

ECON 641:
MICROECONOMIC ANALYSIS

University of Maryland, College Park
Master of Science in Applied Economics Program
Online DC campus section, Fall 2021
Thursdays, 6:45pm–9:30pm

Instructor: Paul R. Zimmerman, Ph.D.
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Office Hours: Tuesdays, 5:30pm–6:30pm (via Zoom) or other times by appointment
Website: An ELMS/Canvas page is available for this course

TA: Erkia Domotor
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Office Hours: Wednesdays, 5:30pm–6:30pm

Course Description

This course covers microeconomic analysis applied to public policy problems with an emphasis on practical examples and how they illustrate microeconomic theories. Reference to specific policy issues such as pollution, welfare and income distribution, market design, industry regulation, price controls, tax policy, and health insurance may be used to illustrate the more abstract principles of microeconomics. Students will master microeconomic theory at a level of mathematical rigor befitting a professional master's program in applied economics. The level of mathematical rigor will be higher than in a typical undergraduate intermediate microeconomics course, but substantively lower than in the first year of an economics Ph.D. program. We will make extensive use of differential calculus. Students will apply microeconomic theory to a broad range of questions relevant to public policy.

UMD Mask Mandate

UMD policy requires face coverings over the nose and mouth, while you are indoors in UMD facilities. There are no exceptions. **Please note that students will be required to take the midterm and final exams for this course in person at UMD's DC campus, and as such, all students must comply with this mandate during those times.** Students not wearing a mask will be asked to wear one. If necessary, we can provide a mask to students who have lost or forgotten theirs. Students who refuse to wear a mask will be asked to leave the

classroom. Students who have additional issues with the mask requirement after an initial warning will be referred to the UMD Office of Student Conduct.

Covid-19 Information

Up-to date information about UMD Covid-19 policies and guidance are posted at <https://umd.edu/4Maryland>. Given the evolving nature of the pandemic, the guidance and policies are subject to change. The plans are always coordinated with state and county health officials, with additional guidance provided by the University System of Maryland. The focus will always be on the health and well-being of our entire campus community.

We strongly urge all students, staff and faculty to read announcements they receive about Covid-related guidance and policy, and to stay familiar with the information posted at <https://umd.edu/4Maryland>. We thank you all for your individual efforts to help protect the collective health of our entire community.

Meetings

This course is being offered “mostly online” (exams being the only in-person component of the course) with lectures consisting of both synchronous (“live”) and asynchronous (“recorded”) components. Students are equally responsible for both components. Live lectures will be held on Thursday evenings over Zoom, but they will not span the entirety of the “official” course meeting time scheduled by the University. Rather, we will generally meet in two 45-minute blocks, the first running from approximately 6:45pm–7:30pm and the second from approximately 8:30pm–9:15pm. Weekly pre-recorded lectures of roughly 10–20 minutes will supplement the live lectures. These recordings may consist of material drawn from the lecture notes, problem-solving examples related to the material covered in live lectures, and/or extensions of the material covered in live lectures. However, please note that **not all** the material that will be included in course lecture slides will necessarily be covered in the live/recorded lectures (i.e., students will be expected to read and learn some of the material on their own).

Office Hours

The instructor will hold virtual office hours through Zoom on Tuesdays from 5:30pm–6:30pm. Office hours are open to all students (meaning that students can always “listen in” even if they have no specific need to attend office hours), but attending office hours is not a mandatory component of the course. Office hours are held primarily for the purpose of answering clarifying questions on the material or on course policies. Office hours will not be used to reteach material that has otherwise been missed by not attending live lectures or

viewing recorded lectures. The TA will also hold office hours each Wednesday from 5:30pm–6:30pm.

Website

Copies of the course syllabus, your grades, and other relevant links and documents will be posted on the course's ELMS/Canvas website. You can access the site via www.elms.umd.edu. You will need to use your University of Maryland "directory ID" and password. I will make use of the ELMS/Canvas page for class notes, announcements, chapter assignments, and for assigning and collecting problem sets.

