

ECON 350: Monopoly, Competition & Public Policy



Northwestern University

Winter 2021

Professor James A. Hornsten

j-hornsten@northwestern.edu



<https://northwestern.zoom.us/my/professorhornsten>

See Canvas for ZOOM links for lectures, exams, TA sections & office hours

Office Hours and Communication

Your best way to contact me is by email, which I check regularly and try hard to answer within 24 hours. When sending email, please include ECON350 in the subject or your message. I will use Canvas to distribute materials and make announcements so please check Canvas and your NU e-mail daily. I will be available for Zoomy virtual office hours through <https://northwestern.zoom.us/my/professorhornsten> (my personal meeting room) on Wednesdays 2:00-3:00PM and Thursdays 11:30AM-1:00PM. On most days immediately after class I will stay on Zoom to chat and/or answer student questions. I will survey the class and schedule additional office hours at some mutually convenient times, perhaps including some late-night office hours especially for “distant time zone” students. Many students have found the collaborative approach to learning helpful, so some office hours will be “open,” when anyone can drop by and contribute to a group discussion, and some office hours will be based on reservations (signing up for a specific time slot for a one-on-one conversation). Office hours are a time to talk about not only course material or your standing in the course, but also the ECON major, careers, NU life, hobbies, and whatnot.

Class Meetings and Attendance

We will meet 9:30 – 10:50PM on Tuesdays and Thursdays through the Zoom teleconferencing platform accessible through Canvas. Refer to the attached schedule for important dates to mark on your calendar. Although attendance is not mandatory, it is expected, noticed, and appreciated (and often awarded if you fall near a grading borderline), and you will likely get more from the course if you actively engage in a collective classroom experience than if you just passively watch video recordings. I do hope you take advantage of our community during these times of social distancing.

Zoom Recording Policy

This class or portions of this class will be recorded by the instructor for educational purposes. These recordings will be shared only with students enrolled in the course and will be deleted at the end of the end of our Winter 2021 course. I will communicate how you can access the recordings. Unauthorized student recording of classroom or other academic activities (including advising sessions or office hours) is prohibited. Unauthorized recording is unethical and may also be a violation of University policy and state law. Students requesting the use of assistive technology as an accommodation should contact [AccessibleNU](#). Unauthorized use of classroom recordings – including distributing or posting them – is also prohibited. Under the University’s [Copyright Policy](#), faculty own the copyright to instructional materials – including those resources created specifically for the purposes of instruction, such as syllabi, lectures and lecture notes, and presentations. Students cannot copy, reproduce, display, or distribute these materials. Students who engage in unauthorized recording, unauthorized use of a recording, or unauthorized distribution of instructional materials will be referred to the appropriate University office for follow-up.

Teaching Assistant and Discussion Sections

Our graduate teaching assistant, Megumi Murakami, will usually lead weekly discussion sections on Mondays at 5:00PM via Zoom (the link will be posted on Canvas). I expect you to attend section or view the recording. During a typical discussion section, the TA will go over some challenging problems, present new material, discuss some of the ideas from lecture, and/or field some of your questions. It is common for the TA’s material to appear on our exam. Megumi’s virtual office hours will be announced on Canvas after we determine student demand. In case I need to cancel a Tuesday or Thursday meeting, we may use the Friday discussion period to get back on schedule. Check Canvas for changes to office hours or for section materials. Email: megumimurakami2022@u.northwestern.edu

Prerequisites and Related Courses

Formally, the prerequisites are ECON 281 (Econometrics), ECON 310-1 (Intermediate Microeconomics) and ECON 310-2 (Intermediate Microeconomics with Game Theory); the tools provided in the latter two courses will be particularly important. We will be studying a number of calculus-based profit-maximization models so you should be comfortable drawing and interpreting graphs, taking simple partial derivatives, finding Nash Equilibria, and using algebra to manipulate equations. We will introduce and incorporate straightforward economic tools only as needed. Finally, you should be aware of the natural overlap between this course and ECON 349 (Industrial Economics), which focuses less on public utilities, intellectual property, and antitrust law and cases, and more on oligopoly, pricing, and business strategy.

