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| carey | Health Innovation and Evaluation 2 Credits  BU.881.706.XX  [**NOTE:** Each section must have a separate syllabus.]  [Day &Time / ex: Monday, 6pm-9pm]  [Start & End Dates / ex: 8/20/18–10/15/18]  [Semester / ex: Fall 2018]  [Location / ex: Washington, DC] |

## Instructor

[Full Name]

## Contact Information

[Email Address]

[Phone Number, ###- ###-#### (Optional)]

## Office Hours

[Specify the day and time of the 2 hours that will be dedicated to office hours each week. For evening classes, faculty may wish to hold their office hours by phone or email. While faculty are permitted to state “and by appointment,” office hours should not be held exclusively by appointment.]

## Required Texts & Learning Materials

There is no required text for this class.

I have placed the following two texts on e-reserve:

Measuring the Gains from Medical Research

By Kevin Murphy and Robert Topel, Published by the University of Chicago Press

Medical Care Output and Productivity

By Ernst Berndt and David Cutler, National Bureau of Economic Research, Studies in Income and Wealth Volume 62

We will discuss the articles listed below. I will provide e-links to the articles on Blackboard, however you are responsible for reading them in whatever form you see fit (printed, iPad, Kindle, whatever).

Articles:

Leon, Gianmarco and Edward Miguel “Risky Transportation Choices and the Value of Statistical Life” Paper available here: <http://emiguel.econ.berkeley.edu/assets/miguel_research/5/SL-VSL_2016-07-07-CLEAN.pdf>

Ashenfelter, Orly and Michael Greenstone “Using Mandated Speed Limits to Measure the Value of a Statistical Life” – the Working Paper version is available here: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=331463>

Goldman, Dana et al “An Economic Evaluation on the War on Cancer” Journal of Health Economics, 29, 333-346 available here: <http://works.bepress.com/dana_goldman/67>

Sun, Eric et al “The Contributions of Improved Therapy and Earlier Detection on Cancer Survival Gains 1988-2000” Forum for Health Economics and Policy, Vol 13, Issue 2, 2010; also available here: <http://works.bepress.com/dana_goldman/64>

Joyce, Geoffrey et al “Impact of Specialty Drugs on the Use of Other Medical Services” American Journal of Managed Care, Vol. 14, no 12; also available at <http://works.bepress.com/dana_goldman/62>

GAO Report on Drug Shortages “Public Health Threat Continues, Despite Efforts to Help Ensure Product Availability” February 2014, available at <http://www.gao.gov/assets/670/660785.pdf>

Haninger, Kevin, Amber Jessup and Kathleen Koehler, *Economic Analysis of the Causes of Drug Shortages*, Office of the Assistant Secretary for Planning and Evaluation, Office of Science and Data Policy, U.S. Department of Health and Human Services, ASPE Issue Brief, October 2011.

Woodcock, Janet and Marta Wosinska, “Economic and Technological Drivers of Generic Sterile Injectable Drug Shortages”, *Clinical Pharmacology & Therapeutics*, 7 November 2012

Simeonova, Emilia (2013) “Doctors, Patients, and the Racial Mortality Gap”, Journal of Health Economics, September 2013 (also available on my website)

Case studies:

Craig R. Davis “Calculated Risk: A Framework for Evaluating Product Development”

Drug Eluting Stents: A Paradigm Shift in the Medical Device Industry Stanford Graduate School of Business Case Study OIT-50 from February 13, 2006

Richard G. Hamermesh, Lauren Barley and Ginger L. Graham “[Proteus Biomedical: Making Pigs Fly](https://cb.hbsp.harvard.edu/cbmp/product/809051-PDF-ENG)”

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Margaret L. Eaton, Rebecca Farkas and Daniel Greenwald “Myriad and OncorMed and the Marketing of the First Genetic Tests for Breast Cancer Susceptibility”

Johanna Mair and Oliver Schoen “New Model for the Pharmaceutical Industry: The Institute for OneWorld Health”

Richard Bohmer and Naomi Atkins “E2M Health Services”

## Course Description

This course focuses on emerging models of health care provision, including the role of information technology, mobile technologies, point of care diagnostics on a chip, health care at home, telemedicine, and technology-mediated innovations in health care for both consumers and providers. The course discusses various models of evaluation and how health care innovation is valued, funded, and commercialized.