Email

The University has adopted email as the primary means of communication outside the classroom, and I will use it to inform you of important announcements. Students are responsible for updating their current email address via <http://www.registrar.umd.edu/current/>. (Under the first major heading of "Online Transactions" there is a link to "Update Contact Information".) I will do my best to respond to email within 24 hours. Please use your official UMD email account when emailing the instructor (the instructor will only send emails and/or reply to official UMD accounts).

Textbook

Walter Nicholson and Christopher M. Snyder, *Microeconomic Theory: Basic Principles and Extensions* (12th ed.), South-Western College Publishers. Older editions of the textbook are also acceptable for use, though they may have a somewhat different number and numbering of chapters.

Prerequisites

Students are assumed to have previously taken at least an introductory microeconomics course at the undergraduate level and to be comfortable with basic calculus methods. The second chapter of the textbook reviews various mathematical tools routinely employed by economists. This course, however, will not use most of those tools. Rather, students need only read/review those sections pertaining to ordinary derivatives (Sections 2.1.1–2.1.6); partial derivatives (Sections 2.2.1–2.2.4); and constrained maximization (Sections 2.5–2.5.5 only). Students are encouraged to look over this material as early as possible, but we will also cover the latter two topics in lectures. The instructor will also post a study guide to ELMS/Canvas that reviews the mathematical tools that will be emphasized in the course. Students who have no background in economics or have not taken microeconomics for some time may also benefit from referencing a less technical intermediate-level microeconomics text (contact the instructor for recommendations).

Attendance and Excused Absences

Attendance in the live sessions is highly encouraged, but it will be neither recorded nor directly counted in determining final course grades. The University of Maryland's policy on excused absences is posted here:

<http://www.president.umd.edu/administration/policies/section-v-student-affairs/v-100g>.

Please note: If you miss any live class meetings for any reason, you are still responsible for all material covered during the meeting you missed. **Note also that the live Zoom lecture sessions and any meetings during office hours will not be recorded.** It is your responsibility exclusively – not the instructor's – to get yourself caught up in the course if you must miss class. This instructor will facilitate matters by posting lecture notes and other course materials on ELMS/Canvas for this purpose. If you need to miss an exam or other graded course requirement because of illness, injury, or some other emergency: Follow doctor's orders and get documentation. Get in touch with the instructor as soon as you're able – preferably prior to missing the exam or deadline. Communicate with the instructor to make up the course requirement as soon as possible. You are entitled to recover before you make up the course requirement, but you are not entitled to extra days to study beyond the time the doctor's note says you're incapacitated. If you are incapacitated for more than a week or so beyond the end of the term, your grade in the course will be an "Incomplete." In such cases you must negotiate a plan with your instructor for completing the course requirements. Once you make up the course requirement the instructor will change your "I" to the appropriate letter grade.

Course Objectives

The program has seven general learning outcomes for students:

1. Ability to understand, evaluate and analyze economic data
2. Ability to understand and interpret statistical evidence from economic data
3. Ability to apply empirical evidence to assessing economic arguments
4. Ability to apply macroeconomic theories to policy discussions
5. Ability to apply microeconomic theories to policy discussions
6. Ability to communicate economic ideas to a broader audience
7. Ability to evaluate the effectiveness of policy programs using sound economic techniques

The learning outcomes that pertain to ECON 641 are outcomes 5, 6, and 7.

Grading

Course grades will be assessed based upon the following components:

- Weekly problem sets: 25% (in total)
- In-class quiz: 5% (to identify students who may need additional support developing the mathematical skills required for the course)
- Midterm exam: 25%
- Presentation: 15%
- Class discussion (online): 5%
- Final exam: 25% (non-comprehensive)

Each problem set and exam will have a maximum of 100 available points, as will the in-class quiz and student presentation. Accordingly, since the problem sets **in total** account for 25% of the total course grade, the **total** number of points that a student will earn towards their **final** course grade through problem sets will be a number between 0 and 25. Similarly, the number of points related to each exam will be number between 0 and 25, and the number pertaining to the in-class quiz will be between 0 and 5. Lastly, as discussed further below, each comment that a student makes as part of the class discussions will be graded on a scale of between 0 and 5. The instructor will take the **average** score **across all** of the comments made by a student over the semester (which, of course, will also range between 0 and 5) and use that average score as the final number of total points pertaining to the 5% class discussion component of the final grade.

