

**ECON 552**  
**THE ECONOMICS OF HEALTH CARE MARKETS AND POLICY<sup>1</sup>**  
**UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL**  
**SPRING 2023**

**Time & location:** TR 9:30-10:45am, GA209

**Credit units:** 3

**Prerequisites:** ECON 400, 410, and at least one of 445 and 450, with a grade of C or better

**Instructor:** Dr. Qing Gong

**Email:** qinggong@email.unc.edu

**Office hours:** Thu 4-6 pm

**Sign up:** appointment required, sign up here

**Course synopsis:** The market for health care is perhaps the single most important sector of the US economy. In this course, we will examine how the strategic choices of supply-side actors in this market (e.g. insurance companies, health care providers, pharmaceutical firms) affect the welfare of patients, and discuss the role government regulation can play in shaping market outcomes. To inform our discussion, we will read academic papers covering a list of topical issues in health care markets, and use tools from Industrial Organization and other related empirical literature to develop theoretical frameworks to analyze them. Examples include:

- The structure of payment models to incentivize health care providers to deliver low-cost and high-quality care.
- How the consolidation of health care providers affects the allocation of patients, hospital prices, and insurance premiums.
- The choice of capitation (fixed amount per patient) vs. fee-for-service (unbundled payments based on the kind and number of services) in incentivizing health care providers and their impact on the cost and quality of care.
- How provider preferences in a referral network affect health care delivery.
- The impact of price regulation in the pharmaceutical market.

**Course objective:** The aim of this course is to provide you with a clear understanding of the prominent policy issues in U.S. health care markets, with a focus on how they affect supply-side

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<sup>1</sup>The instructor reserves the right to make changes to the syllabus, including the reading list. These changes will be announced as early as possible.

actors. You will learn how economists think about topics related to the provision of health care, the structure of health care markets, and the relationships between different players in those markets. Throughout the course, we will equip you with tools used by economists to analyze health-related markets. Some of these tools will be generally applicable to any market, while others will be specific to health care.

**Approach and prerequisites:** This course uses a combination of lectures on the essential methodology, surveys of the recent literature on the supply-side topics of health care markets, and empirical exercises that familiarize you with the prominent econometric tools, data sources, and programming techniques. Whenever a new tool is required, we will first review the methodology and then come back to its application in the health care market.

This course is an addition to the existing health economics and industrial organization courses offered each year by the UNC Economics Department. Its focus on the supply side of health care markets complements existing 400-level and 500-level courses such as ECON 445 and 545, ECON 450 and 550. This course also employs a different set of analytical tools and conceptual frameworks that spans various fields of empirical microeconomics, such as bargaining, learning, and cost and adverse selection.

Knowledge of microeconomics and econometric tools, particularly those related to Industrial Organization and individual decision-making, is needed throughout the course. Thus in addition to ECON 400 (Statistics and Econometrics) and 410 (Microeconomics), students are also expected to have taken at least one of ECON445 (Industrial Organization) and 450 (Health Economics and Policy). Students who have not taken these courses but may fulfill the requirements (by taking similar courses offered by other departments) are welcome to contact the instructors and discuss their specific cases before enrollment.

**Course requirement:** Most class meetings require that you complete the required readings in advance and actively participate as we discuss them in class. Homework will also be assigned regularly throughout the semester, which typically involves empirical exercises that apply tools introduced in class and/or used in the required readings. You will also be required to do critical reading of one of the papers we read in class. Your course grade will be calculated based on the weights below:

- **Homework:** 30% (5 assignments in total, equally weighted)

- a. **Due dates:** Homework assignments are designed to help you build your research paper throughout the course. They must be submitted before the deadline. Late submissions will NOT be accepted, but you can miss 1 assignment. If you do, the weight will be shifted to the research paper.
  - b. **Submission:** Please submit your homework in the required format via Gradescope. Gradescope is easy to use and has a help center if you need tech support. Please do not email in your homework.
  - c. **Collaboration:** working with your classmates is *highly* encouraged, but each student must write and submit their own work and will be graded separately on each assignment.
  - d. See the **class calendar** at the end of this syllabus for the list of homework assignments and their due dates. The dates might be subject to changes, which will be announced ahead of time.
- **Participation: 25%.** Your participation will be evaluated according to the following criteria:
    - a. **Assessment of required readings (5%):** It is essential that everyone finishes the required readings before they are discussed in class and complete the online Reading Assessment Forms. Students will be (randomly) selected to answer basic, factual questions on the reading such as the research question, the empirical strategy, the key findings, etc.
    - b. **In-class presentation of required readings (10%):** Students will deliver a short (10 minutes) presentation of a required reading during class. **Everyone must sign up to present at least once by January 20th.** No more than two students may present the same reading. If two students are presenting, they will collaborate and deliver the presentation together.
    - c. **In-class discussions and activities (10%):** Students are expected to voluntarily participate in and contribute to the in-class discussions and activities. You need to be fully engaged, communicate your ideas clearly, and be respectful to your peers and the instructors. Students are also encouraged to ask questions both during and after class, as well as during fellow students' presentations. Good questions are most often not factual ones, but ones that demonstrate critical thinking and intellectual engagement.