## Course Overview

This course will teach you how evaluate technological improvements in health care from the micro (individual) and macro (societal) perspective; it will outfit you with the basic economic and statistical models and other tools you need to analyze the benefits and costs of medical innovations.

Good knowledge of basic micro- and macroeconomic concepts, as well as basic statistics is assumed.

When you complete this course you will be able to:

* Master the basic tools used by health care entrepreneurs, venture capitalists and government regulators in assessing technological progress and its impact on the economy in general and the health care sector in particular
* Using tools of economic and econometric analysis mastered in class:
  + Identify how the different components of the health care value chain contribute to the effectiveness and efficiency of health care innovation;
  + Evaluate the market value of medical innovations and develop strategies to best realize this value through strategic market placement and technological diffusion;
* Gain competence in strategic, management, and marketing challenges facing promoters of health care innovation and new medical technology in different market setting; apply the tools of business economics to the analysis and resolution of these challenges

## Prerequisite(s)

None

## Learning Objectives

The selected texts and our class discussions will enable you to achieve the following objectives:

1. Apply the tools of business economics to appropriately analyze decision-making of health care organizations, entrepreneurs, and government regulators.
2. Develop an analytical, critically constructive style of analysis of issues in health care and other industries.
3. Integrate current research literature on value in health care innovation, and apply the research to issues in health care business decision-making.
4. Apply lessons from class to real-life situations, in the business of health care innovation and in the general economy.

To view the complete list of the Carey Business School’s general learning goals and objectives, visit the [Carey website](https://carey.jhu.edu/faculty-research/resources-for-faculty/teaching-learning-at-carey/learning-assessment/).

## **Attendance**

* Name cards are mandatory and must be displayed at all times. Make your own card and bring it to class.
* Attendance and participation are part of your course grade. Everyone’s full attention and engagement in the learning process are crucial in fostering a healthy and engaged learning environment and also benefit your peers. Course participation is more than just attending class. Asking questions and offering your perspective based on experience, cultural background, or knowledge attained in other classes is encouraged.
* The attendance grade composition reflects the basic points outlined above. Students will receive points according to their attendance and class participation in every lecture: 0 points or no attendance; 1 point for attendance and no class participation; 2 points for class participation; and 3 points for class participation that fosters discussion and understanding of other students.
* I expect you to come to class on time and prepared. This means having read the assigned text and prepared for the case discussion.
* Responding to email or surfing the internet during class is considered to be unprofessional. Aside from taking notes, a laptop is generally unnecessary. Please put all pagers and cell phones on vibrate mode.
* The dates for the reading quizzes and class presentations are posted in the calendar below. If you are not in class, you miss the quiz and your grade is affected.
* The typical class proceeds as follow: lecture and discussion of new material from 6-7:20pm; short break for snacking 7:20-7:35pm; case study discussion for the rest of the class. If we have a speaker, she/he will present during the first part of the class, before break. We will adjust the class structure to accommodate them.

## Assignments & Rubrics

| **Component** | **Learning Objectives** | **Percent of grade** |
| --- | --- | --- |
| Final presentations\*\*  (10% of grade assigned by class; 30% by professor) | 1, 2, 3 | 40% |
| Quizzes on the readings (best 3 out of 4) | 2, 3 | 30% |
| Class participation & case studies | 1, 2, 4 | 30% |
| Total | | 100% |

\*\*In today’s business world a lot depends on your ability to work in teams and communicate successfully your opinions and ideas. Your performance will be routinely evaluated by your peers and other business professionals based on their impressions of work that is done in teams. This component of your grade will be calculated based on the average grade that your classmates assign to your team’s presentation.