Readings and Equipment

The required textbook is Viscusi, Harrington, Jr. and Sappington (2018) Economics of Regulation and Antitrust (5th edition), Cambridge: MIT Press, ISBN: 978-0262038065

We will also use a variety of readings (e.g., antitrust case studies, economic journal articles, recent articles from the business press, and old teaching materials) that will be posted on Canvas in PDF format. For example, we may use materials from the following textbooks:

- C. Decker (2015) Modern Economics Regulation, Cambridge University Press.
- W. Lesser (2014) American Business Regulation: Understand, Survive and Thrive, Routledge.
- R. Sherman (2008) Market Regulation, Pearson Addison-Wesley.
- J. Kwoka and L. White (2018) The Antitrust Revolution (7th edition), Oxford.
- L.M.B. Cabral (2017) Introduction to Industrial Organization (2nd edition), Cambridge: MIT Press. ISBN 0262035944.
- P. Belleflamme and M. Peitz (2015) Industrial Organization: Markets and Strategies (2nd edition), New York: Cambridge University Press. ISBN 9781107687899.
- L. Pepall, D. Richards and G. Norman (2014), Industrial Organization: Contemporary Theory and Empirical Applications (5th edition), Blackwell Publishing. ISBN 9781118250303
- J. Church and R. Ware (2000) Industrial Organization: A Strategic Approach (1st edition), Irwin McGraw-Hill, ISBN 0-256-20571-X. SEE homepages.ucalgary.ca/~jrchurch/page4/page4.html for the free downloadable PDF.
- V. Tremblay and C. Tremblay (2012) New Perspectives on Industrial Organization with Contributions from Behavioral Economics and Game Theory, New York: Springer, ISBN 9781461432418. Find the free download at <https://link.springer.com/book/10.1007%2F978-1-4614-3241-8>.
- D. Carlton & J. Perloff (2004) Modern Industrial Organization (4th edition), Addison-Wesley.
- O. Shy (1995) Industrial Organization, Cambridge: MIT Press.

Course Description and General Goals

This course focuses on a particular market failure – monopoly – in the context of antitrust law, public utility regulation, network effects, and intellectual property. First, profit-seeking firms may try to reduce competition through price discrimination, resale price maintenance, entry deterrence, predation, horizontal mergers, vertical integration, or collusion. We will use economic theory and landmark legal cases to study the purpose and development of antitrust law, which is meant to reduce the adverse effects of anti-competitive business practices, including monopsonistic agreements by buyers of inputs (e.g., employers depressing wages by agreeing not to poach rivals' employees). Next, large fixed costs of building and maintaining a physical network may generate natural monopolies in (parts of) markets for electric power, cable television, natural gas, and water. We will explore the challenges regulators face when they attempt to apply market controls such as price caps so an essential service remains affordable. We will also ponder the proper role of government in today's digital economy, which features a number of winner-take-all markets, in which bandwagon effects result in convergence to a single operating system, recording technology, social network, or search engine. Finally, monopoly power is often closely linked to technological change: society might be willing to trade short-term welfare loss for long-term gains by granting temporary monopolies (e.g., patents or copyrights) to provide an incentive to innovate. We will analyze the ideal scope of artificial monopoly rights and the natural tension between intellectual property and antitrust law. Throughout the course, we will consider regulatory issues in a variety of industries.

General goals pursued throughout this course are:

- To familiarize you with jargon used by economists and the media (e.g., Sherman Act, net neutrality, vertical mergers, fair use) to enhance your ability to benefit by understanding business news
- To deepen your understanding of the role of government in our society by evaluating landmark and ongoing antitrust investigations (e.g., Standard Oil, AT&T, Microsoft, Apple, Alphabet, Facebook)
- To develop your microeconomic modeling skills (e.g., graphing and interpreting cost curves, building simple games to analyze common dilemmas, formally expressing economic optimization problems), economic intuition, and decision-making ability.
- To analyze current and historical events from a strategic perspective (e.g., NU's management of the Lyrica patent, the race to develop a Covid-19 vaccine, and film studios' decision to launch major films in both theaters and online simultaneously in 2021) and apply our theoretical insights to the interactions of well-known firms in major industries
- To prepare you for advanced study in economics or related fields, and for the industry research you may conduct as graduate students, job candidates, informed consumers, or potential consultants

Learning Outcomes

During this course, you will use three basic tools of economic analysis (equilibrium, constrained optimization, and comparative statics) to model and analyze a variety of economic problems involving imperfect competition and profit maximization. After completing this course, you will be able to use decision-and/or game-theoretic models to analyze the following types of economic actors & decisions:

1. Conduct welfare analysis for a monopoly facing a variety of demand and cost conditions
2. Predict the profit-maximizing input choices of a standard monopsony
3. Compare a natural monopoly's results under (zero, first-best, second-best) regulation
4. Show how the terms of a licensing contract will affect a patent holder's revenues
5. Explain an antitrust authority's concern with a merger or case of predation