Example: Assume (for demonstration purposes only) that there were only two problem sets assigned and that a hypothetical student earned the following scores on each graded component of the course:

Graded component	Maximum available points	Points earned by student	Weight in final course grade	Weighted points earned towards final course grade
Problem Set 1	100	80	$(25\%)/2 = 12.5\%$	$(80)(.125) = 10$
Problem Set 2	100	90	$(25\%)/2 = 12.5\%$	$(90)(.125) = 11.3$
In-class quiz	100	100	5%	$(100)(.05) = 5$
Mid-term exam	100	75	25%	$(75)(.25) = 18.8$
Presentation	100	89	15%	$(89)(.15) = 13.5$
Discussions	5 [Avg. across all submitted comments]	4 [Avg. across all submitted comments]	5%	4 [Note: Same as avg. points earned]
Final exam	100	95	25%	$(95)(.25) = 23.8$
		Total:	100%	86.4

(Note: There will be **ten** weekly problem sets this term, so each will receive a weighted percentage of $25\%/10 = 2.5\%$ towards the final course grade.)

Thus, out of a potential 100 total weighted points, the hypothetical student has earned 86.4 weighted points, or a final percentage score of 86.4%.

Students' final percentage scores will be converted to a final letter grade based on the following distribution:

93 – 100%	90 – 92%	80 – 89%	70 – 79%	60 – 69%	50 – 59%	40 – 49%	30 – 39%	20 – 29%	10 – 19%	0 – 9%
A	A-	B+	B	B-	C+	C	C-	D+	D	F

In the above example, the hypothetical student would therefore earn a course grade of "B+".

The dates for the quiz and exam are provided in the course schedule on the last page of this syllabus. Please note that there is no "extra credit" available to compensate for poor performance on problem sets or exams.

Problem Sets

There will be a weekly problem set. Problem sets will be distributed by Monday morning of each week and are due back to the instructor **by noon the following Sunday**. Problem sets will ordinarily consist of two (multi-part) problems. Students should submit their handwritten (or typed, but not required) responses electronically to ELMS/Canvas. The phone app for ELMS/Canvas has a feature to photograph and directly submit your assignments, or you may just save the image to your computer and upload via a web browser (e.g., Chrome). **Please be sure your written problem set responses are readable before submitting them.** Most of the questions on a given problem set will relate to material covered in that week's live lecture. However, some problems may involve material that will be covered the following week or material that students must learn (or begin to review) on their own. This treatment is intentional and requires that students actively "read ahead" and study some topics independently, both of which are critical components of graduate-level training.

Students must fully show their work to receive full credit on the problem sets; simply stating answers without carefully explaining how those answers were derived will result in a loss of some or all points. I **highly encourage collaboration and discussion between students on the problem sets; however, students must submit their answers individually.** Students should begin

working through the problem sets immediately after they are distributed—waiting until the night before the due date is not recommended. Late problem sets will not be accepted and will receive a grade of zero. Illegible or sloppy work may also result in a loss of some or all points. Solutions will be distributed shortly after the announced due date and/or will be reviewed in lectures.

The specific due dates for each problem set – **which are enumerated by the corresponding week of the course** – are as follows:

Problem Set 1: 09/05	Problem Set 7: 10/17
Problem Set 2: 09/12	Problem Set 8: 10/24
Problem Set 3: 09/19	Problem Set 9: 10/31
Problem Set 4: 09/26	Problem Set 10: 11/07
Problem Set 5: 10/03	Problem Set 11: 11/14

[**Note:** There is no “Problem Set 6” or “Problem Set 12” as those weeks correspond to the mid-term and final exams, respectively.]

