**Course Description:**

Despite it being a huge humanitarian problem, why is HIV/AIDS the wrong disease to attack in Africa, even if our objective is lowering overall HIV prevalence? What do neuroscience and economics have in common? If monthly gym members pay higher fees than annual gym members for the option to cancel each month, why are they much more likely to stay enrolled beyond one year than users committing for a year? If the price for an average meal has stayed relatively stable, how can restaurants afford offering increasingly bigger food portions to their customers? Does poor health cause poverty or poverty cause poor health? This course illuminates the answers to many of these questions and examines health issues pertinent to developing countries from the standpoint of economics. Traditionally, economics has focused on understanding prices, competitive markets, and the interactions between markets. Important topics such as monopolies and antitrust, income inequality, economic growth, and the business cycle continue to be central areas of inquiry in economics. Recently, though, the subject matter of economics has broadened so that economists today—and especially economists at Harvard—address a remarkable variety of social science questions. In this course, we will examine behavior of both individuals and social systems—such as markets, corporations, legislatures, and families—as the outcome of interactions through institutions between goal-directed individuals in the context of health.

The course, intended as a broad survey of health economics, will focus on microeconomic approaches to understanding households, markets and institutions in developing countries. The course is organized into six blocks. The first block deals with a general overview of the conceptual, methodological and empirical basis for quantifying levels of health in individuals, and econometric identification of causal effects on health. The second block covers demand for health and inputs into the health production function, including health behaviors, income, the environment, education and primary care. The third block covers workhorse development economics models with applications to health. We will cover a basic theoretical framework that emphasizes three elements: inter-temporal tradeoffs, missing markets, and contracting structures. There will be a basic model for each of these three. The fourth block introduces institutional considerations in the health sector, in particular the role of public health infrastructure and the private sector. In the final weeks, we will cover specific health conditions, including: HIV/AIDS, malaria and environmental pollutants. For each of these topics, we will pay special attention to
the identifying causal effects that inform the design of public policies, and contrast the lessons learned from this approach to those obtained from observational studies.
This course is quantitative level 2.

**OFFICE HOURS:** By appointments

**COURSE WEBSITE:** [HTTP://ISITES.HARVARD.EDU/ICB/ICB.DO?KEYWORD=k67401](http://isites.harvard.edu/icb/icb.do?keyword=k67401)

**COURSE REQUIREMENTS:**

*Class participation and quality circles.* Attendance is mandatory. Class discussions are an essential component of the sophomore tutorial. Your full participation is expected in the discussion of assigned readings and general course themes. Additionally, “Quality Circles” will be held every two weeks to provide an avenue for student feedback and in-course modifications (further explanation will be provided during the first week of class). Quality circle participation is voluntary.

*Response Papers.* 15% of grade divided among 3 (out of 4 options) response papers (~2 pp. each). Students must complete a ~2-page reading response pertaining to the journal article assigned for class (marked with #). The reading response must address all of the points below. Reading responses should be submitted online via the ‘Submission Box’ tool at the beginning of class.

1. State clearly the central research question of the paper and why is it important?
2. How does the author use economic theory to derive testable predictions?
3. How do the authors establish causality (what is the identification strategy)? Is the approach valid, and if not, why not?
4. What data are studied?
5. How does the author improve upon previous research?
6. Summarize the main findings from the paper. How do the findings contribute to our understanding of health or human behavior in general?
7. What is the leading alternative explanation for the findings?
8. What is the most important policy implication of the findings?
9. To what extent are the findings externally valid?

These papers are intended to facilitate class preparation. Topics will range from summarizing assigned readings to raising ideas for discussion.

*Class participation/facilitation.* 30% of grade divided between 2 presentations. For some classes, one to two students will be designated the lead discussant(s); this student will summarize and critique the required readings, and offer questions for discussion. Assigned presentations will be based on class discussions and readings. Presentations will include presenting the assigned paper and criticizing the assigned reading.
Economic Naturalist Assignment. 10% of grade. Students will complete a short paper assignment.

Short data exercise. 10% of grade. Students will complete one short statistical exercises in groups in preparation for the final research paper.

Empirical paper. 35% of grade. (~ 15 pp.) You will construct a simple model, report your findings, and analyze the results. Bi-weekly meetings will be scheduled to track progress for this assignment. You can choose any topic relating to international health economics, subject to my approval. Start thinking about this early! The grade will be based on a prospectus (literature review) and class discussion of your topic and the final ~ 15-20 page paper itself. The prospectus should provide a basic description of the proposed research topic and will be due Thursday, April 10. The final paper will be due Friday, May 10.

