Industrial Organization
ECNS 406
Fall 2015 Syllabus

Time & Location: TR 10:50-12:05 in Linfield 113

Course Page: http://www.montana.edu/jpearcy/ecns406/

Instructor: Jason Pearcy
Linfield Hall
Room 304 (Between the 3rd and 4th floors on the main stairway)
E-mail: pearcy.teaching@gmail.com

Office Hours: Tuesday 1:00-2:15
Tuesday 3:15-4:30
and by appointment


Course Description:

Industrial organization is the study of firm behavior. This includes how firms interact with consumers, how firms behave strategically with each other, and aggregating firm behavior to study the resulting industry outcomes. Since we all interact with firms as consumers, this course is important and relevant for everyone as you’ll learn the different ways firms use the information you reveal about yourself as a consumer and how firms’ strategies influence your decisions. For those of you who will own or manage a firm, you’ll learn how to determine the best strategy to maximize profits or soften the competition while hopefully staying on the right side of the law. This course is also relevant for students interested in public policy issues as we explore the welfare implications of different firm strategies and industry outcomes. You’ll learn why it might be beneficial to restrict some types of firm behavior, but why other types of firm behavior that appear potentially detrimental are benign. It’s my hope that after this course, you’ll have the knowledge to comment more intelligently on a wide range of public policy issues, including antitrust and various forms of government regulation. Additionally, I hope that this course gives students a better understanding of how to create economic models based on observed behavior and how these models might be evaluated experimentally and/or with empirical evidence.

The course is divided into four parts. In the first part of the course, some fundamental models are developed which examine non-cooperative firm behavior and industry outcomes under a variety of assumptions and market structures. Students should be familiar with models of perfect competition and monopoly, so the main focus is on various oligopoly models including models with consumer search, switching costs, network externalities and product differentiation. Of particular interest are the resulting primitives of the models
including, prices, quantities and welfare measures and how these primitives are influenced by model assumptions. Whenever possible we discuss empirical and experimental evidence supporting or refuting the results of the models presented.

In the second part of the course, we examine firm conduct and more advanced strategies used by firms. Particular attention is paid to various theories of price discrimination as well as firm cooperation/collusion and dominant/incumbent firm models.

The first two parts of the course generally operate under specific assumptions regarding the market structure and industry organization. The focus of the third part of the course is understanding the theory of the firm and how particular market structures result as well as why industries are organized in different ways. Firm entry and exit is considered as well as various forms of contracts across firms and the effects of mergers.

The fourth part of the course focuses on various applications of industrial organization including advertisement, investment, innovation and research and development. Time permitting we discuss various forms of competition policy including antitrust and government regulation. Typically competition policy exists as a separate course so there is no expectation that we’ll be able to cover this material.

My goal is to make this course both challenging and intellectually stimulating. To help me achieve this goal and for you to get the most out of this course, there are certain things I expect for you to do throughout the semester. First off, you should read the book. It supplements the material presented in class well and the book generally follows the course outline. Besides reading the book, you should work on problems. I’ll sometimes give you problems in class, you’ll have problems to do for homework, there are problems in the book, there are problems in the study guide (if you purchased it), and there are problems online. The more problems you do, the more you will understand the material, the better you will do in the class, and the more you will get out of the class. I want everyone to do well in the class, but how well you do is up to you. You’ll have to work hard, read the book, do lots of problems, but if you are having issues with the material, I am here to help. So, be sure to ask questions during class and come see me during office hours if you have additional questions about the material.

**Course Objectives:**

Students who successfully complete ECNS 406 will have:

- an understanding of industrial organization at a level that builds on a solid foundation in microeconomic theory. This will be assessed via homework and exam questions.

- the ability to apply a set of models ranging from perfect competition through monopoly, and including duopoly, oligopoly, and monopolistic competition. This will be assessed via homework and exam questions.

- an understanding of the potential benefits and costs (to society) resulting from different firm practices, including efforts to collude and/or deter entry. This will be assessed via homework and exam questions as well as a comprehensive assignment.
• a working knowledge of the arguments commonly used in antitrust cases and in debates over the proper scope of regulation. This will be assessed via homework and exam questions as well as a comprehensive assignment.

• familiarity with some important real world events, such as court cases involving alleged anti-competitive practices. This will be assessed via homework and exam questions as well as a comprehensive assignment.