d. **Note on attendance:** Attendance (being present in the classroom) per se does not contribute to your participation grade, only because it is the most basic requirement. With the exception of University-Approved Absences, you are expected to attend all classes. It is your responsibility to get the content/announcements you missed during the class you did not attend.

- **Final presentation:** 15%

a. **Date and time:** Presentations are scheduled during the last 2-3 class meetings *and* during the 3-hour final exam time, depending on the class size. All final presentations will be on Zoom to minimize transition time, given the tight time budget we have.

b. **Parameters:** Each student will deliver a brief (10 minutes or less, depending on the class size) oral presentation on their research paper.

c. **Attendance:** *Everyone* is expected to attend the presentation sessions, and provide constructive feedback for your peers. Failure to do so will hurt your participation grade.

d. **Evaluation:** Key areas of evaluation include the content, clarity and organization, and delivery.

- **Research paper:** 30%

a. **Format** Students may choose between various formats for the research paper. But the topic must be one that was submitted in one of the assignments and approved by the instructors.

- \* *Critical reading:* an extended report on a paper from the reading list *that was not discussed in detail in class*. You will discuss the strengths and weaknesses of the paper and suggest concrete ways of improving the paper. These discussions must be supported with empirical analysis (e.g., meaningful replication and/or extension of the empirical work using original, alternative, or simulated data; (counter)evidence of untested hypotheses or conjectures).

- \* *Research proposal:* a proposal for a more extended research project, including a literature review, proposed empirical model, data source, and (possibly) some preliminary results.

- \* *Empirical analysis:* a complete analysis of an empirical question using data. Relative to the research proposal format, this format requires more empirical analysis, but

less background research.

- b. **Parameters:** 10 pages maximum, 12 pt, single space, 1 inch margin on all sides. The page limit is for the entire paper, including all tables, figures, and bibliography.
- c. More guidelines will be provided in class, including instructions on how each format will be graded, getting instructor approval of your choice of format and topic, keeping the instructors updated on your progress, and other more detailed requirements.

**Research and Discovery:** This course meets the “Research and Discovery” objective of the IDEAs in action curriculum. Students immerse themselves in a research project and experience the reflection and revision involved in producing and disseminating original scholarship or creative works.

- **Questions for Students**

- How do I establish my point of view, take intellectual risks, and begin producing original scholarship or creative works?
- How do I narrow my topic, critique current scholarship, and gather evidence in systematic and responsible ways?
- How do I evaluate my findings and communicate my conclusions?

- **Learning Outcomes**

- Frame a topic, develop an original research question or creative goal, and establish a point of view, creative approach, or hypothesis.
- Obtain a procedural understanding of how conclusions can be reached in a field and gather appropriate evidence.
- Evaluate the quality of the arguments and/or evidence in support of the emerging product.
- Communicate findings in clear and compelling ways.
- Critique and identify the limits of the conclusions of the project and generate ideas for future work.

**University Policies and Resources:** Please see the policy insert for information on university policies and resources.

## List of topics and readings

Below is a tentative list of topics to be covered in the course and a subset of (highly recommended/required) readings. The list of readings will be continually updated with additional materials, such as new working papers and exemplary job market papers. A few important notes:

- Mandatory readings are marked with an asterisk.
- While I do my best to make sure the information below is up to date, sometimes the citation (and the PDF) change when a working paper is updated or published. *If you spot any changes, please send me (i) the updated citation (same style as below) and (ii) the most up-to-date PDF. The first person who do this (for each paper) will be awarded 1 extra point (max. 3 points per semester).*
- Part 5 (Pharmaceutical Markets) is built on materials prepared and generously shared by Prof. Luca Maini, who was the co-instructor for this course in Spring 2021 and Spring 2022.