Teaching Methodology and Philosophy

You will have many opportunities to engage the material, including reading the textbook, attending and actively participating in lectures, working on practice exercises or problem sets either individually or in a group, taking several exams, working on a group project, and using office hours when necessary. The **readings** are meant to familiarize you with vocabulary and concepts, inspire questions, and give you a chance to ponder the material before we present similar ideas in different packaging. I recommend reading the relevant material both before and after class to preview and review the material. My **lectures** will typically take the form of a combination of some PowerPoint slides, discussion of interesting recent events and how to model them, and working through short problems on the virtual board. Posted slides are intended to serve as course notes, so you should expect the PPT slides to be unusually wordy and colorful. Moreover, I will not have time to cover all of the slides, so you will need to peruse some of them outside of class. **Ungraded problem sets and old exams** give you a chance to get your hands dirty and to prepare for both class and exams. Economics is a form of applied math, and solving problems is an important part of mastering the material. We will usually cover the relevant material before trying problems, but occasionally you may need to read ahead in the textbook and teach yourself some concepts. I encourage you to try the problems on your own, and then virtually meet with classmates to discuss and compare answers. I.e., I want you to collaborate, but warn you that too much free riding may result in insufficient exam preparation. For a simple test of your knowledge, try explaining a problem and its solution to a friend or try tinkering with assumptions to construct some problems (with answers) on your own. The **exams** will test your understanding of applied microeconomic theory, including your ability to utilize economic theory to answer questions using math, graphs, intuition, and/or real-world applications. You should therefore focus on the systematic reasoning we are trying to develop, rather than on mere memorization. Economics does NOT lend itself to pulling all-nighters before exams. Later analysis relies on principles covered earlier, so the exams are cumulative implicitly, if not explicitly. I will post sample exam questions for you to review, and they usually provide a very good idea of what this quarter's exam will be like. The **group project** will challenge small teams of students to study a recent antitrust case and record a 10-minute video presentation that summarizes the important economic insights and the outcome of the case. The contents of the group project videos will be an important component of the final exam. More specific instructions and peer evaluation forms will be posted later in the course. Class is much more enjoyable when there is active involvement by many students, so be prepared to speak up now and then, and to **participate** in a Goldilocks sort of way – neither too little

nor too much. It is both my desire and job to teach you, so please let me know if anything is frustrating your efforts so that we can try to remedy the situation. Part of your job as a responsible adult is to monitor your progress and seek help from your peers or me when necessary. Often it doesn't take much to get back on track if you take the first step of asking for assistance in **office hours**. If you feel you are in trouble, seek help early. Of course, you are welcome to use office hours even if you are not having difficulty. Given the course's design, you should adopt an active approach to learning: once you think you understand the material from the readings and lectures, work problems on old exams for practice, try the exercises at the end of the chapters, and ask yourself if you see how all of the material fits together.

Evaluation

Your course grade will be assigned based on your performance on three exams and a student group presentation of a recent antitrust case. These graded components are weighted as follows:

<u>COMPONENTS</u>	<u>IMPORTANT DATES</u>	<u>% OF GRADE</u>
<i>Unit 1 Exam</i>	<i>Thursday, February 4 (covers Weeks 1-3)</i>	<i>25</i>
<i>Unit 2 Exam</i>	<i>Thursday, February 25 (primarily Weeks 4-6)</i>	<i>25</i>
<i>Unit 3/Final Exam</i>	<i>Tuesday, March 16 (primarily Weeks 7-9 and antitrust case studies, but cumulative)</i>	<i>37.5</i>
<i>Group Presentation</i>	<i>Recording is due by 11:59PM on Saturday, March 6</i>	<i>12.5</i>
<i>Participation</i>	<i>Attendance & contributions throughout course</i>	<i>Borderline cases</i>
	<i>TOTAL</i>	<i>100</i>

Exams: The course is divided into three units, each followed by an exam; the final exam covers Unit 3 and the antitrust case studies, and also contains “big picture” questions so I can assess your overall mastery of the course. Exams will feature a diversified portfolio of questions and topics designed to test your ability to apply economic theory. Old exams with detailed solutions will be posted; I strongly suggest you use them to better understand the types and difficulty levels of problems you will be asked to solve, as well as how quickly you will be expected to work. Due to the substantial challenges of administering more than three examinations, there will be no make-up exams. If you miss one of the first two exams for some reason, then I will reweight your other graded components; the new weights would be 34% Unit Exam, 51% Final Exam, and 15% Group Project. We do not arbitrarily re-weight exams based on your performance (☺ or ☹), and if you take an exam, we must count it, so if you are not in a good state to take an exam, please inform me before you start taking the exam. You must take at least one midterm exam and the final exam to pass the course. Please note that we usually offer this course 2-3 times per year in case you have time conflicts this quarter.