Scoring rubrics

1. Final Presentations

10: professional level of presentation of material, insight into the topic, demeanor in front of diverse public; ability to answer flawlessly questions from the audience; this is a very rarely assigned grade

8: well-presented and very coherent; new material incorporated in the presentation as well as a demonstration of an excellent grasp of class material; this score should be reserved for the top 10-15% of presentations

6: solid understanding of the case and of related class material; not as inspiring as an 8 but demonstrates good knowledge

4: presentation has a couple of good points; mostly descriptive or repeats material available in the case/class discussion

2: demonstrates very little effort in preparation and/or delivery of the material; poor understanding of underlying issues

0: presenter did not show up

1. Quizzes

One point is gained per correctly answered question. Questions cover material from class notes, class readings, and case studies.

1. Class participation and case studies

3: able to answer or ask good questions with good examples based on the readings or class material; inspires further discussion of the topic; consistently demonstrates insights into the current topic; this score is rare

2: proactively raises a couple of good points; shows good understanding of material in class and in any assigned readings

1: was in class but did not contribute to discussion

0: did not attend class

## Grading

The grade of A is reserved for those who demonstrate extraordinarily excellent performance as determined by the instructor. The grade of A- is awarded only for excellent performance. The grades of B+, B, and B- are awarded for good performance. The grades of C+, C, and C- are awarded for adequate but substandard performance. The grades of D+, D, and D- are not awarded at the graduate level (undergraduate only). The grade of F indicates the student’s failure to satisfactorily complete the course work.

Please note that for Core and Foundation courses, a maximum of 25% of students may be awarded an A or A-; the grade point average of the class should not exceed 3.3. For Elective courses, a maximum of 35% of students may be awarded an A or A-; the grade point average of the class should not exceed 3.4. (For classes with 15 students or fewer, the class GPA cap is waived.)

## Tentative Course Calendar

Instructors reserve the right to alter course content and/or adjust the pace to accommodate class progress. Students are responsible for keeping up with all adjustments to the course calendar.

| **Meeting** | **Topic** | **Readings** | **Due** |
| --- | --- | --- | --- |
| Class #1 | * Health care technology from a business perspective – micro and macro-economy views; * Overview of main advances in technology in the last century and their impact on social welfare; * Review of main concepts from microeconomics and statistical methods | Class notes |  |
| Class #2 | Toolset: Basic cost-benefit analysis   * Estimating the value of life * Cost effectiveness analysis | Class Notes; Reading: Ashenfelter and Greenstone; Leon and Miguel (see reading list)  Case: Calculated Risk |  |
| Class #3 | Medical technology innovations in the medical device industry   * Focus: The value of heart attack treatments | Articles: Pricing Heart Attack Treatments, MCOP, p. 305  Measuring the value of Cataract Surgery, MCOP, p. 411  Case: Drug Eluting Stents: A Paradigm Shift in the Medical Device Industry | Reading quiz 1 |
| Class #4 | Pharmaceuticals I   * Overview of the pharmaceuticals market in the US * How to measure the value of pharmaceutical innovation | **Frank Lichtenberg** “Pharmaceutical Innovation, Mortality Reduction, and Economic Growth” MGMR, p. 74  Case: New Model for the Pharma Industry: The Institute for OneWorld Health | Reading quiz 2 |
| Class #5 | Pharmaceuticals 2   * Focus on the value of cancer drug treatments * Drug shortages * Evaluating damages from patent infringement | **Kevin Haninger, Amber Jessup and Kathleen Koehler**, *Economic Analysis of the Causes of Drug Shortages*, Office of the Assistant Secretary for Planning and Evaluation, Office of Science and Data Policy, U.S. Department of Health and Human Services, ASPE Issue Brief, October 2011.  GAO report update 2014 (see reading list)  **Janet Woodcock and Marta Wosinska**, “Economic and Technological Drivers of Generic Sterile Injectable Drug Shortages”, *Clinical Pharmacology & Therapeutics*, 7 November 2012  Goldman, Dana “The Value of Specialty Oncology Drugs”  Case: Myriad and OncorMed and the Marketing of the First Genetic Tests for Breast Cancer Susceptibility | Reading quiz 3 |
| Class #6 | Patient compliance with medication   * Behavioral issues * Cost issues * Strategies | Class notes;  Article: Simeonova, Emilia (2013) “Doctors, Patients, and the Racial Mortality Gap”, Journal of Health Economics  Case: Proteus Biomedical: Making Pigs Fly | Reading quiz 4 |
| Class #7 | Value in health management   * Focus on long-term care industry | Reading list; Class notes  Case: E2M Health Care Services |  |
| Class #8 | **Group presentations** | |  |