### 1. Introduction

#### (a) Topics and tools

- **Arrow, Kenneth J.**, "Uncertainty and the Welfare Economics of Medical Care," *American Economic Review*, 1963, 53 (5), 940–973.
- **Finkelstein, Amy**, "The Aggregate Effects of Health Insurance: Evidence from the Introduction of Medicare," *The Quarterly Journal of Economics*, 2007, 122 (1), 1–37.

#### (b) (Geographic) variation in health care

- **\*Finkelstein, Amy, Matthew Gentzkow, and Heidi Williams**, "Sources of Geographic Variation in Health Care: Evidence From Patient Migration," *The Quarterly Journal of Economics*, nov 2016, 131 (4), 1681– 1726.
- **Finkelstein, Amy, Matthew Gentzkow, and Heidi Williams**, "Place-Based Drivers of Mortality: Evidence from Migration," *American Economic Review*, 2021, 111 (8): 2697-2735.

#### (c) Random utility choice models and applications

- **Nevo, Aviv**, "A practitioner's guide to estimation of random-coefficients logit models of demand," *Journal of Economics and Management Strategy*, 2000, 9 (4), 513–548.

#### (d) Cost functions and adverse selection

- **\*Einav, Liran, and Amy Finkelstein** “Selection in insurance markets: Theory and empirics in pictures,” *Journal of Economic Perspectives*, 2011, 25 (1), 115–138.
- **Cutler, David M., Amy Finkelstein, and Kathleen McGarry**, “Preference heterogeneity and insurance markets: Explaining a puzzle of insurance,” *American Economic Review*, 2008, 98 (2), 157–162.

## 2. Health Insurance Markets

### (a) Moral Hazard and Insurance Design

- **\*Zarek C. Brot-Goldberg, Amitabh Chandra, Benjamin R. Handel, Jonathan T. Kolstad**, “What does a Deductible Do? The Impact of Cost-Sharing on Health Care Prices, Quantities, and Spending Dynamics,” *The Quarterly Journal of Economics*, 132 (3), 2017, 1261–1318.
- **Dranove, David, Christopher Ody, and Amanda Starc**, “A Dose of Managed Care: Controlling Drug Spending in Medicaid,” *American Economic Journal: Applied Economics*, 2021, 13 (1): 170-97.

### (b) Competition and Adverse Selection

- **\*Dafny, Leemore, Jonathan Gruber, and Christopher Ody**, “More Insurers Lower Premiums: Evidence from Initial Pricing in the Health Insurance Marketplaces,” *American Journal of Health Economics*, 2015, 1 (1), 53–81.
- **David M. Cutler, Sarah J. Reber**, “Paying for Health Insurance: The Trade-Off between Competition and Adverse Selection,” *The Quarterly Journal of Economics*, 113 (2), 1998, 433–466.

### (c) Fixes for Adverse Selection

- **\*Finkelstein, Amy, Nathaniel Hendren, and Mark Shepard**, “Subsidizing Health Insurance for Low-Income Adults: Evidence from Massachusetts.” *American Economic Review*, 2019, 109 (4): 1530-67.
- **Tebaldi, Pietro**, “Estimating Equilibrium in Health Insurance Exchanges: Price Competition and Subsidy Design under the ACA,” Working Paper, 2017.

### (d) Government-provided insurance/pricing of care

- **\*Clemens, Jeffrey, and Joshua D. Gottlieb**. "In the shadow of a giant: Medicare's influence on private physician payments." *Journal of Political Economy*, 2017, 125

(1): 1-39.

- **\*Chan, David C., and Michael J. Dickstein.** "Industry input in policy making: Evidence from Medicare." *The Quarterly Journal of Economics*, 2019, 134 (3): 1299-1342.

### 3. Behavior of Medical Care Providers

#### (a) Agency I: Induced Demand

- **\*Johnson, Erin M. and M. Marit Rehani,** "Physicians treating physicians: Information and incentives in childbirth," *American Economic Journal: Economic Policy*, 2016, 8 (1), 115–141.
- **Schnell, Molly,** "Physician Behavior in the Presence of a Secondary Market: The Case of Prescription Opioids," *Working Paper*, 2019, pp. 1–83.