Instructor Access/Contact:

I care a great deal about whether or not you understand the material. If you have questions regarding the course content, I want to make sure your questions get addressed in an efficient and timely manner. For questions about the material or course that you prefer to not ask in class, my contact information is listed above. Ceteris paribus, the preferred method of contact is for you to see me during office hours. You can also email me or leave a voice-mail. Keep in mind that voice-mail is the least preferred method of contact and is rarely ever checked.

I am almost always in my office at the beginning of office hours and am able to help with questions at any time during schedule office hours. In my experience, most students come to office hours at the beginning of the scheduled period. I’ll make my best effort to be in my office during the entire scheduled office hour period, but may leave if no one shows up after a significant amount of time. If you intend to come to office hours midway through or at the end of the scheduled period, please let me know during class or send me an email. If your schedule conflicts with the office hours listed above, let me know the first week of class so that I might reschedule office hours for the benefit of the class. If you have many questions or your time is limited you might want to make an appointment which can be done after class or via email.

In many cases it may be more appropriate or more convenient to email me. Please keep in mind that I respond to student emails during scheduled office hours, if not before. I do this to give students the proper incentive to utilize office hours. The expected length of time for which I respond to an email may differ from your general expectations.

Prerequisites:

This is a 400 level economics course. Students are expected to know the material covered in intermediate microeconomics, ECNS 301. Knowledge of calculus is required for this course and students are expected to be familiar with differentiation, integration and partial differentiation of a multivariate function.

Class:

In class new material will be presented, we’ll discuss readings, review assignments, review exams and you’ll have the chance to ask questions. Occasionally you might be given an assignment in class to be covered during class or in the next class. All students are strongly
encouraged to attend class regularly. Attendance and participation are part of your homework grade and some exam questions will not be covered in the text but only covered during class. In the off chance that you miss a class, you should try to get notes from a fellow student, if they are willing to share.

Grading:
Your course grade will be based on three exams, your homework grade and the one comprehensive assignment. Exam dates are listed below. The breakdown of grades is as follows:

- 20% for Exam 1,
- 20% for Exam 2,
- 20% for Exam 3,
- 20% for homework,
- 20% for the comprehensive assignment.

Your grades on each exam and homework assignment will be posted on Desire2Learn.

There will be no extra credit opportunities available, but I will use a curve. If the median on any of the exams is below a 75%, I will add the same amount of raw points to everyone's score until the median is 75%. If the median is above 75%, then either everyone really understands the material or I have written too easy of an exam. In either case, students should not be punished for this, so I will not curve scores downwards. There will be a separate curve for each of the exams.

Your homework score will be determined by your performance on any assignments, your attendance and participation. The averaging method used for your homework score will be determined at the end of the semester and may vary from a simple average to a continuous non-linear weighted average. The same curving scheme described above will be applied to your overall homework score and not to individual assignments. Your comprehensive assignment may be curved as well.

Exams:
The first two exams will take place during regular class time in the regular class room on the dates listed below. The third exam will take place during finals week on the date, time, and place listed below. You’ll need to bring a blue book and you’ll probably want to bring a calculator (no cell phone calculators allowed). The number of questions on each exam may vary. The format of the questions will be short answer and will contain both numerical and written questions. Exam questions will be based on material covered in the book and/or in class. A minority of the questions will test your memory and understanding of the definitions and concepts covered, and a majority of the questions will test your ability to synthesize the material and apply the concepts in a new context. I’ll talk more about each exam as the exam date approaches.
Make-ups for any exam are never allowed under any circumstances. In very rare cases under compelling circumstances, you may be able to take an exam early, but you are required to make prior arrangements before the exam at least one week in advance. In the event that a make-up exam is warranted, I may choose to prorate your exam grade.

**Homework Assignments:**

Homework assignments will either be assigned in class or posted on the course website or posted on Desire2Learn. I will announce in class when and where homework assignments are posted and the date they are due. No late homework will be accepted. You will not be able to submit your homework during or after class on the day it is due, but you may submit your homework assignments anytime before the due date. It is your responsibility to attend class and check the course website to obtain the homework assignments and make sure they are submitted on time. Any work submitted as a hard-copy which contains multiple pages must be stapled together to be graded.