**A note on e-mails and appointment times**

I check e-mail several times a day during the week. I cannot guarantee that you will get a prompt reply to e-mails sent on weekends. The last time I check e-mail during the week is around 10 p.m. in the evening. However, I am not likely to respond to an extended question about a problem set due the next morning at that time. If you send me a question by 6 p.m. on the day before the due date, you will probably get an answer.

Using Blackboard to pose a question and start a discussion is an excellent idea. Don’t be shy! If you do this your classmates will also benefit from your question.

## Carey Business School Policies and General Information

### Blackboard Site

A Blackboard course site is set up for this course. Each student is expected to check the site throughout the semester as Blackboard will be the primary venue for outside classroom communications between the instructors and the students. Students can access the course site at <https://blackboard.jhu.edu>. Support for Blackboard is available at 1-866-669-6138.

### Disability Support Services

All students with disabilities who require accommodations for this course should contact Disability Support Services at their earliest convenience to discuss their specific needs. If you have a documented disability, you must be registered with Disability Support Services ([carey.disability@jhu.edu](mailto:carey.disability@jhu.edu) or 410-234-9243) to receive accommodations. For more information, please visit the [Disability Support Services webpage](http://carey.jhu.edu/life-at-carey/student-resources/disability-services).

### Academic Ethics Policy

Carey expects graduates to be innovative business leaders and exemplary global citizens. The Carey community believes that honesty, integrity, and community responsibility are qualities inherent in an exemplary citizen. The objective of the Academic Ethics Policy (AEP) is to create an environment of trust and respect among all members of the Carey academic community and hold Carey students accountable to the highest standards of academic integrity and excellence.

It is the responsibility of every Carey student, faculty member, and staff member to familiarize themselves with the AEP and its procedures. Failure to become acquainted with this information will not excuse any student, faculty, or staff from the responsibility to abide by the AEP. Please contact the [Student Services office](mailto:carey.student@jhu.edu) if you have any questions. For the full policy, please visit the [Academic Ethics Policy webpage](http://carey.jhu.edu/ethics-policy).

### Student Conduct Code

The fundamental purpose of the Johns Hopkins University’s regulation of student conduct is to promote and to protect the health, safety, welfare, property, and rights of all members of the University community as well as to promote the orderly operation of the University and to safeguard its property and facilities. As members of the University community, students accept certain responsibilities which support the educational mission and create an environment in which all students are afforded the same opportunity to succeed academically. Please contact the [Student Services office](mailto:carey.student@jhu.edu) if you have any questions. For the full policy, please visit the [Student Conduct Code webpage](https://studentaffairs.jhu.edu/policies/student-code/).

### Student Success Center

The Student Success Center offers free online and in-person one-on-one and group coaching in writing, presenting, and quantitative courses. For more information on these services and others, or to book an appointment, please visit the [Student Success Center website](http://carey.jhu.edu/life-at-carey/student-development/academic-support/student-success-center/).

### Other Important Policies and Services

Students are encouraged to consult the [Student Handbook and Academic Catalog](http://carey.jhu.edu/life-at-carey/student-resources/student-handbook-and-academic-catalog/) and [Student Services and Resources](http://carey.jhu.edu/life-at-carey/student-resources/) for information regarding other policies and services.

### Copyright Statement

Unless explicitly allowed by the instructor, course materials, class discussions, and examinations are created for and expected to be used by class participants only. The recording and rebroadcasting of such material, by any means, is forbidden. Violations are subject to sanctions under the [Academic Ethics Policy](http://carey.jhu.edu/ethics-policy).