Writing is a crucial part of the sophomore tutorial and of the Harvard experience. Development of good writing skills is essential to your success as an economist, or in any other profession. A good paper has a clear thesis, is well organized, and employs solid economic analysis. A good paper will address the problem posed by the assignment. A good paper should be stylistically and grammatically correct and free of typographical and spelling errors. You should proofread your papers.

Should you need additional help with your writing, please take advantage of the services of the Harvard Writing Center, on the Garden Level of the Barker Center, at 12 Quincy Street. You should read Writing with Sources and otherwise develop a general familiarity with the University’s policies on plagiarism.
### Tentative Empirical Research Project Deadlines

<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>February</td>
<td>15</td>
<td>Familiarize yourself with a statistical software package (e.g. SAS, STATA)</td>
</tr>
<tr>
<td>March</td>
<td></td>
<td>Presentations in class of interesting and feasible research questions with descriptions of data available to answer them. Use the input you receive in class to finalize your research paper question.</td>
</tr>
<tr>
<td>March</td>
<td>Last week of March</td>
<td>Due date for literature review on your research topic. Be sure to clearly and succinctly state your research question at the beginning.</td>
</tr>
<tr>
<td>April</td>
<td>13</td>
<td>Due date for description of the empirical models you plan to estimate and for the summary statistics of the key variables. The gold standard in research is replicability; be very clear how you will organize the data and what models you will estimate.</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>Due data for revised literature review and introduction, data, and methods sections.</td>
</tr>
<tr>
<td>May</td>
<td>1</td>
<td>Due date for completed papers</td>
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</tbody>
</table>

**Prerequisites:**
Microeconomics (Economics 1010a) and Macroeconomics (Economics 1010b).

**Course Policies:**

*Attendance.* Attendance is mandatory at all regular class meetings. Exceptions for personal or family emergencies will be granted on a case-by-case basis. For each class, bring copies of the assigned readings to class and expect to participate in a discussion.

*Tardiness.* No assignment will be accepted beyond the announced deadline. As with attendance, exceptions for personal or family emergencies will be allowed on a case-by-case basis.

*Office hours.* I will agree to meet with students during office hours, which I will announce at the start of the semester. If for some reason a student is unable to meet during the posted office hours, it may be possible to arrange a mutually convenient time.
Readings:

Readings cover relevant economic theory and economic history for each topic. Readings are selected from required texts, the course reading packet, and the course website. Additionally, throughout the semester, the coursepack readings will be supplemented with more recent materials.

Reading loads vary from 40 to 70 pages per week. This will depend largely on the complexity of the assigned readings. Two to three hours of preparation for each class is a reasonable demand. You are expected to complete the readings assigned for each tutorial session in advance of that session, and to attend class prepared to discuss the ideas set forth in those readings. Some of the required articles are intended for an advanced audience and will be challenging at first. Students will not be expected to understand all the mathematics or econometrics. Instead, our focus will be on grappling with the author’s key insights. We will read for enlightenment and entertainment rather than regurgitation and recitation.

Supplemental readings are intended: (1) to supplement the intellectual appetite of the more curious student, and (2) as a springboard for further research (e.g. senior thesis).

All students must come to class prepared to discuss the required readings. For each class, one to two students will be designated the lead discussant(s); this student will summarize and critique the required readings, and offer questions for discussion. All other students must come to class with at least one discussion question based on the reading.

Resources
Guides for Writing
Improving your writing skills is an important goal of this course. The paper assignments will require you to demonstrate understanding of economic arguments and models, to comfortably use the terminology of economics, and to use evidence and logical arguments to support your views and to criticize those of other writers. Papers should be well-written and free of grammatical errors. The Economics Department has produced a guide to writing that you should consult before writing your first paper (http://isites.harvard.edu/fs/docs/icb.topic141255.files/Writing_Economics.pdf). I also encourage you to take advantage of the services provided by the Harvard Writing Center on the Garden Level of the Barker Center (http://www.fas.harvard.edu/~wricntr/).