**Comprehensive Assignment:**

You will have one comprehensive assignment due on or before the date indicated below. The comprehensive assignment will be discussed in more detail as the semester progresses. I expect the comprehensive assignment will involve writing anywhere between six to ten pages.

**Important Dates:**

- **University Calendar**
- **University Drop/Add Dates**
- **Classes Start** Mon. Aug. 24
- **Labor Day** Mon. Sept. 7
- **Exam 1** Thurs. Oct. 1
- **Election Day** Tues. Nov. 3
- **Exam 2** Thurs. Nov. 5
- **Veteran’s Day** Wed. Nov. 11
- **Thanksgiving Break** Wed. Nov. 25 - Fri. Nov. 27
- **Comprehensive Assignment Due** Thurs. Nov. 12
- **Last Day to Drop** Thurs. Nov. 19
- **Last Day of Class** Fri. Dec. 4
- **Final Exam** Wed. Dec. 9 12:00 p.m.-1:50 p.m. in Linfield 113

**Additional Notes:**

If you qualify for accommodations because of a disability, please submit to me a letter or card from Disabled Student Services (DSS) early in the semester so that your needs may be addressed. DSS determines accommodations based on documented disabilities. Contact: 406-994-2824, [http://www.montana.edu/wwwres/disability/](http://www.montana.edu/wwwres/disability/). Disability Student Services’ letters or cards for students with disabilities indicate legally mandated reasonable...
accommodations. Other letters/requests you may receive from agencies such as Student Health Services, or other health providers, such as physicians or counselors, are recommendations I may choose to follow to assist students but are not necessarily legal mandates.

I will make every effort to reasonably and fairly deal with all students who, because of religious or cultural obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, accommodations will be made, but only with adequate advanced notification.

Students and faculty each have responsibility for maintaining an appropriate learning environment. Students who fail to adhere to behavioral standards may be subject to discipline. Faculty have the professional responsibility to treat students with understanding, dignity and respect, to guide classroom discussion and to set reasonable limits on the manner in which students express opinions. See policies at http://www2.montana.edu/policy/student_conduct/student_conduct_code.htm.

All students are responsible for knowing and adhering to the academic integrity policy of this institution. All incidents of academic misconduct shall be reported to the Dean of Students. Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Other information on academic misconduct can be found at http://www2.montana.edu/policy/student_conduct/student_conduct_code.htm.

Montana State University’s Harassment Policy applies to all students, staff and faculty. Sexual harassment is unwelcome sexual attention. It can involve intimidation, threats, coercion, promises or create an environment that is hostile or offensive. Harassment may occur between members of the same or opposite gender and between any combination of members in the campus community: students, faculty, staff, and administrators. Harassment can occur anywhere on campus, including the classroom, the workplace, or a residence hall. Information about Montana State University’s Harassment Policy and information about how to file a complaint can be found at http://www2.montana.edu/policy/affirmative_action/.

Be aware of the Drop/Add deadlines listed in the Registration Handbook (http://www.montana.edu/registrar/pdfs/RegistrationHandbook.pdf) on the Registrar’s website. If the class if full email Jane Boyd at aboyd@montana.edu to be added to the wait-list.

If you have three or more final exams scheduled on the same day, you are entitled to arrange an alternative exam time for the last exam or exams scheduled on that day. To qualify for rescheduling final exam times, you must provide evidence that you have three or more exams on the same day, and arrangements must be made with me no later than the end of the sixth week of the semester. For the complete final examination policy, see the final exam schedule (http://www.montana.edu/registrar/Schedules.html).
**Tentative Course Outline:**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Book Chapter</th>
</tr>
</thead>
</table>
| Week 1 | **Introduction:** Historical perspective on regulation and industrial organization, Structure-Conduct-Performance Paradigm  
**Game Theory:** Elements of a game, types of games, solution techniques and equilibrium concepts for strategic form games | Chapter 1 |
| Week 2 | **Game Theory:** Solution techniques and equilibrium concepts for extensive form games, repeated games and the folk theorem, mixed strategies  
**Model Basics:** Demand, revenue, costs, surplus, Lerner Index, HHI | Not In Book |
| Week 3 | **Monopoly:** Firm’s problem, market performance  
**Cournot Oligopoly:** Firm’s problem, best response functions, strategy space, market performance | Chapter 2, 3 |
| Week 4 | **Cournot Oligopoly:** Asymmetric costs, N firms  
**Bertrand Duopoly:** Firm’s problem, best response functions, strategy space, market performance, comparison to Cournot Duopoly | Chapter 3 |
| Week 5 | **Model Extensions:** Consumer search, switching costs, network externalities, platform/2-sided markets  
**Perfect Competition:** Long run profits, monopoly facing entry, experimental evidence | Chapter 2, 5 |
| Week 6 | **Product Differentiation:** Overview, representative consumer versus address models, horizontal versus vertical models  
Exam 1 - Thurs. Oct. 1 | Chapters 1-3, 5 |
| Week 7 | **Hotelling Model:** Setup, solution technique, best response functions, market performance, locational choices, principle of minimum differentiation | Chapter 4 |
| Week 8 | **Salop Model:** Setup, solution technique, best response functions, monopoly case, N firms, comparison to Hotelling | Chapter 4 |