Group Presentations: I expect each student to make a substantial contribution to their group’s presentation, whether by designing PowerPoint slides, or writing a script, narrating, or editing a recording. Each student must also complete a peer evaluation form to assess their groupmates’ contributions. All recordings will be posted so students can study them for the final exam.

Grades: You are responsible for monitoring your scores and status in the course. Your course grade will be based primarily on your ballpark grades on each exam, performance trends (improvement), total points earned, and the difficulty of the exams. Following economics department recommendations, I grade to the curve rather than using an absolute percentage standard. This means that a score of 75 does not automatically map to a C grade, but rather is considered relative to scores in this and previous classes; e.g., if a 75 were the high score, it would earn a high A, but if it were the low score, then it may earn a C- or lower.

Re-grading Requests: Occasionally, a student finds or suspects a grading error and requests that his/her exam be re-graded. The re-grading policy, which involves submitting a written request to me in a timely fashion, will be posted on Canvas after the first exam. This request should simply identify the problem in question; we can only grade the answer you originally submitted, not additional explanations. All re-grading requests must be made within one week of the day the graded exams are released.

Academic or Athletic Accommodation

Any student requesting accommodations related to a disability or other condition is required to register with AccessibleNU < accessiblenu@northwestern.edu OR 847-467-5530 > and provide professors with an accommodation notification from AccessibleNU, preferably within the first two weeks of class. I recommend that you use accommodations for which you qualify. Students on Northwestern's varsity athletic teams who expect an academic conflict due to an official NCAA event should ask Eileen O'Rourke in Academic Services < eileen.orourke@northwestern.edu OR 847.491.8805 to contact me on your behalf as soon as possible. For all types of accommodation, all information will remain confidential. Please make your plans early and keep me informed; the 24 hours before an exam are often very busy and I may not be able to handle last-minute accommodation requests.

Wellness

In November 2018, the Faculty Senate approved a resolution recommending the following be added to course syllabi: "Students can find useful resources for safety and security, academic support, and mental and physical health and well-being at the NUhelp website and app." <https://www.northwestern.edu/nuhelp/>

Professionalism

I expect a reasonable degree of professionalism, broadly defined to include those things that generally contribute to an environment that is conducive to learning by being courteous to us and to your classmates. Do things that generate positive externalities, such as attending, smiling, participating and helping your peers. Avoid generating negative externalities in the virtual classroom via potentially distracting behavior (e.g., napping, off-topic chatter, offensive language or images). Serious disruptions will not be tolerated.

Sexual Misconduct and Reporting

Northwestern University is committed to fostering an environment where students are safe and free from sexual misconduct. Confidential resources are available to those who have experienced sexual misconduct. Faculty, instructors, and TAs are not confidential resources and are required to report incidents of sexual misconduct, whether discussed in your assignments or in person, to the Office of Equity, which can provide information about resources and options. I encourage students who have experienced sexual misconduct to talk with someone to get support. For more information, including how to request interim protective measures and academic accommodations or file a complaint, see the Get Help page.

Discrimination and Sexual Harassment

Northwestern University's Policies on Discrimination, Harassment, and Sexual Misconduct apply to all members of the University community, including students, staff, faculty, and third parties. Any student, staff, or faculty member, or third party, who believes that they have been discriminated against or harassed on the basis of their race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, pregnancy, parental status, marital status, age, disability, citizenship, veteran status, genetic information or any other classification protected by law, should contact the Office of Equity at (847) 467-6571. Additional information about the University's discrimination and harassment policies, including the campus resources available to assist individuals with discrimination or harassment concerns, is available online on the Office of Equity website, <https://www.northwestern.edu/equity/>. Students, staff, and faculty who report harassment, discrimination, or sexual misconduct are also protected under the [University's Policy on Non-Retaliation](#).

Academic Integrity

Suspicion of academic integrity violations will be referred immediately to the Academic Dean's office; University rules prohibit subsequent discussion of the situation with the student. Our expectations in regard to issues of academic honesty are articulated at <https://catalogs.northwestern.edu/undergraduate/academic-integrity/>. While you are a Northwestern student, you will be treated as an adult and will be held accountable for your actions; consequently, you are expected to know and abide by the rules of the institution. It is important that you read and understand Academic Integrity at Northwestern: A Basic Guide) found at <http://www.northwestern.edu/provost/policies/academic-integrity/index.html>. Whether intentional or not, improper use of materials can be considered a violation of academic honesty. For example, you should not refer to prohibited materials during an exam, alter an exam for re-grading, plagiarize (use another's ideas or

words without acknowledging the source), or fabricate excuses or lie in connection with your academic work. If you are unsure as to what is permissible, please consult me, because ignorance is not a valid excuse.