In-class Quiz

There will be an in-class quiz administered during the fourth week of the course (likely during the second 45-minute lecture time). This is a “low-stakes” quiz on basic calculus methods intended primarily to assess how students are handling the mathematical nature of the course. Should students find themselves struggling on the quiz, there will be an opportunity for those students to meet in small groups with the TA for additional review. The instructor will also make available several review guides on the background calculus methods required for the course.

Exams

Exams will be administered in-person at the DC Campus location and proctored by the course TA. The exams will be distributed to students at the beginning of scheduled class time (6:45pm). Students must complete the exam by the end of scheduled class time (9:30pm). **Please be sure to budget your time appropriately.** A student may be able to take the exams up to one day earlier if he/she informs the instructor of the need to do so at least two weeks prior to the exam date and the instructor approves the request.

Presentations

A supplemental book by the textbook authors contains more than 100 concise “Applications” of microeconomic theory. These Applications are typically one-page descriptions of how the

theory in that section of the book has been applied by economists in a variety of contexts. The Applications also typically cite one or two academic journal articles upon which the applied work is based. In addition, the Applications usually suggest a couple interesting questions and/or policy challenges to think about.

Each student will be involved in making one presentation on an Application. Students will make presentations in pairs. We will use the discussion boards during the first week to allow students to introduce themselves to each other, find areas of common interest, **and to identify one other student with whom they would like to make their presentations.** Note that the Applications that will be covered in the presentations will roughly match to the material being discussed in the lecture being delivered in the corresponding week. For example, if a student pair has an interest in presenting an Application relating to game theory/oligopoly, then that presentation would be made in Week 10 (see course schedule below).

Student pairs will be assigned to slots on a first-come-first-served basis. Accordingly, students should create a listing of their preferred slots (along with the relevant Applications they wish to present) just in case their most preferred slot/topic/week is already taken. The instructor will inform students as to when slots have been filled and which slots remain open. Students have **until 12:00pm (noon) on September 9th** to attempt and reserve one of their preferred slots by emailing the instructor. If a student pair has not reserved a slot by that time, then that pair will be randomly assigned to any unfilled slots. The instructor will post a finalized schedule of presentations and topics after all student pairs have been assigned to slots.

As discussed below, students will create and post video recordings of their presentation/Application to the course website. Students should regard the chosen/assigned Applications only as the **starting** points for their presentations, i.e., the presentations themselves are expected to delve a bit **further** into the issues raised. In particular, the presentations are expected to provide further details on at least one of the economics papers cited in the assigned Application. (Students should find a related paper to discuss when there are no papers cited – the instructor will provide any assistance required in these instances.) If there are a sufficiently high number of students enrolled in the course, then it may be necessary to hold more than one presentation in some weeks. The instructor will provide a complete schedule of presentations by the third week of the course.

Copies of the Applications students may choose to present will be made available through ELMS/Canvas for all students to read in advance of the class presentations. **Those not presenting are still required to read each week's presented Application(s) and to submit a question related to the presentation/Application to stimulate graded online discussions (see**

below for further details). Note that some of the presentations early in the semester will come the week after the relevant material has been covered in class. Most of the presentations, however, will correspond to the same week that the relevant material is being covered in class. This means that the student presenters must **read ahead** and prepare their presentations before sitting through the associated lecture on the material. This is another example of the difference between graduate and undergraduate education. Our classes are seminars. That means that all members of the group share responsibility for teaching each other. I will bear more responsibility for teaching in ECON 641 than any other member of the seminar. But each of you will also bear some responsibility – especially in the presentation of your Application.

