

**ECON 590/002**  
**THE ECONOMICS OF HEALTH CARE MARKETS AND POLICY**  
**UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL**  
**SPRING 2021**

**Mode of instruction: remote until Feb. 8, 2021, then in Mode 1 (in-person)**

**Zoom meeting ID:** 950 2497 9530 (passcode-protected)

Zoom link with passcode is posted on the frontpage of this course's Sakai site.

**Time & location:** TR 8.00-9.15am

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

**Instructors:**

**Qing Gong**

**Luca Maini**

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**Office:** Gardner 201

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**Office hours:** by appointment, Thu 4-6 pm

**Office hours:** by appointment, Fri 9-11 am

**Office hour sign up:** [here](#)

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**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) affects 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 literatures to develop theoretical frameworks to analyze them. Examples include:

- 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.
- Horizontal and vertical mergers among provider groups and their impact on the allocation of patients, hospital prices and insurance premiums.
- 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 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 other will be specific to health care.

**Approach and prerequisites:** Our approach is 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 over 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 structure and requirement:** This course will be co-taught by two instructors, each covering half of the course materials. With this structure, the students are introduced to each topic by the instructor whose own research is more closely related to that topic. Throughout the semester, they are also welcome (and encouraged) to meet with any of the two instructors about the course, original research ideas, and other research- or policy-related questions.

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% (4 assignments in total, 7.5% each)
  - a. **Due dates:** Homework assignments must be submitted *by noon* on the due dates, unless specified otherwise. Late submissions *before* solutions are posted or discussed in class will receive discounted grades depending on the length of the delay. Submissions *after* solutions are posted or discussed in class will *not* be accepted.
  - b. **Submission:** Please submit your homework in the required format. For electronic versions, email your work to the instructor; for hardcopies, submit in person. Do *NOT* put hardcopies in the instructors' mailbox, slip them in under the office door, or give them to the Econ department staff members.
  - c. **Collaboration:** You may discuss the reading materials and problems in the homework with each other. But each individual must write and submit their own work (i.e., you need to write your own answers and code your own programs, not copies of others' answers) and each individual will be graded separately on the assignment.
  - d. **Grading:** Points for each question/subquestion in the homework will be specified. In case of late submission, the homework will be graded first, and then discounted based on when the work was submitted and when the solutions are posted/discussed in class.
- **Participation:** 25%

We will keep track of and evaluate your participation according to the following criteria:

- a. **Assessment of required readings:** It is essential that you finish 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 (e.g., the main research question, the data used, the key findings).
- b. **In-class discussions and activities:** 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.

- c. **Questions and comments:** Students are welcome and encouraged to ask questions both during and after class. 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. 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.
- **Research paper: 30%**
    - a. **Format** Students may choose between various formats for the research paper.
      - \* *Critical reading:* an extended report on a paper among the ones we saw in class. The report will discuss the strengths and weaknesses of the paper and suggest concrete ways of improving the paper. These discussions need to 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** 15 pages maximum, 12 pt, single space, 1 inch margin on all sides.
    - 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.
  - **Final presentation: 15%**
    - a. Each student will deliver a brief (15 minutes or less) oral presentation on their research paper.
    - b. Students will deliver the presentation in front of the instructors and the rest of the class during the 3-hour window assigned by the Registrar's Office for the final exam.

- c. The final presentation is mandatory, with the exception of University-approved absences;<sup>1</sup> students with this type of absence may request a to deliver the presentation at a time convenient to both the student and the instructors. In this case, please notify the instructors as soon as possible, and provide supporting documentation within two business days.

**List of topics and readings** Below is a tentative list of topics to be covered in the course, the corresponding instructor, and a list of readings. The list of readings will be continually updated with additional materials, such as new working papers and exemplary job market papers. **Mandatory readings are marked with an asterisk.**

**1. Introduction (4 lectures, Gong and Maini)**

(a) Introduction to healthcare markets (Gong)

- **\*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.
- **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*, feb 2007, 122 (1), 1–37.

(b) Random utility choice models and applications (Gong)

- **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.

(c) Cost functions and adverse selection (Maini)

- **\*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.

(d) Bargaining in vertical markets (Maini)

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<sup>1</sup>See <http://catalog.unc.edu/policies-procedures/attendance-grading-examination/>

- **\*Nevo, Aviv**, “Mergers that increase bargaining leverage,” 2014.

## 2. Health Insurance Markets (6 lectures, Gong)

### (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.
- **Cutler, David M., Mark McClellan, and Joseph P. Newhouse**, “How Does Managed Care Do It?,” *The RAND Journal of Economics*, 2000, 31 (3), 526–548.
- **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.
- **Geruso, Michael and Timothy J. Layton, Grace McCormack, and Mark Shepard**, “The Two Margin Problem in Insurance Markets,” *Working Paper*, 2019.