*Continued on next page*
## Tentative Course Outline – *Continued from previous page*

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Book Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Model Extensions:</strong> Mass customization, consumer distributions, vertical product differentiation</td>
<td></td>
</tr>
<tr>
<td>Week 9</td>
<td><strong>Tacit Collusion:</strong> Overview, expected discounted sums, trigger strategies, maintaining collusion, establishing collusion, application to Prisoner’s Dilemma</td>
<td>Chapter 6</td>
</tr>
<tr>
<td></td>
<td><strong>Cooperative Collusion:</strong> Examples, cartel formation, cartel stability, pricing practices that facilitate collusion</td>
<td></td>
</tr>
<tr>
<td>Week 10</td>
<td><strong>Strategic Behavior:</strong> Durable goods monopolist, dominant firm/competitive fringe, Stackelberg model</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>Week 11</td>
<td><strong>Election Day Holiday:</strong> Tues. Nov. 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Exam 2 - Thurs. Nov. 5</strong></td>
<td>Chapters 7-11</td>
</tr>
<tr>
<td>Week 12</td>
<td><strong>Veteran’s Day:</strong> Wed. Nov. 11</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Comprehensive Assignment Due - Thurs. Nov. 12</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Limit Pricing:</strong> Overview, incumbent and entrant’s strategy, credible commitments, cost asymmetry, dynamic limit pricing</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>Week 13</td>
<td><strong>Last Day to Drop - Thurs. Nov. 19</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Predatory Pricing:</strong> Identical firms, cost asymmetry, imperfect information, examples</td>
<td>Chapter 7</td>
</tr>
<tr>
<td></td>
<td><strong>Raising Rival’s Costs:</strong> Direct methods, indirect methods, examples</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Strategic Bundling:</strong> Pure bundles, mixed bundles, examples</td>
<td></td>
</tr>
<tr>
<td>Week 14</td>
<td><strong>Price Discrimination:</strong> Necessary conditions, preventing resale, examples, types of price discrimination, perfect price discrimination</td>
<td>Chapter 8</td>
</tr>
<tr>
<td></td>
<td><strong>Thanksgiving Break:</strong> Wed. Nov. 25 - Fri. Nov. 27</td>
<td></td>
</tr>
<tr>
<td>Week 15</td>
<td><strong>Price Discrimination:</strong> Third degree, market performance, Non-linear pricing, Two part tariffs, examples, bundling</td>
<td>Chapter 8</td>
</tr>
<tr>
<td></td>
<td><strong>Market Structure:</strong> Determinants of market structure, models with free entry</td>
<td>Chapter 9</td>
</tr>
<tr>
<td>Time</td>
<td>Theory of the firm, firm structure, mergers, contracts,</td>
<td>Chapters 10-26</td>
</tr>
</tbody>
</table>

*Continued on next page*
Tentative Course Outline – *Continued from previous page*

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Book Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Permitting advertising, innovation, research and development, antitrust, regulation</td>
<td></td>
</tr>
<tr>
<td>Week 16</td>
<td><strong>Exam 3</strong> - Wed. Dec. 9 12:00 p.m.-1:50 p.m. in Linfield Chapters 1-26</td>
<td>113</td>
</tr>
</tbody>
</table>

Last Updated Monday 24th August, 2015