This course sequence provides a graduate-level introduction to Industrial Organization (IO). It is designed to provide a broad introduction to topics and industries that current researchers are studying as well as to expose students to a wide variety of techniques. It will start the process of preparing Ph.D. students to conduct thesis research in the area.

Lectures: Monday/Wednesday 2:20-4:00, via Zoom

Course Web Page: see Canvas

Grading will be based on several problem sets and a final exam. The final is scheduled for Tuesday, December 8 at 9am.

We will not discuss all of the papers on the reading list, but I expect you to read all of the papers that we discuss in detail in class.

Provisions for remote learning:

The plans for how the course will be run are described below. However, I may modify various aspects, depending on feedback I receive from you and my own evaluation. I always welcome feedback on how to improve the course, but your feedback is especially welcome this year.

All lectures and office hours will be conducted through Zoom. The Zoom passcode for these meetings is: econ450. Links to these events will be posted on Canvas. Lectures will be broadcast “live” over Zoom at the times scheduled by the registrar. These will be recorded and links to the recordings will also be posted on Canvas. I will remain in the Zoom session for 10 minutes after every lecture to answer additional questions. Office hours are by appointment. They will be held on Zoom and not recorded.

I will lecture by sharing the screen of an iPad that has slides that I can write on. You will be able to see my face in one of the smaller screens off to the side, along with the faces of your classmates attending the lecture. I will post copies of the slides used during lectures before the topics are covered in class. You may find it useful to print out hard copies of the lecture slides before attending lectures in order to review the material in advance and/or to take notes during the lecture. The slides contain material that will be covered in class, as well as supplemental material, some of which will be covered in class. As far as exams are concerned, you are only responsible for the material covered in class.
I encourage you to attend the live class, if possible. Students gain a lot from listening to others’ questions and from asking clarification questions. Students attending live lectures will have their audio muted. Audio will be turned on when you ask a question or make a comment. (This helps reduce background noise.) I encourage you to keep your video on while attending live lectures, if you feel comfortable doing so. It will help me to stay engaged if I am able to see you. I hope that we will have a lot of class interaction and discussion. There will be many different ways to ask a question in class. One way to ask a question will be to use the chat function. I plan to stop frequently to ask if there are questions, and will answer the chat questions in these stopping points. You may also use the “raise your hand” feature during lectures.

The final will be administered synchronously. I will upload the exam at the scheduled starting time, and you will be responsible for uploading your answers in the allotted time. You will have 130 minutes to complete the final, which will be designed to take two hours. The additional 10 minutes are allocated so you can upload the exam. Further delays will be penalized. If you have any logistical issues while taking a test, please email me immediately and I’ll help you sort them out without incurring this penalty. Students with ANU accommodations will receive the appropriate extensions (with the same 10 minutes to upload their exams).

You will be required to upload answers to homework and exams as pdf files. This will allow students to submit handwritten answers. If you have access to a scanner, you can use it to create a pdf of your answers once you have completed the homework or exam. If not, a number of apps exist for smart phones that will allow you to take a picture of each page of your answer and then convert the pictures into a single pdf. (On the exam, where there is some time pressure, I recommend that everyone plan to submit pdfs of hand written answers.) You will have had the chance to upload several problem sets before you take the final, so everyone should have experience with the uploading process before taking the exam.

Recordings of Synchronous Remote Class Sessions:

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 Fall Quarter.

Unauthorized student recording of classroom or other academic activities (including advising sessions and 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 or 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.

The following abbreviations are used for journal titles:

<table>
<thead>
<tr>
<th>Abbr</th>
<th>Journal Title</th>
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<tbody>
<tr>
<td>AER</td>
<td>American Economic Review</td>
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<tr>
<td>AEJ: Micro</td>
<td>American Economic Journal: Microeconomics</td>
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<tr>
<td>BJE</td>
<td>Bell Journal of Economics</td>
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<tr>
<td>EMA</td>
<td>Econometrica</td>
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<tr>
<td>IER</td>
<td>International Economic Review</td>
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<tr>
<td>IJIO</td>
<td>International Journal of Industrial Organization</td>
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<tr>
<td>JE</td>
<td>Journal of Econometrics</td>
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<tr>
<td>JEH</td>
<td>Journal of Economic History</td>
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<tr>
<td>JEL</td>
<td>Journal of Economic Literature</td>
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<tr>
<td>JEMS</td>
<td>Journal of Economics &amp; Management Strategy</td>
</tr>
<tr>
<td>JEP</td>
<td>Journal of Economic Perspectives</td>
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<tr>
<td>JET</td>
<td>Journal of Economic Theory</td>
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<tr>
<td>JIE</td>
<td>Journal of Industrial Economics</td>
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<tr>
<td>JLE</td>
<td>Journal of Law and Economics</td>
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<tr>
<td>JPE</td>
<td>Journal of Political Economy</td>
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<tr>
<td>QJE</td>
<td>Quarterly Journal of Economics</td>
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<tr>
<td>QME</td>
<td>Quantitative Marketing and Economics</td>
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<tr>
<td>ReStat</td>
<td>Review of Economics and Statistics</td>
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<tr>
<td>ReStud</td>
<td>Review of Economic Studies</td>
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<tr>
<td>RIO</td>
<td>Review of Industrial Organization</td>
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<tr>
<td>RJE</td>
<td>RAND Journal of Economics</td>
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</tbody>
</table>
I. General References


II. Static Models of Oligopoly Price/Quantity Competition

Tirole, chap. 5, Section 2.1 (pp. 96–100); Sections 7.1, 7.2, 7.5 (pp. 279–88, 296–300).


1. The Cournot Model


2. **Price Competition with Product Differentiation**


3. **Introduction to the Antitrust Laws and Horizontal Merger Policy**


III. **Entry**


**IV. Dynamic Models**

Tirole, Chapter 6.


1. **Collusion with Observable Demand Variation**


2. **Multimarket Contact**


3. **Collusion with Capacity Constraints**


4. **Collusion with Unobservable Demand Variation (Imperfect Monitoring)**


5. Collusion with Private Types


6. Staggered Price Setting


7. Collusion and Antitrust Enforcement


M. Whinston, Lectures on Antitrust Economics, MIT, 2006, Chapters 1 and 2.

8. Switching Costs


V. Empirical Studies of Pricing
1. Tests of Market Power


2. Repeated Interaction


3. Collusion


VI. Production, Technology and Industry Structure


VII. Demand Estimation in Differentiated Products Industries

1. Pricing and Demand Models


2. Welfare and Hedonic Prices

**Hedonic Price Regressions and Price Indices**


**Welfare Measures Computed from Estimated Demand Systems**


J. Hausman, “Valuation of New Goods Under Perfect and Imperfect Competition,” in Bresnahan and Gordon (eds.) The Economics of New Goods, Chicago: NBER, 1996, including comment by Bresnahan (in the same volume) and reply to comment (and reply to reply).


VIII. Additional Topics in Demand Estimation


IX. Pass-Through


X. Identification

S. Berry and P. Haile, “Identification in Differentiated Products Markets Using Market Level