#### (b) Agency II: Other Margins

- **\*Eliason, Paul J., Paul L. E. Grieco, Ryan C. Mcdevitt, and James W. Roberts,** "Strategic Patient Discharge: The Case of Long-Term Care Hospitals," *American Economic Review*, 2018, 108 (11), 3232–3265.
- **Gandhi, Ashvin,** "Picking Your Patients: Selective Admissions in the Nursing Home Industry," *SSRN Electronic Journal*, 2020. "Picking Your Patients: Selective Admissions in the Nursing Home Industry," *Working Paper*, 2020.
- **Alexander, Diane.** "How do doctors respond to incentives? unintended consequences of paying doctors to reduce costs." *Journal of Political Economy*, 2020, 128(11): 4046-4096.
- **\*Geruso, Michael, and Timothy Layton.** "Upcoding: evidence from Medicare on squishy risk adjustment." *Journal of Political Economy* 128.3 (2020): 984-1026.

#### (c) Provider Productivity

- **\*Doyle, Joseph J., John A. Graves, Jonathan Gruber, and Samuel A. Kleiner,** "Measuring Returns to Hospital Care: Evidence from Ambulance Referral Patterns," *Journal of Political Economy*, feb 2015, 123 (1), 170–214.
- **Chandra, Amitabh and Douglas O. Staiger,** "Productivity spillovers in health care: Evidence from the treatment of heart attacks," *Journal of Political Economy*, 2007, 115 (1), 103–140.

(d) Provider learning

- **\*Kolstad, Jonathan T,** “Information and Quality When Motivation Is Intrinsic: Evidence from Surgeon Report Cards,” *American Economic Review*, 2013, 103 (7), 2875–2910.
- **\*Crawford, Gregory S and Matthew Shum,** “Uncertainty and Learning in Pharmaceutical Demand,” *Econometrica*, 2005, 73 (4), 1137–1173.
- **Gong, Qing,** “Physician Learning and Treatment Choices: Evidence from Brain Aneurysms,” *Working paper*, 2021.

#### 4. Special Topics by Provider Type

(a) Design of Physician Payment Schemes

- **\*Clemens, Jeffrey and Joshua D. Gottlieb,** “Do Physicians’ Financial Incentives Affect Medical Treatment and Patient Health?,” *American Economic Review*, 2014, 104 (4), 1320–1349.
- **Dafny, Leemore,** “How do Hospitals Respond to Price Changes?,” *American Economic Review*, 2005, 95 (5), 1525–1547.
- **Ho, Kate and Ariel Pakes** “Hospital Choices, Hospital Prices, and Financial Incentives to Physicians,” *American Economic Review*, 2014, 104 (12), 3841–3884.

(b) Homophily in the referral network and beyond

- **\*Zeltzer, Dan,** “Gender homophily in referral networks: Consequences for the Medicare physician earnings gap,” *American Economic Journal: Applied Economics*, 2020, 12(2), 169-97.
- **Marcella Alsan, Owen Garrick, and Grant Graziani.** “Does Diversity Matter for Health? Experimental Evidence from Oakland.” *American Economic Review* 2019, 109(12): 40714111.
- **Cabral, Marika, and Marcus Dillender,** “Gender Differences in Medical Evaluations: Evidence from Randomly Assigned Doctors,” *NBER Working Paper*, 2021, w29541.

(c) Non-physician providers

- **\*Chan Jr, David C., and Yiqun Chen,** “The Productivity of Professions: Evidence from the Emergency Department,” *NBER Working paper*, 2022, w30608.

- **Patel, Sadiq Y., Haiden A. Huskamp, Austin B. Frakt, David I. Auerbach, Hannah T. Neprash, Michael L. Barnett, Hannah O. James, and Ateev Mehrotra.** “Frequency Of Indirect Billing To Medicare For Nurse Practitioner And Physician Assistant Office Visits,” *Health Affairs*, 2022, 41(6): 805-813.

(d) Hospital readmissions reduction programs

- **\*Gupta, Atul,** “Impacts of Performance Pay for Hospitals: The Readmissions Reduction Program.” *American Economic Review*, 2021, 111 (4): 1241-83.
- **Darden, Michael, Ian McCarthy, and Eric Barrette.** “Who Pays in Pay-for-Performance? Evidence from Hospital Prices and Financial Penalties.” *American Journal of Health Economics*, forthcoming.

(e) Quality and cost of emergency care

- **\*Cooper, Zack, Fiona Scott Morton, and Nathan Shekita.** “Surprise! Out-of-network billing for emergency care in the United States.” *Journal of Political Economy*, 2020, 128(9): 3626-3677.
- **Silver, David.** “Haste or Waste? Peer pressure and productivity in the emergency department,” *The Review of Economic Studies*, 2021, 88 (3): 1385-1417.