Reading Assignments

The following schedule is provided as a guide and may be subject to slight changes as our pace naturally varies. Each lecture will make apparent our progress in the textbook. Please mark on your calendars the important exam and due dates, which will only change under extreme circumstances and with sufficient warning. Do your best to keep up with the reading assignments, which will complement the lectures, and as you read, jot down your questions. If you find yourself getting bogged down in math, focus on the intuition and main ideas, then address the detailed economic methods later. Remember that economics tends to be cumulative in nature, so regularly ponder how each chapter adds to previous chapters.

For the most up-to-date information as we move through the course, check Canvas.

Winter 2021 Schedule of Planned 350 Topics, Due Dates & Recommended Readings

Week #	Dates	Lecture Topics and Important Dates
		<i>Chapters are from Viscusi, Harrington & Sappington's ERA 5/e (2018)</i> <i>Lecture-specific readings will be posted to Canvas</i> <i>Discussion sections with Teaching Assistant Megumi Murakami will be added (Fridays?)</i>
UNIT 1: Monopoly, Monopsony, Natural Monopoly, & Regulation		
1	Jan 12, 14	Syllabus & Course Logistics. Describing a Profit-Seeking Monopoly. Building Blocks (MR, PED, IEPR, cost pitchforks) & Basic Monopoly Models. <i>Chps. 1,3</i> STANDARD MONOPOLY MODELS
2	Jan 19, 21	Monopsony (input market power). Natural Monopoly (scale, scope, subadditivity). NM Regulation & Alternatives (franchise bidding, intermodal rivalry, non-linear pricing) <i>Chp. 10; skim chps. 11-13</i> MONOPSONY & NATURAL MONOPOLY
3	Jan 26, 28	Regulatory Origins (S&D, non-market failures), Theories (quick fix, ratchet, capture) and History (common law, contracts, commerce, due process) (De)Regulatory Tales: Electricity, Railroads & Trucking (ICC), Airlines (CAB) <i>Chp. 2; skim 14,16-17</i> (DE)REGULATORY SOURCES AND CASES
UNIT 2: Antitrust, Collusion, Horizontal and Vertical Mergers, & Exclusionary Practices		
4	Feb 2, 4	Unit 1 Leftovers & Review. Antitrust Primer (Sherman Act, DOJ, FTC, landmark cases). UNIT 1 EXAMINATION – Thursday, February 4 (<i>Covers Weeks 1-3</i>) <i>Chp. 3</i> ANTITRUST LAW
5	Feb 9, 11	Collusion (cartel stability, detection, cases, repeated prisoners' dilemma) Horizontal Mergers (Williamson-style models) & Evaluation (important cases) <i>Chps. 4,6</i> COLLUSION & HORIZONTAL MERGER POLICY
6	Feb 16, 18	Games Trees and Subgame Perfect Nash Equilibrium Exclusionary Practices (entry deterrence, predatory pricing, cases) <i>Chps. 5,8</i> EXCLUSIONARY PRACTICES
UNIT 3: Intellectual Property, Network Effects, & New Technologies		
7	Feb 23, 25	Unit 2 Leftovers & Review. Vertical Restrictions (transactions costs, hold-up, foreclosure). UNIT 2 EXAMINATION – Thursday, February 25 (<i>Covers Weeks 4-6 primarily</i>) <i>Chp. 7</i> VERTICAL ISSUES
8	Mar 2, 4	Intellectual Property Rights (patents, ©, TM & trade secrets) IP Licensing (fees, royalties, exclusivity, pools) & Issues (thickets, terms, trolls) <i>Chp. 24 (4th edition; posted)</i> INTELLECTUAL PROPERTY RIGHTS Antitrust Case Study (Group Project) DUE by 11:59PM on Saturday, March 6
9	Mar 9, 11	Network Effects and Two-Sided Platforms (modern cases: Microsoft, Alphabet, Facebook) The Future of Regulation. Unit 3 Leftovers & Review. <i>Chp. 9</i> NETWORK EFFECTS & TWO-SIDED PLATFORMS
10, Finals	Mar 16	UNIT 3 / FINAL EXAMINATION – Tuesday, March 16, 12 – 2PM (<i>Covers Weeks 7-9 and the antitrust case studies primarily, but also cumulative</i>)

A syllabus is a contract between the instructor and students that provides information about the course and provides a commitment device to prevent arbitrary behavior. I will assume that you are familiar with, and agree to, all policies in