Overview: This course will use concepts and tools from microeconomics to analyze and help students understand the internet, electronic commerce, and other facets of information technology. We will consider differences between the production and marketing of information goods such as movies and software versus physical goods. We will study markets where compatibility, standards, and interconnection are important. We will also look at how institutions (online and otherwise) help people and organizations gather information.

Instructor: Timothy Dang tdang@email.arizona.edu
McClelland Hall Room 401U, Phone 520-621-6238, Fax 520-621-8450
Office hours: Wednesdays and Thursdays 2:00 pm - 3:00 pm, or by appointment

TA: Arundhati Tillu arundhatitillu@email.arizona.edu
Office hours: Mondays and Thursdays 2:00 pm - 3:00 pm, Room 401A

All office hours are subject to change.

Prerequisites: ECON 300 or ECON 361
Most of the material in this class is formal and mathematical. You will be expected to begin the course comfortable with algebra, differential calculus, basic probability, and graphing. Likewise, we will sometimes rely on economic ideas from classes such as Econ 200 and Econ 300/361. If you feel rusty on such prerequisite tools, you should spend extra time reviewing them.

Course management: Eller Blackboard Required (blackboard.eller.arizona.edu)
Homework and reading assignments, links to required reading, etc. will be posted on the Eller Blackboard course page. Make sure to regularly check the home page for announcements and the assignments link.

Textbooks:

Hal Varian: Excerpts from Intermediate Microeconomics, 8th Edition Required If you have the 8th edition of the textbook, that’s all you need. If you have an earlier edition of the textbook, that may not include all the relevant material. You can purchase an electronic version with just the relevant chapters:
Link: http://books.wwnorton.com/books/csbook.aspx?id=18856&csid=100600000011721

Cass Sunstein: Infotopia Required
Various online readings, and other material such as video.
Grading policy:

<table>
<thead>
<tr>
<th>Course element</th>
<th>Points</th>
<th>Droppable</th>
<th>Letter grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three midterm exams</td>
<td>3 X 300</td>
<td>Yes</td>
<td>A</td>
<td>900+</td>
</tr>
<tr>
<td>Final exam (comprehensive)</td>
<td>2 X 300</td>
<td>Yes</td>
<td>B</td>
<td>800-899</td>
</tr>
<tr>
<td>Class participation</td>
<td>100</td>
<td>No</td>
<td>C</td>
<td>700-799</td>
</tr>
<tr>
<td>Total (see below about dropped grades)</td>
<td>1000</td>
<td>No</td>
<td>D</td>
<td>600-699</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E</td>
<td>below 600</td>
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</tbody>
</table>

Exams: There will be three midterm exams and a comprehensive final exam. Each exam has 30 points (10%) of “extra credit” built in. While there will be 330 possible points, a score of 300 is still “perfect” for the purposes of grading. Each student is expected to take all exams at the designated time and place. Students who miss an exam will receive a grade of zero for the exam. Make-up exams will not be given.

Class participation: Individual, group, and class discussion of various topics and problems. This will include discussing readings and exercises assigned as homework. And, of course, asking questions!

Exercises will be assigned, possibly from the textbook, but mostly from PDF’s posted on Blackboard. The exercises are not to hand in, but I will expect you to be ready to tell me solutions when I call on you. Similarly, you should be able to discuss assigned reading and material from earlier lectures.

The exercises are likely also the best way to prepare for the exams. I strongly encourage you to work them until you understand them well. This is likely to include working with your classmates, myself, or the TA.

Exam policies: Unless otherwise specified, exams will be closed book/notes. Simple non-graphing, non-programmable calculators are allowed. However the use of mobile phone calculators, tablets, computers, etc. will be prohibited.

Course grade: Not counting class participation, there are 5 elements to this course: 3 midterms, and the final exam which counts as two elements. The lowest 2 elements will be dropped prior to computing a final average. For instance, suppose you had midterm grades of 285, 255, and 195, and a final exam grade of 225. The grades which would be dropped would be the 195 (midterm) and a 225 (for one element of the final). The remaining grades of 285 (midterm), 255 (midterm) and 225 (for the other element of the final) would be summed to 765. This would be the exam portion of your course grade. If your participation score was 90, then you would have 765 + 90 = 855 points in the course and your course grade would be a B. The cutoffs listed above for letter grades are the cutoffs—a score of 799 is a C, not a B.