Expectations for presenters:

- The presentation should be made with the use of PowerPoint slides (**Note:** PowerPoint allows users to create video presentations of slides directly without having to rely on external recording software. Instructions on how to create your video presentations and post/link them to ELMS/Canvas have been posted to the course website). However, presenters are expected to do more than just read the slides.
- The presentation should be designed to last **no more than about 10 minutes**. Each member of the student pair should have about half of the speaking time.
- The presenter should be prepared to answer questions raised by fellow students and/or the instructor within the subsequent online discussion boards that will be opened on ELMS/Canvas.
- This grade awarded for the presentation will be based on its clarity and quality, the presenter's ability to incorporate the instructor's pre-presentation feedback, and the presenter's answers to questions posed during the online discussion sections devoted to the presentation.

A more detailed grading rubric will be provided on ELMS.

Complete drafts of PowerPoint presentations are due as email attachments by 4:00pm on the **Saturday before** your scheduled presentation week. Please send them to pzimmerm@umd.edu. I will send suggestions for edits or revisions (should they be necessary) by Sunday evening. Students are expected to revise their presentation based upon that feedback and send the final version their PowerPoint slides by email attachment to the instructor **no later than 10:00am on Tuesday**. **Presenters should also post/link their final recorded presentations to a new discussion forum in ELMS/Canvas by 12:00pm on Tuesday**

so that fellow students can begin to review the presentations and formulate contributions to the accompanying online discussion forums (discussed below). **Students should also send the link to their recorded presentation to the instructor at the time they submit it to ELMS/Canvas.** Instructions for posting presentation videos to ELMS/Canvas can be found on the course webpage.

Online Discussions

There will be weekly, graded online discussion relating to each week's presentation(s). After watching a given week's presentation(s) and reading the associated Application(s), **all student pairs** other than those making the presentations are to formulate a constructive question, comment, or suggestion related to the presentation/Application topic and **email that question/comment/suggestion to the instructor by 10:00am Wednesday, i.e., within 24 hours of the presentation being posted.** The student pairs should actively collaborate (via Zoom, phone, email, etc.) to generate this comment/question.

By Wednesday evening or Thursday morning I will use those submitted questions (modified appropriately) as starting points for the accompanying discussion threads on ELMS/Canvas. The presenters then have until **12:00pm (noon) on Friday** to respond to **each** comment/question/suggestion. Each **individual** non-presenting student then has the **option** of posting additional comments/questions (though not an unlimited number without penalty – see the grading rubric posted on ELMS/Canvas for further details) until **12:00pm (noon) on Saturday**. Presenters should then respond to any substantive comments/questions raised in those additional comments **by 12:00pm (noon) on Sunday, at which time the discussion board will close.** Accordingly, **presenters are expected to actively contribute to the discussion threads for the duration they are open.** Non-presenting students should only post follow-up comments/questions after the presenters have responded to the to the initial comment/question. **Please note that all comments submitted by students will be graded.**

I will check in and read the posts several times each week and may occasionally ask additional questions or offer additional comments, so be sure to check the message board often. Again, each comment posted by students (including those initially submitted to start the discussion boards) will get a score of between 0 and 5 points based on my assessment of its quality in accordance with the grading rubric. Students who do not contribute required comments or who submit only superficial comments will get zeros. Students who make thoughtful, insightful, and constructive contributions will get "5's". While non-presenting students have the option of making additional/follow-up comments they are still expected to be of high quality.

Class Participation and Etiquette

Students are expected to be active contributors to the live class when attending and should be prepared to ask and answer questions during live lectures and to participate in the online discussion boards. Students are expected to refrain from any behavior that would distract the instructor or fellow students during live lectures and to always conduct themselves professionally.

Readings

Students are required to read the assigned chapters from the text (see schedule below). Ideally, readings from the text should be completed before lectures. We will not cover all the material contained in each textbook chapter. The instructor will let students know which sections of the chapters they can skip as the course progresses.