### (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 (6 lectures, Gong)

#### (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.
- **Chandra, Amitabh, David Cutler, and Zirui Song,** "Who Ordered That? The Economics of Treatment Choices in Medical Care," *Handbook of Health Economics*, Vol. 2, Elsevier B.V., 2011.
- **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

- **\*Eliaison, 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.
- **Geruso, Michael, and Timothy Layton.** "Upcoding: evidence from Medicare on squishy risk adjustment." *Journal of Political Economy* 128.3 (2020): 984-1026.
- **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.

#### (c) Provider Learning and 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.
- **\*Kolstad, Jonathan T,** "Information and Quality When Motivation Is Intrinsic: Evidence from Surgeon Report Cards," *American Economic Review*, 2013, 103 (7), 2875–2910.

- **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.
- **Currie, Janet and W. Bentley Macleod**, “Diagnosing expertise: Human capital, decision making, and performance among physicians,” *Journal of Labor Economics*, 2017, 35 (1), 1–43.

(d) Design of Physician Payment Schemes (Maini)

- **\*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, and Monica Deadwiler**, “The Road to Successful Bundled Payment Risk,” *NEJM Catalyst* 2, no. 5 (2016).
- **Dafny, Leemore S.**, “How Do Hospitals Respond to Price Changes?,” *American Economic Review*, 2005, 95 (5), 1525–1547.

4. Vertical and Horizontal Relationships in Health Care Markets (6 lectures, Maini)

(a) Bargaining and Restricted Networks

- **\*Ho, Katherine**, “The welfare effects of restricted hospital choice in the US medical care market,” *Journal of Applied Econometrics*, Nov 2006, 21 (7), 1039–1079.
- **\*Dafny, Leemore S., Igal Hendel, Victoria Marone, and Christopher Ody**, “Narrow Networks on the Health Insurance Marketplaces: Prevalence, Pricing, and the Cost of Network Breadth,” *Health Affairs*, 2017, 36 (9), 1606–1614.

(b) Hospital Mergers

- **\*Dafny, Leemore, Kate Ho, and Robin S. Lee**, “The price effects of cross-market mergers: theory and evidence from the hospital industry,” *RAND Journal of Economics*, 2019, 50 (2), 286–325.
- **Craig, Stuart, Matthew Grennan, and Ashley Swanson**, “Mergers and Marginal Costs: New Evidence on Hospital Buyer Power,” 2020.
- **Dafny, Leemore**, “Estimation and Identification of Merger Effects: An Application to Hospital Mergers,” *Journal of Law and Economics*, 2009, 52 (August), 523–550.

(c) Insurer Competition and Mergers



- **\*Trish, Erin E. and Bradley J. Herring**, “How do health insurer market concentration and bargaining power with hospitals affect health insurance premiums?,” *Journal of Health Economics*, 2015, 42, 104–114.
- **\*Dafny, Leemore S.**, “Health Insurance Industry Consolidation: What Do We Know From the Past, Is It Relevant in Light of the ACA, and What Should We Ask?,” 2015
- **Dafny, Leemore, Mark Duggan, and Subramaniam Ramanarayanan**, “Paying a Premium on Your Premium? Consolidation in the US Health Insurance Industry,” *American Economic Review*, Apr 2012, 102 (2), 1161–1185.
- **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*, jan 2015, 1 (1), 53–81

(d) Hospital-Physician Integration

- **\*Dranove, David and Christopher Ody**, “Employed for Higher Pay? How Medicare Payment Rules Affect Hospital Employment of Physicians,” *American Economic Journal: Economic Policy*, 2019, 11 (4), 249–271.
- **Capps, Cory, David Dranove, and Christopher Ody**, “The effect of hospital acquisitions of physician practices on prices and spending,” *Journal of Health Economics*, 2018, 59, 139–152.
- **Baker, Laurence C., M. Kate Bundorf, and Daniel P. Kessler**, “The effect of hospital/physician integration on hospital choice,” *Journal of Health Economics*, 2016, 50, 1–8.

(e) Other vertical relations in health care markets

- **\*Eliason, Paul J., Benjamin Heebsh, Ryan C. McDevitt, and James W. Roberts**, “How Acquisitions Affect Firm Behavior and Performance: Evidence from the Dialysis Industry,” *Quarterly Journal of Economics*, 2020, 135 (1), 221–267.
- **Grennan, Matthew, and Ashley Swanson**, “Transparency and negotiated prices: The value of information in hospital-supplier bargaining,” *Journal of Political Economy*, 2020, 128 (4), 1234–1268.