The reason some grades will be dropped before computing your course grade is to allow for potential circumstances where something prevents you from doing well, or from attending at all. What this means is that if you have a reason which might excuse you from taking an exam (such as health problem or a family emergency) that will just be one thing which is dropped for you. It also means you shouldn’t treat the dropping as a chance to slack off because if you perform badly on the first midterm, there might be an emergency preventing you from taking the second midterm.
Absences: The following are reasons for excused absences:

- All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion. Please look at the semester calendar in the first week of class and let me know any days you will be missing.
- Absences pre-approved by the UA Dean of Students (or Dean’s designee) will be honored.

Grade appeals: If you think there was a mistake in grading something, you have two school days to contact me after a grade is posted to appeal the grade. You must do so in writing, explaining why you think the grade given was incorrect.

Accessibility and Accommodations: It is the University’s goal that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact Disability Resources (520-621-3268; drc.arizona.edu) to establish reasonable accommodations.

Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

Behave: You should be aware of the Student Code of Academic Integrity and keep it in mind. For example (obviously) you should not copy exams or allow your exam to be copied. You should also follow all rules established for exams to prevent cheating.

Link: deanofstudents.arizona.edu/policies-and-codes/code-academic-integrity

Your conduct during lectures, office hours, etc. should be courteous to your fellow students, instructor, TA’s and preceptors. Obviously, threatening behavior is prohibited. See the Policy on Threatening Behavior by Students.

Link: policy.web.arizona.edu/threatening-behavior-students

Important Dates:

Midterm #1 ................................. Wednesday, February 11
Midterm #2 ................................. Wednesday, March 25
Last day to drop class (without Dean’s signature) ...... Tuesday, March 31
Midterm #3 ......................... Wednesday, April 29
Final exam ............................. Wednesday, May 13 (10:30 am - 12:30 pm)

Subject to amendment: This syllabus is intended to be complete, but if changes need to be made, an updated syllabus will be posted online, and you will be notified during lecture.
Course outline

Very tentatively, this is the planned material for the course. The order of presentation or even entire topics may change. Other reading/viewing material will be assigned from time to time.

Information goods and monopoly:
Public goods, Natural monopoly, Perfect competition, Monopoly pricing

- Daphne Koller TED talk
- Varian, Chapters 21 (Cost curves) and 24 (Monopoly), parts of Chapter 14 (Consumer surplus)

Price discrimination:
Segregation, Bundling, Two-part tariffs, Arbitrage

- Varian, Chapter 25 up to and including section 25.6

Network externalities introduction:
Demand-side economies of scale, Stable and unstable equilibria, Critical mass, Demand curves, Positive and negative feedback

- Varian, Chapter 35 (Read for ideas, but lecture will be more important)

Game theory application:
Nash equilibrium, Coordination games

- Varian, Chapter 28 (Game theory) — primarily introduction and section 28.2
- Varian, Chapter 29 (Game applications) — primarily “games of coordination” Section 29.3

Multi-sided platforms and standards:

Path dependence:
Tippy markets, Penetration pricing, Expectations management, Collective and individual lock-in, Welfare

Deliberation and voting:
Information aggregation, Institutions, Condorcet jury theorem, Binomial distribution, Central limit theorem, Information cascades, Hidden profiles, Probabilistic independence, group dynamics

- Infotopia, Introduction, Chapters 1-3

Prediction markets:
Double-auction market, General equilibrium, Arbitrage, Hedging, Market manipulation

- Infotopia, Chapter 4 (skip section on “Traditions” and Edmund Burke.)
- Varian, Chapter 35 (Exchange)
Copyleft and open source:
  Creative commons, Financial and non-financial incentives

  • Infotopia, Chapter 5
  • Yochai Benkler TED talk

Other complications with innovation and IP:
  Patent length and breadth, excessive innovation

  • Monopolistic competition: Varian, Chapter 25, section 25.7

A few other possibilities . . .
  Durable goods, “Free” as a business model