Technology and Insight on Business boxes, and the end-of-chapter case study on Napster. I would also like you to read the end-of-chapter summary, to get an idea about what the chapter was about. If you have time, I'd like you to read the rest of the chapter too, but it's OK with me if you read just the case studies, boxes, and end-of-chapter outline.

When you come up with questions as you read, please make a note of them so that you can either email me your question, or ask it during class.

## Use of the Internet

We will use the Internet as a learning tool as well as a topic of study. I expect all my students to know how to use both electronic mail and the World Wide Web as important communication tools for this class. For example, you might have a question about a particular homework problem, and you may find it more convenient to ask me via email than to come by during my office hours. I tend to reply to student email messages very quickly, almost always on the same day as I receive them.

I also maintain a list of email addresses of all of the students in my class. I use this list to make occasional announcements and clarifications. For example, I may discover an article on a World Wide Web site that I wish to share with you, and I will email everyone the location so that they have a chance to read it. Also, when a student asks me a question via email and I feel the answer would be of general interest to everyone in the class, I may send out my answer to everyone so that all may benefit from the question. I feel that such techniques save time and energy for all concerned. (It even helps to save trees, by allowing me to cut down on paper handouts.)

I have used the University registration system to create an email mailing list for this class. If you have not yet received email from me, please let me know. If you prefer to use a different email address (such as AOL), I recommend that you set up forwarding from your University address to your preferred address. Visit [this link](#) to log in to Webmail for this purpose.

In any emails addressed to me, **please put "Econ 452" in the subject line**, so that the message will come to my attention promptly. You should try to **check your email regularly during the semester, at least twice a week**, in order to make sure you receive the full benefit of the messages I send.

Some of your written assignments will require you to create your own Web pages. If you have never done this before, I believe you will find this a valuable learning experience. I will provide references on Web-page creation, and the TA and I will provide additional assistance on this topic for those who need it.

## Grading

Your final grade will depend on four different elements: class participation (20%), individual homeworks (20%), group projects: two research papers and an oral presentation (40%), and an optional final exam (20%).

Students registered for Econ 552 will be expected to complete more in-depth research papers than those registered for Econ 452, approximately 50% greater in length. Students registered in 552 should work together with each other in groups, if possible (see below for more on group projects).

## Class Participation

In order for you to benefit from my classroom teaching style, you will need to attend class, and you will need to keep up with the assigned readings. I don't expect perfect attendance, but I do expect frequent attendance (for example, someone who missed five or six classes could still get an A for attendance, while someone who missed half the semester's classes could not).

More important for your participation grade than *quantity* of attendance is *quality* of participation in our classroom discussions. I would like you to be able to demonstrate your mastery of the readings in class by volunteering interesting examples of the types of things we've read about. I also expect you to listen respectfully to what your classmates have to say. When something is not clear to you, I expect you to ask questions. If you're not comfortable speaking up in class for some reason, you can still participate by asking me questions via email.

## Homeworks

You will be assigned a series of weekly homeworks for this course, to be completed individually. I plan to assign each homework a week in advance. The homeworks will typically ask you to do a small research assignment, such as the ones found under "Projects" at the end of each chapter of the text by Laudon and Traver. One week I might ask you to research an Internet service provider and find out what combinations of bandwidth connections and prices they offer. Another week I might ask you to choose a product and search for prices for that product at online retailers, describing your search results. These assignments will typically be written up in one or two pages.

This is a significant part of the course, designed not only to get you to think about e-commerce topics, but also to get you to improve your writing. The Department of Economics has devoted significant resources to hiring a writing coach for this course, and I want you to take full advantage of her services by working hard on your writing when she points out areas for improvement, and getting in the habit of doing multiple rounds of revision.

All homework assignments should be written as Microsoft Word files and sent as an attachment to an [email to both the writing coach and to me](#), with the subject line "Econ 452." They should be emailed by 8am on the day it is due. A late homework will receive a score of zero. Thus, in terms of grading, you will be better off turning in an incomplete assignment than trying to complete it late.

The writing coach will be responsible for grading the assignments and providing comments. She has provided an [introductory letter](#) and a [statement on grading standards and guidelines](#) in order for you to understand what we're looking for in your writing. Please ask her if you are uncertain why you received a particular grade. I retain the final say on all grades in the course, so you may ask me if you're still uncertain/unhappy after talking with her.

You should feel free to discuss the homeworks with your classmates, but I would like each student to research a different topic and prepare his or her own writeup independently. Copying someone else's written work constitutes academic dishonesty, and will be punished accordingly.