## 5. The Pharmaceutical Market

(a) Introduction to pharmaceutical markets

- **\*Lakdawalla, Darius N.,** “Economics of the pharmaceutical industry,” *Journal of Economic Literature*, 2018, 56 (2), 397–449.
- **Kakani, Pragma, Michael Chernew, and Amitabh Chandra,** “Rebates in the Pharmaceutical Industry: Evidence from Medicines Sold in Retail Pharmacies in the U.S.,” *NBER Working Paper*, 2020, w26846.

(b) Competition in pharmaceutical markets

- **\*Maini, Luca, Josh Feng, Thomas Hwang, and Jacob Klimek,** “Biosimilar Entry and the Pricing of Biologic Drugs,” 2021.
- **Grabowski, Henry, Genia Long, Richard Mortimer, and Ani Boyo,** “Updated trends in US brand name and generic drug competition,” *Journal of Medical Economics*, 2016, 19 (9), 836–844.

(c) Price Regulation

- **\*Duggan, Mark and Fiona M. Scott Morton**, “The Distortionary Effects of Government Procurement: Evidence From Medicaid Prescription Drug Purchasing,” *Quarterly Journal of Economics*, 2006, 121 (1), 1–30.
- **Feng, Josh, Thomas Hwang, and Luca Maini**, “Profiting from Most-Favored Customer Procurement Rules: Evidence from Medicaid,” *American Economic Journal: Economic Policy*, forthcoming.
- **Ridley, David B. and Chung-Ying Lee**, “Does Medicare Reimbursement Drive Up Drug Launch Prices?,” *The Review of Economics and Statistics*, 2020.

(d) Innovation

- **Chandra, Amitabh, Jennifer Kao, Kathleen L. Miller, and Ariel D. Stern**. “Regulatory Incentives for Innovation: The FDA’s Breakthrough Therapy Designation,” *NBER Working Paper*, 2022, w30712.
- **Hamilton, Barton H., Andrés Hincapié, Robert A. Miller, and Nicholas W. Pageorge**, “Innovation and Diffusion of Medical Treatment,” *International Economic Review*, 2021, 62(3): 953-1009.

## Class Calendar

Week	Date	Topic	Assignment
<b>Part 1: Models and methods (4 lectures)</b>			
1	1/10	Introduction: topics and tools	
1	1/12	(Geographic) variation in health care	
2	1/17	Random utility choice models	
2	1/19	Cost functions & adverse selection	
<b>Part 2: Optimal design of insurance markets (6 lectures)</b>			
3	1/24	Moral hazard and insurance design	
3	1/26	Competition and adverse selection I	
4	1/31	Competition and adverse selection II	
4	2/2	Fixes for adverse selection	HW1 due
5	2/7	Government-provided insurance	
5	2/9	Pricing	
6	2/14	<i>Well-being Day</i>	
<b>Part 3: Behavior of medical care providers (6 lectures)</b>			
6	2/16	Agency I - induced demand	HW2 due
7	2/21	Agency II - other margins	
7	2/23	Agency II - other margins	HW2B due*
8	2/28	<i>No lecture - review and catch up on readings</i>	
8	3/2	Provider productivity	
9	3/7	Provider learning I	
9	3/9	Provider learning II	HW3 due
10	3/14	<i>Spring Break</i>	
10	3/16	<i>Spring Break</i>	
<b>Part 4: Special topics by provider type (5 lectures)</b>			
11	3/21	Design of physician payment schemes	
11	3/23	Homophily in the referral network and beyond	HW4 due
12	3/28	Non-physician providers	
12	3/30	Hospital readmissions reduction programs	
13	4/4	Quality and cost of emergency care	
13	4/6	<i>Well-being Day</i>	
<b>Part 5: Pharmaceutical markets and innovation (4 lectures)</b>			
14	4/11	Intro to pharmaceutical markets	
14	4/13	Competition in drug markets	
15	4/18	Price regulation	
15	4/20	Innovation	HW5 due
16	4/25	<b>Final presentations I (Zoom)</b>	
16	4/27	<b>Final presentations II (Zoom)</b>	
<b>Final</b>	<b>5/9, 8-11am</b>	<b>Final proposal due 11 am</b>	

\*Note: HW2B is not required for those receiving an "accept / conditionally accept" in HW2.