NATURE OF SYLLABUS: The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

COURSE DESCRIPTION: From the University Catalog – “This course examines economic approaches to policy analysis. Included is an analysis of the major concepts of economic analysis and their application to a number of policy problems. Prereq: PA 652 and PA 750 or equivalent and Ph.D. program status or consent of the instructor.”

COURSE OBJECTIVES AND LEARNING OUTCOMES: The objectives of this class are to acquire a working knowledge of how to apply an economist’s toolkit to analyze public policy problems theoretically and empirically. Students will be exposed to policy problems that arise in public economics, labor economics, health economics, environmental economics, industrial organization, urban economics, and other applied microeconomics subfields, time permitting.

TEXTBOOKS AND READINGS: There is no required textbook for the class. Students should be familiar with basic economics and econometrics concepts. As a resource for economic theory, students may consult the 9th edition of Intermediate Microeconomics with Calculus by Hal R. Varian or the 11th edition of Microeconomic Theory: Basic Principles and Extensions by Walter Nicholson and Christopher Snyder. As a resource for applied microeconometrics, students may consult Microeconometrics: Methods and Applications by Colin Cameron and Pravin Trivedi or Mostly Harmless Econometrics: An Empiricist’s Companion by Joshua Angrist or Jörn-Steffen Pischke. Instead of a required textbook, we will rely heavily on academic articles and lecture notes.

ONLINE MATERIALS: We will use the canvas system (http://www.uky.edu/canvas/)
for this semester. It is important you check this website regularly as I will post assignments to canvas and will use the announcements tool to send you important information. You are responsible for maintaining and checking your University email account and the canvas announcements on a daily basis. Please use your university email account for your academic correspondence to me so that it does not go to my spam folder.

All academic readings will be made available online through canvas. You must read the required readings in advance of lecture. My lecture notes are also posted to canvas. You may not redistribute copies of my slides, lecture notes, or homework solutions to any other person or website.

**ONLINE MATERIALS:** The course will be broken into the following “modules” where we will study theory and empirical evidence from each of these subfields in economics: public economics, labor economics, health economics, industrial organization, urban and regional economics, and environmental economics. The first week of each module will consist of lectures by me on the theory related to that subfield. The second week of each module will consist of student presentations and student led discussions of empirical analysis in that module.

**GRADES:** Grades for the class will be assigned based on the following information.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>% of Final Grade</th>
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<tbody>
<tr>
<td>Problem Sets</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
<tr>
<td>Paper Summaries</td>
<td>30%</td>
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<tr>
<td>Presentations</td>
<td>10%</td>
</tr>
<tr>
<td>Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Referee Report</td>
<td>10%</td>
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</table>

**PROBLEM SETS:** Problem sets for each module will be listed on canvas (as we progress). You may work in groups on the problem sets and studying in groups is highly encouraged. However, you must write up your own solution to each problem set. Solutions must be typeset and show all work. Given the large amount of mathematical calculations, I highly recommend using \LaTeX or Lyx to type your solutions. If you don’t know these, now is a good time to learn.

**FINAL EXAM:** The course will contain a final exam. The final exam is cumulative. The final exam will be given in its university appointed time slot. An excused absence from the final exam will be given if you contact me before the exam and for an unexpected emergency (illness that prevents you from taking the exam or could harm the health of others; a documented family emergency). You must provide appropriate documentation; in the case of a medical excuse a Tier 2 or 3 document from UHS will be satisfactory. Leaving early for a vacation, for example, is not an appropriate reason to miss an exam.

**PAPER SUMMARIES:** For each module, we will discuss several empirical readings. Students are expected to read all required readings in advance of class but will be assigned
one of the readings for each module to write a paper summary\(^1\) (for a total of 6 during the
semester). For the assigned paper in each module, students will write a two-page (type-
written) summary of an empirical paper for the module. The summary must be turned in
before the start of the first class where we discuss papers in that module. The summary
must address the following (please number answers in the write-up): (1) What is the main
question? (2) What does economic theory predict about the main question? (3) What data
are used? (4) What are the key parameters to be identified? (5) What is the identification
strategy of the empirical approach? (6) What are the threats to identification and does the
author adequately address them? (7) What are the main findings of the paper? (8) How
does the paper contribute to the relevant literature?

**Presentation:** For the assigned paper for which a paper summary was written, stu-
dents will present the paper to the class and facilitate the discussion on the paper. Stu-
dents will be expected to prepare a 20 minute presentation for the class that includes a
discussion of the research question, relevant background information, theory related to
the research question and a detailed presentation of the empirical analyses, results, and
contribution. Slides are required for the presentation.