In grading, I will be dropping your lowest three homework scores, so that if you have trouble meeting our requirements at the beginning, you will still have plenty of opportunity to recover.

## Group Projects

There will be two group projects, corresponding to the two main economic topics in the course: (1) information goods, and (2) market mechanisms. Each project will result in a research paper of approximately 10 pages. I expect thoughtful analysis and considerable original research, including interviews with relevant market participants. We will also have oral presentations at the end of the course; each group should choose to present its favorite of the two projects it has undertaken.

During the first week of class, please put yourself into a group of 4-6 students, and have one member of your group email me to let me know who you're working with. If you need help finding a group, please email me as soon as possible so that I can begin looking for partners for you.

I would like to make sure we have an interesting range of research topics, so I would like you to email me in advance with your proposed paper topic. (If two groups choose very similar topics, I reserve the right to ask the second group to choose a new one.) The syllabus shows due dates for the paper topics; please email me your topics no later than midnight on the dates shown in the schedule below.

I will require students to complete a first draft of their paper approximately two weeks in advance of the final due date, because revisions will significantly improve the final product. When "Writing Workshop" is noted on the syllabus, we will devote a significant part of the class time reading each other's papers and giving each other constructive criticism. Please bring at least 4 copies of your paper to each Writing Workshop.

### ***Paper #1***

Your first topic will be to examine a market for a particular type of information good. You may find it easiest to focus on a single company, such as a newspaper, magazine, radio station, record label, movie studio, price-comparison database, or software developer. Write a paper approximately 10-15 pages in length, applying the concepts of the first part of this course to your chosen market.

As background, describe the product market in detail, including an analysis of the closest substitutes and the extent to which they are differentiated from each other. When thinking about product differentiation, it is essential to consider the customers. For example, remember that if advertising is a revenue source, two types of customers are relevant: the consumers of the information good and the buyers of the advertising, and you should make sure to discuss both in your paper. Describe the channels of distribution for the product; contrast online versus offline methods of distribution if appropriate. It may also be relevant to describe the supply chain for the product; for example, if you focus on a record label, it may be useful to understand the nature of the contracts between the label and the composers and recording artists. If there are any particularly interesting technologies relevant to the present or future distribution of this good, consider mentioning them as well.

The main focus of the paper should be an analysis of the product and pricing strategies in your chosen market. What determines the price of the product? Does it involve subscription fees, or pay-per-look? If possible, provide quantitative estimates of revenues. Does the product have more than one version? How has it been (or how could it be) differentiated or personalized? How are the intellectual property rights being managed? Does lock-in appear to be relevant to this market, and if so, how? What suggestions would you make to those individuals who will be making product and pricing decisions in this market in the future?

### ***Paper #2***

Your second topic is online marketplace institutions. You will choose to research a particular online marketplace, such as eBay, Amazon zShops, PriceLine, Monster.com, Match.com, OpenIPO, FreeMarkets, or Covisint. I am willing to include almost any online intermediary as an example of a "marketplace"; for example, even the online Land's End catalog could be an interesting research topic.

You should plan on visiting your chosen marketplace as a potential buyer or seller in order to learn about the marketplace's institutional details. If it is a B2B rather than a consumer-oriented marketplace, you may have to obtain special permission from the firm to log in as a participant, so please give yourselves plenty of time to arrange this.

In your paper, please report on the economic details of your chosen marketplace. What types of products are being traded? How narrow or broad is the product diversity of the marketplace? What types of buyers and sellers participate, and how many of each? Estimate the size of the current transaction volume of this marketplace: how many trades, and how many dollars change hands, per month? How large is the eventual transaction volume expected to be, and how much do you believe this forecast? How does the marketplace operator plan to make a profit? What interesting technologies are being used? What are the alternatives to this marketplace for buyers and sellers?

Your main goal is, of course, to apply the concepts of this course to better understand your chosen marketplace. Are there network effects involved in this market? If so, what are they? What technological standards are being set, and who is setting them? How well is the marketplace operator managing lock-in? Is there any scope for price discrimination? Is government regulation likely to be relevant in this marketplace? What market mechanisms are being used: auctions, posted prices, double auctions? How do the trading rules affect the incentives of the market participants? Would you suggest any different trading mechanisms? Are there important auxiliary services (logistics, credit, etc.) being provided by other firms? Has the nature of intermediation recently changed in this market, and do you see interesting changes happening in the near future?