Stata
The Economics Department now has a Stata help site (http://isites.harvard.edu/icb/icb.do?keyword=k12758) and a Stata tutor (see website for details) for any help that you may need with your empirical exercise or final paper. The Biostatistics Department at the Harvard School of Public Health has a 40-minute online tutorial at http://www.biostat.harvard.edu/courses/STATA/stata%20tutorial.html. Also hosted at the Harvard School of Public Health is the Stata listserv, where over 2,500 Stata users from experts to neophytes maintain a lively dialogue about all things statistical and Stata at http://www.stata.com/statalist/. You can subscribe and ask any questions about how to implement particular data or econometric procedures in Stata!
OTHER STUDENTS
Your fellow students are your most important resource, and I encourage you to discuss paper topics and other ideas with each other as much as possible.

ACADEMIC HONESTY
The 2009-2010 Handbook for Students (p. 66) states: “Students who, for whatever reason, submit work either not their own or without clear attribution to its sources will be subject to disciplinary action, and ordinarily required to withdraw from the College.” You are encouraged to discuss ideas and work with your classmates, but all submitted work should be your own. In addition, all sources should be properly cited. In order to use and cite sources properly, please consult Writing with Sources: A Guide for Harvard Students, available at the Writing Center’s website (http://www.fas.harvard.edu/~wricntr/). Please contact me with any questions or concerns.

OTHER EVENTS YOU MIGHT WANT TO ATTEND:
If you are interested in ongoing research on health economics issues, you can attend the many health economics seminars held each semester on campus at the Global Demography of Aging PGDA Series http://www.hsph.harvard.edu/pgda/seminars.htm
<table>
<thead>
<tr>
<th>#</th>
<th>Day</th>
<th>Date</th>
<th>Block I. Introduction, health measures and econometric estimation techniques</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mon.</td>
<td>2/1/10</td>
<td>Introduction and what is Health Economics?</td>
<td>Assignment #1 handed out</td>
</tr>
<tr>
<td>2</td>
<td>Wed</td>
<td>2/3/10</td>
<td>Introduction: why and how to measure health?</td>
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<tr>
<td>3</td>
<td>Mon</td>
<td>2/8/10</td>
<td>Causal inference I: Basic econometrics overview and STATA</td>
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<tr>
<td>4</td>
<td>Wed</td>
<td>2/10/10</td>
<td>Causal inference III: Instrumental variables, experimental and quasi-experimental techniques</td>
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<td></td>
<td><em><strong>2/15/10 – Presidents’ Day Holiday</strong></em></td>
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<tr>
<td>5</td>
<td>Wed</td>
<td>2/17/10</td>
<td>Causal inference III: Instrumental variables, experimental and quasi-experimental techniques</td>
<td>Assignment #1 Due on 2/21</td>
</tr>
<tr>
<td>6</td>
<td>Mon</td>
<td>2/22/10</td>
<td>Film: The Name of the Disease</td>
<td>Response # 1 Assignment # 2 handed out</td>
</tr>
<tr>
<td>7</td>
<td>Wed</td>
<td>2/24/10</td>
<td>Health markets: how are they different? (S)</td>
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**Block II. Microeconomic Foundations of Health. Generating the Demand and Supply of Health. Economic models of health and disease transmission**

| 8  | Mon   | 3/1/10    | The demand for health and medical services                                | Assignment #2 Due on 3/7  |
| 9  | Wed   | 3/3/10    | Discussion of Research Paper Ideas                                        |                           |
| 10 | Mon   | 3/8/10    | Guest Lecture: DHS and PUMS Data for developing countries                  |                           |
| 11 | Wed   | 3/10/10   | Health production and health behaviors                                    |                           |
|    | Mon   | 3/22/10   | Film: A Closer Walk                                                       |                           |
| 12 | Wed   | 3/24/10   | Economic Models of Disease Transmission (S)                                |                           |
| 13 | Mon   | 3/29/10   | Behavioral Economics and Health                                            | Lit Rev due 3/29          |

**Block III. Development Facts and Models with Health Applications**

| 14 | Wed   | 3/31/10   | The Economic Lives of the Poor                                            |                           |
| 15 | Mon   | 4/5/10    | Inter-temporal substitution and risk-coping mechanisms                     |                           |
| 16 | Wed   | 4/7/10    | Nutrition poverty traps                                                    |                           |
| 17 | Mon   | 4/12/10   | Behavioral Economics and Development (S)                                   |                           |
| 18 | Wed   | 4/14/10   | Missing markets                                                            |                           |