## 5. The Pharmaceutical Market (5 lectures, Maini)

(a) Introduction to pharmaceutical markets

- **\*Berndt, Ernst R.**, “Pharmaceuticals in U.S. health care: Determinants of quantity and price,” *Journal of Economic Perspectives*, 2002, 16 (4), 45–66.
- **Aitken, Murray, Ernst R. Berndt, David M. Cutler, Michael Kleinrock, and Luca Maini**, “Has The Era Of Slow Growth For Prescription Drug Spending Ended?,” *Health Affairs*, sep 2016, 35 (9), 1595–1603.

(b) Competition

- **\*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.
- **\*Howard, David H., Peter B. Bach, Ernst R. Berndt, and Rena M. Conti**, “Pricing in the Market for Anticancer Drugs,” *Journal of Economic Perspectives*, feb 2015, 53 (1), 139–162.

(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.
- **\*Duggan, Mark and Fiona M. Scott Morton**, “The effect of medicare part D on pharmaceutical prices and utilization,” *American Economic Review*, 2010, 100 (1), 590–607.
- **Kyle, Margaret K. and David B. Ridley**, “Would greater transparency and uniformity of health care prices benefit poor patients?,” *Health Affairs*, 2007, 26 (5), 1384–1391.
- **Yurukoglu, Ali, Eli Liebman, and David B. Ridley**, “The Role of Government Reimbursement in Drug Shortages,” *American Economic Journal: Economic Policy*, may 2017, 9 (2), 348–382.

(d) Innovation

- **\*Cunningham, Colleen, Florian Ederer, and Song Ma**, “Killer Acquisitions,” 2019.
- **\*Hamilton, Barton H., Andrés Hincapié, Robert A. Miller, and Nicholas W. Pappageorge**, “Innovation and Diffusion of Medical Treatment,” *NBER Working Paper*, 2018.

- **Dubois, Pierre, Olivier de Mouzon, Fiona Scott-Morton, and Paul Seabright**, “Market size and pharmaceutical innovation,” *The RAND Journal of Economics*, 2015, 46 (4), 844–871
- **Dranove, David, Craig Garthwaite, and Manuel I. Hermosilla**, “Expected Profits and the Scientific Novelty of Innovation,” 2020.

(e) Advertising

- **Shapiro, Bradley T.**, “Promoting Wellness or Waste? Evidence from Antidepressant Advertising,” 2018.
- **Sinkinson, Michael and Amanda Starc**, “Ask Your Doctor? Direct-to-Consumer Advertising of Pharmaceuticals,” *Review of Economic Studies*, 2018, 86 (January), 1–46.

**Compliance with the COVID-19 Community Standards for In-Person Instruction** We are still in the midst of a global pandemic. All enrolled students are required to wear a mask covering your mouth and nose at all times in our classroom. This requirement is to protect our educational community – your classmates and me – as we learn together. For details on the Community Standards, see Carolina Together ([carolinatogether.unc.edu](http://carolinatogether.unc.edu)). If you fail to comply with the Community Standards, we will ask you to leave immediately and will submit a report to the Office of Student Conduct.

For students, compliance with the COVID-19 Community Standards is a condition of continued enrollment. Failure to comply places other members of the community at risk and may result in administrative or disciplinary action, including, but not limited to, restriction on access to or use of University facilities, removal from University housing, disenrollment from one or more in-person courses, transition to remote-only instruction, dismissal from the University and/or other interventions necessary to effect compliance and protect the well-being of the campus community.

**Accessibility Resources and Service (ARS)** The University of North Carolina at Chapel Hill facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability or pregnancy complications resulting in barriers to fully accessing University courses, programs and activities. Accommodations are determined through the Office of Accessibility Resources and Service (ARS) for individuals with documented qualifying disabilities in accordance with applicable state and

federal laws. See the ARS Website for contact information: <https://ars.unc.edu> or email [ars@unc.edu](mailto:ars@unc.edu).

**Counseling and Psychological Services (CAPS)** CAPS is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services, whether for short or long-term needs. Go to their website: <https://caps.unc.edu/> or visit their facilities on the third floor of the Campus Health Services building for a walk-in evaluation to learn more.

**Title IX Resources** Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Please contact the Director of Title IX Compliance (Adrienne Allison – [Adrienne.allison@unc.edu](mailto:Adrienne.allison@unc.edu)), Report and Response Coordinators in the Equal Opportunity and Compliance Office ([reportandresponse@unc.edu](mailto:reportandresponse@unc.edu)), Counseling and Psychological Services (confidential), or the Gender Violence Services Coordinators ([gvsc@unc.edu](mailto:gvsc@unc.edu); confidential) to discuss your specific needs. Additional resources are available at [safe.unc.edu](http://safe.unc.edu).

**Honor Code** Students are bound by the Honor Code in taking exams and in written work. The Honor Code of the University is in effect at all times, and the submission of all course work signifies understanding and acceptance of those requirements. Plagiarism will not be tolerated. Please consult [honor.unc.edu](http://honor.unc.edu) or talk with the instructors if you have any questions about the Honor Code.