### ***Oral presentation***

Oral presentations will take place during the last two class meetings. Each group will choose to present one of its two research projects, and presentations will last 20 minutes each. Plan on taking time for questions from your classmates.

### **Final Exam**

The final exam will be optional. If you are satisfied with your grade from the quizzes, homeworks, and projects, you may choose not to take it. If you wish to try to boost your grade, you can take the final exam (though if you perform poorly, the final can also lower your grade).

The exam will ask you to examine several examples of e-commerce businesses and markets, typically as described in *Wall Street Journal* articles, and apply economic principles to them. The quizzes, class discussion, homeworks, and group projects should all be good preparation for the exam.

I do not intend to offer an alternative to the scheduled final exam date.

Students with disabilities who wish to request special accommodations are encouraged to contact me as far in advance of their exams as possible.

## **Schedule**

This schedule is subject to change. Any changes will be announced in advance.

For the readings under "Assignments," SV denotes the text by Shapiro and Varian, while LT denotes the text by Laudon and Traver. Additional readings can be found in the class packet.

<b>Date</b>	<b>Topic</b>	<b>Assignments</b>
15 Jan	The Information Economy	SV 1

20 Jan	<b>NO CLASS — MLK Day</b>	
22 Jan	E-Commerce Institutions	LT 1 <a href="#">Homework #1</a>
27 Jan	E-Commerce Business Models	LT 2 <b>Groups email their first paper topic to Professor Reiley</b>
29 Jan	Internet Infrastructure	LT 3 <a href="#">Homework #2</a>
3 Feb	Building a Web Site	Engst, "Create Your Own Web Site"
5 Feb	Pricing Information Goods	SV 2 <a href="#">Homework #3</a>
10 Feb	Price Discrimination	Carlton and Perloff, "Price Discrimination"
12 Feb	Versioning Information Goods	SV 3 <a href="#">Homework #4</a>
17 Feb	More on Versioning and Price Discrimination	Boston.com case  <b>Writing Workshop (bring N+1 copies of the draft of your second paper, where N is the number of people in your group)</b>
19 Feb	Digital Media and Bandwidth	LT 14 Lu, "Thinking About Bandwidth" <a href="#">Homework #5</a>
24 Feb	Rights Management	SV 4 <a href="#">Krimm, "A Modest Proposal: Audio Programming from Online Music Catalogs" (online reading)</a>
26 Feb	Lock-In	SV 5-6 <a href="#">Homework #6</a>
3 Mar	Online Services	LT 11 Autor, "Wiring the Labor Market"
5 Mar	Online Retailing	LT 10 Bakos, "The Emerging Landscape for Retail E-Commerce" <b>First research paper due</b>
10 Mar	Network Effects	SV 7 Liebowitz and Margolis, "Network Externality: An Uncommon Tragedy" <b>Groups email their second paper topic to Professor Reiley</b>
12 Mar	Auctions, Portals, and Communities	LT 13 <a href="#">Homework #7</a>
17 Mar	<b>NO CLASS — Spring Break</b>	

19 Mar	<b>NO CLASS — Spring Break</b>	
24 Mar	B2B E-Commerce	Lucking-Reiley and Spulber, "Business-to-Business E-Commerce" LT 12
26 Mar	Auctions 1: Institutions	Lucking-Reiley, "Auctions on the Internet" <a href="#">Homework #8</a>
31 Mar	Auctions 2: Theory	Lucking-Reiley, "Vickrey Auctions in Practice"
2 Apr	Auctions 3: Comparing Auction Types	Lucking-Reiley, "Magic on the Internet" <a href="#">Homework #9</a>
7 Apr	<b>Writing Workshop</b>	<b>Bring N+1 copies of the draft of your second paper, where N is the number of people in your group.</b>
9 Apr	Encryption and Security	LT 5
14 Apr	Public-Key Encryption	Singh, "Alice and Bob Go Public" <a href="#">Homework #10</a>
16 Apr	Auctions 4: Review of Auctions	Review of single-unit auction theory
21 Apr	Auctions 5: Multi-Unit Auctions 1	List and Lucking-Reiley, "Demand Reduction in Multiunit auctions" <a href="#">Homework #11</a>
23 Apr	Multi-Unit Auctions 2	OpenIPO case <b>Second paper due</b>
28 Apr	Student Presentations	
30 Apr	Student Presentations	
5 May	Student Presentations	<a href="#">Homework #12</a>
7 May	Student Presentations	
14 May	<b>Final exam, 8:00-10:00am</b>	