**Block IV: The role of institutions**

| 20 | Mon   | 4/19/10   | Human capital: what is the role of public health? (S)                     |                           |
| 21 | Wed   | 4/21/10   | Human capital: health and economic growth                                  |                           |

**Block V: Specific Health Conditions**

<p>| 22 | Mon   | 4/26/10   | Malaria (S)                                                                |                           |</p>
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<tbody>
<tr>
<td>23</td>
<td>Wed</td>
<td>4/28/10</td>
<td>HIV/AIDS (S)</td>
</tr>
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***Reading Period Begins 4/29/10***

Paper due 5/1


**Readings**

Required readings are marked with a star (*), recommended readings are not starred. Response paper readings are marked with a pound sign (#): note some of them are among the supplemental readings.

Most readings are available online, and can be found on the class page. Readings not available online can be found on reserve at the Lamont library.

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**Course Outline and Readings**

I. **Block I: Introduction, health measures and econometric estimation techniques**

1. **What is International Health Economics? (RP, January 30)**

**Required:**

***Fill out Student Info Cards on website


**Supplemental:**


Read “Tips on skimming” posted on the course website


2. SAS and Stata tutorials

**Required:**


**Supplemental:**

SAS tutorial: [http://learn.sdstate.edu/dwight_galster/510docs/Tutorial%20Programs/sas_tutorial_contents.htm](http://learn.sdstate.edu/dwight_galster/510docs/Tutorial%20Programs/sas_tutorial_contents.htm)

Regression with Stata and SAS: [https://www.hmdc.harvard.edu/training/tutorials/](https://www.hmdc.harvard.edu/training/tutorials/)

3. Introduction: why and how to measure health?

**Required:**


**Supplemental:**


4. Basic econometrics overview

Required:

***Basics of econometrics. Gujrati. Chapters 1; 7-9;


Supplemental:


5. Instrumental variables, experimental and quasi-experimental techniques to identify causal impacts identify causal impacts

Required:


**Supplemental:**


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### 7. Health markets: how are they different?

**Required:**

***Arrow, "Uncertainty and the Welfare Economics of Medical Care," AER 53(5), 1963: 941-973.***

***Hsiao W.C. Abnormal economics in the health sector. Health Policy, Volume 32, Number 1, April 1995, pp. 125-139(15).***


**Supplemental:**


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### II. Block II: Microeconomic foundations. Economic models of health and disease transmission

#### 1. Demand for health

**Required:**


Supplemental:

Rexford E. Santerre and Stephen P. Neun. Health Economics. Chapter 5: The Demand for Medical Services


Note on Grossman’s Model on website

---

2. Expanded Model of Health Production and Health Behaviors

*Required:*


*Supplemental:*
3. Economic Models of Disease Transmission

**Required:**


**Supplemental:**


4. Behavioral Economics and Health

III. **Block III: Development models with health applications.**

### 1. The Economic Lives of the Poor


Ray, Chapter 7 Inequality and Development (Online)
Ray, Chapter 8 Poverty and Undernutrition (Online)

*Supplemental:*

Ray, Chapter 6 Economic Inequality (Online)

### 2. Inter-temporal substitution

*Required:*

***Ray, Ch. 15 (Online)***

Skim the Townsend article:


*Supplemental:*


1. Poverty trap models

*Required:*

***Ray, pp. 272-279, 489-504. (Online)***


*Supplemental:*


2. Missing markets

*Required:*


*Supplemental:*

between markets and institutions” pp.73-83.

Mendola, Maria. Farm Household Production Theories: A Review of “Institutional” and “Behavioral” Responses.

5. Behavioral Economics and Development


***Development Economics through the lens of psychology.
http://environment.harvard.edu/docs/faculty_pubs/mullainathan_psychology.pdf


Supplemental:


IV. Block IV: The Role Of Institutions, Public Health and the private sector.

3. Human and financial capital: The role of public health?

Required:


Supplemental:


2. Health and Development

Required:


Supplemental:


Kenkel, Donald S. “WTP- and QALY-Based Approaches to Valuing Health for Policy: Common Ground and Disputed Territory,” Environmental and Resource Economics. Special Issue (forthcoming).


V. Specific health conditions

1. Malaria

Required:
Skim


**Supplemental:**


##2. HIV/AIDS

**Required:**

Skim


**Supplemental:**


[http://faculty.chicagogsb.edu/alwyn.young/research/Papers/AIDS.PDF]

### 3. Air Pollution

**Required:**

Skim


**Supplemental:**