**Participation:** For one week in each module we will discuss papers presented by one
of your classmates. After the paper is presented, there will be a discussion of the paper (in
a seminar style) for which students are expected to contribute. We will also discuss other
required readings that students do not present. For this reason, all students must read
and be prepared to discuss all required readings and not just the one they are presenting.
Participating in the discussion will be evaluated on the basis of insight provided to the
learning of your classmates and the instructor.

**Referee Report:** The referee report is a critical assessment of an unpublished paper
that I will provide to students to review. This report should be no longer than 5 pages and
typically is 2-3 single spaced pages. The report should (1) assess the paper’s contribution
to the relevant literature; (2) discuss key weaknesses of the paper; and (3) make sugges-
tions for improvement. Students should also prepare a one page cover letter containing
a confidential recommendation for the journal editor (accept, revise and resubmit, reject)
along with a brief justification. Students may request a paper from a particular module in
the course by emailing the instructor at least two weeks prior to its due date; otherwise,
students will be assigned a random article.

**Letter of Introduction:** For the second lecture, please write a one-page letter of in-
troduction of yourself to the instructor. Include your name and anything about yourself
that you would like to share such as your future research interests, past preparations rele-
vant to this class, and personal facts that help me to know you better. Please also upload a
digital photo to you canvas profile (click account>profile and then edit the image). I want
to learn about you and your interests throughout the semester and this will help start that
process.

\(^1\)This, and other assignments, are inspired by Melissa S. Kearney’s syllabus.
ACCOMMODATIONS: If you have a documented disability that requires academic accommodations, please see me no later than the second week of class during office hours or after class. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center for coordination of campus disability services available to students with disabilities.

ACADEMIC HONESTY: As a University of Kentucky student, you have agreed to abide by the University’s academic honesty policy. All academic work must meet the standards described in “UK Student Code of Conduct.” Cases of cheating on exams or plagiarizing material for a presentation or assignment will result in (as a minimum punishment) final grade of “zero” assigned for the incident and the incident will be reported to university officials. Questions about proper procedures are always appropriate – and welcome – before work is submitted.

ELECTRONICS: Cell phone usage during class is prohibited. When I am lecturing, laptops are unlikely to be helpful for taking notes and I suggest using pen and paper. See “Laptops Are Great. But Not During a Lecture...”. You can download it here: https://www.nytimes.com/2017/11/22/business/laptops-not-during-lecture-or-meeting.html For the empirical part of each module you may wish to have access to papers that we are discussing. In this case, you might use a laptop or tablet (though paper copies of the articles may also be brought to class).