Workload

Mastering the material covered in this course requires a **significant** amount of work outside of class. Students should expect to spend more time outside of class than in class, typically **at least** twice as much time. The courses in our DC program are 12-week courses that cover all the same material as a traditional semester-long 3-credit course (15 weeks). The compressed schedule makes it possible to complete our degree in just 15 months if you take 2 courses each term. But the compressed schedule also implies an accelerated pace with an average of 25% more work per week in each course. The normal full-time load in a master's program is 3 courses per semester, or 6 courses per year. The weekly workload when taking 2 of our DC courses per term is equivalent to the load from 2.5 "normal" 15-week courses, so $2.5/3.0 = 83\%$ of a full-time load. Students who take 2 courses per quarter in our program complete 8 courses per year. So, over the course of a year, taking 2 courses per quarter in our DC program is equivalent to 133% of a full-time load ($8/6 = 1.33$).

Academic Integrity

The University of Maryland has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards applicable to all undergraduate and graduate students, and you are responsible for upholding these standards as you complete assignments and take exams in this course. Please make yourself aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information see www.studenthonorcouncil.umd.edu.

Student Conduct

Students are expected to treat each other with respect. Disruptive behavior of any kind will not be tolerated. Students who are unable to show civility to one another or myself will be

referred to the Office of Student Conduct. You are expected to adhere to the Code of Student Conduct.

School Closing and Delays

Information regarding official University closing and delays can be found on the campus website and the snow phone line: (301) 405-SNOW (405-7669). Given that this is an online class it is highly unlikely that any cancellations or delays will occur this term but, in any event, the program director will always announce cancellation information to the program as an announcement on the program's ELMS/Canvas site. This will generally be done by 1:00pm on days when weather or other factors are an issue.

UMD Counseling Center

Sometimes students experience academic, personal and/or emotional distress. The UMD Counseling Center in Shoemaker Hall provides comprehensive support services that promote personal, social, and academic success. The cost of these services is covered by the fees you already paid when you registered for classes, and there is no additional charge if you use the services. Proactively explore the range of services available, including the Counseling Service, Accessibility and Disability Service, Learning Assistance Service, and the Testing Office, all described at <http://www.counseling.umd.edu/>.

Students with Disabilities

The University of Maryland does not discriminate based on differences in age, race, ethnicity, sex, religion, disability, sexual orientation, class, political affiliation, or national origin. Reasonable accommodations will be arranged for students with documented disabilities. Students who have an accommodations letter from the Accessibility and Disability Service (ADS) should meet with me during the first week of the term to discuss and plan for the implementation of your accommodations. If you require reasonable accommodations but have not yet registered with ADS, please contact the Accessibility and Disability Service at 301-314-7682 or adsfrontdesk@umd.edu.

Course Schedule

The dates pertaining to the material to be presented in lectures are shown in the schedule below. The midterm exam will cover the material presented in the first five weeks of the course, while the final exam will cover the material presented in the last five weeks. In the (unlikely) event that the course progresses through the topics faster than indicated by the tentative schedule below, the instructor will inform students of the specific topics that will be covered on the exams.

Week	Lecture Date	Topic	Corresponding chapters from Nicholson & Snyder text (12 th ed.)
1	Sep. 2	Introduction/Preferences and Utility	1, 2*, 3
2	Sep. 9	Utility Maximization and Choice	4
3	Sep. 16	Income and Substitution Effects	5
4	Sep. 23	In-class Quiz; Demand Relationships	6
5	Sep. 30	Production and Cost Functions	9, 10
6	Oct. 7	In-class Midterm Exam	
7	Oct. 14	Profit Maximization	11
8	Oct. 21	Partial Equilibrium and Welfare	12
9	Oct. 28	Monopoly	14
10	Nov. 4	Game Theory and Imperfect Competition	8,15
11	Nov. 11	Externalities and Public Goods	19
12	Nov. 18	In-class Final Exam	

* Ch. 2 is a review of basic mathematical tools that will be employed in the class. Students are only responsible for reviewing those sections noted previously relating to simple derivatives, partial derivatives, and constrained optimization.