SCHEDULE: The following list indicates when we will cover various topics. All required readings will be provided online. The date when the paper summary (PS) and presentation (P) for that week’s module must be completed by is listed on the schedule. Also listed are when the problem set (HW) are due for the prior module and when the referee report (RR) is due.
<table>
<thead>
<tr>
<th>Day</th>
<th>Module</th>
<th>Topics</th>
<th>What is due</th>
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<tbody>
<tr>
<td>01/09</td>
<td>Preliminaries: Tools</td>
<td>Theory I</td>
<td></td>
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<tr>
<td>01/14</td>
<td>Preliminaries: Tools</td>
<td>Theory II</td>
<td></td>
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<tr>
<td>01/16</td>
<td>Preliminaries: Tools</td>
<td>Empirics I</td>
<td></td>
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<tr>
<td>01/23</td>
<td>Preliminaries: Tools</td>
<td>Empirics II</td>
<td></td>
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<tr>
<td>01/28</td>
<td>Labor Economics</td>
<td>Theory I</td>
<td>prelim HW</td>
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<td>01/30</td>
<td>Labor Economics</td>
<td>Theory II</td>
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<tr>
<td>02/04</td>
<td>Labor Economics</td>
<td>Empirics I</td>
<td>labor PS / P</td>
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<tr>
<td>02/06</td>
<td>Labor Economics</td>
<td>Empirics II</td>
<td></td>
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<tr>
<td>02/11</td>
<td>Health Economics</td>
<td>Theory I</td>
<td>labor HW</td>
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<tr>
<td>02/13</td>
<td>Health Economics</td>
<td>Theory II</td>
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<tr>
<td>02/18</td>
<td>Health Economics</td>
<td>Empirics I</td>
<td>health PS / P</td>
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<tr>
<td>02/20</td>
<td>Health Economics</td>
<td>Empirics II</td>
<td></td>
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<tr>
<td>02/25</td>
<td>Public Economics</td>
<td>Theory I</td>
<td>health HW</td>
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<tr>
<td>02/27</td>
<td>Public Economics</td>
<td>Theory II</td>
<td></td>
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<tr>
<td>03/04</td>
<td>Public Economics</td>
<td>Empirics I</td>
<td>public PS / P</td>
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<tr>
<td>03/06</td>
<td>Public Economics</td>
<td>Empirics II</td>
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<tr>
<td>03/18</td>
<td>Urban Economics</td>
<td>Theory I</td>
<td>public HW</td>
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<td>03/20</td>
<td>Urban Economics</td>
<td>Theory II</td>
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<tr>
<td>03/25</td>
<td>Urban Economics</td>
<td>Empirics I</td>
<td>urban PS / P</td>
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<tr>
<td>03/27</td>
<td>Urban Economics</td>
<td>Empirics II</td>
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<tr>
<td>04/01</td>
<td>Industrial Organization</td>
<td>Theory I</td>
<td>urban HW</td>
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<td>04/03</td>
<td>Industrial Organization</td>
<td>Theory II</td>
<td>(reschedule class)</td>
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<td>04/08</td>
<td>Industrial Organization</td>
<td>Empirics I</td>
<td>IO PS / P</td>
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<tr>
<td>04/10</td>
<td>Industrial Organization</td>
<td>Empirics II</td>
<td></td>
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<tr>
<td>04/15</td>
<td>Environmental Economics</td>
<td>Theory I</td>
<td>IO HW</td>
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<tr>
<td>04/17</td>
<td>Environmental Economics</td>
<td>Theory II</td>
<td></td>
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<tr>
<td>04/22</td>
<td>Environmental Economics</td>
<td>Empirics I</td>
<td>Enviro PS / P</td>
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<tr>
<td>04/24</td>
<td>Environmental Economics</td>
<td>Empirics II</td>
<td></td>
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<tr>
<td>04/26</td>
<td>No class</td>
<td></td>
<td>RR / Enviro HW (to mailbox)</td>
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<tr>
<td>04/30</td>
<td><strong>Final Exam</strong></td>
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<td>3:30-5:30</td>
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MODULES: The following is a list of topics that we will cover under each module. The readings in bold are the required readings. Some article citations are incomplete, but all are posted on canvas and can easily be found.

TOOLS (THEORY):

- Consumer Optimization (including Lagrangian optimization, Shephard’s Lemma, Roy’s Identity, Envelope Theorem, Compensated vs. uncompensated demand, Slutsky equation)
  - Nicholson Chapter 2 (from 9th edition)
  - Nicholson Chapter 4 (from 9th edition)
  - Nicholson Chapter 5 (from 9th edition)

- Social welfare maximization and the theory of sufficient statistics.
  - Varian Chapter 34

TOOLS (EMPIRICS):

- Cross-sectional and panel methods & Difference-in-difference (including generalized difference-in-difference)
  - Angrist and Pischke Chapter 3
  - Angrist and Pischke Chapter 5

- Regression discontinuity & Instrumental variables
  - Angrist and Pischke Chapter 4.
  - Angrist and Pischke Chapter 6

**LABOR ECONOMICS (THEORY)**

- Selection and the Roy Model
  - Borjas Chapter 8.6

- Human capital and signaling
  - Borjas Chapter 6

**LABOR ECONOMICS (EMPIRICS)**

- Minimum wage

- Earned Income Tax Credit and labor supply
HEALTH ECONOMICS (THEORY)

• Rothschild and Stiglitz model of adverse selection

• Moral hazard

HEALTH ECONOMICS (EMPIRICS)

• Oregon health experiment and RAND health experiment


- Effects of insurance and welfare on health outcomes and mortality

**PUBLIC ECONOMICS (THEORY)**

- Optimal commodity taxation

- Optimal income taxation

**PUBLIC ECONOMICS (EMPIRICS)**

- The elasticity of taxable income

**Policy and sorting**

**Urban Economics (Theory)**

- Monocentric city model
  - MacDonald and McMillen Chapter 6 & 7.

- The Rosen-Roback model
  - Brueckner Chapter 11.

**Urban Economics (Empirics)**
• Place based policies

• Highways

INDUSTRIAL ORGANIZATION (THEORY)

• Imprefect competition
  -Tirole Chapter 5.

• Product differentiation and spatial price competition
  -Tirole Chapter 7-1.
INDUSTRIAL ORGANIZATION (EMPIRICS)

- Antitrust policy

- Patents and R&D policy
Environmental Economics (Theory)

- Externalities and corrective mechanisms

- Hedonics

Environmental Economics (Empirics)

- Sorting and hedonics applications
  -Lucija Muehlenbachs, Elisheba Spiller, and Christopher Timmins. 2015. The


-Environmental regulations