A205 – MICROECONOMICS: A POLICY TOOL FOR EDUCATORS

12:00 - 2:00 pm Mon/Wed **Fall 2008**

INSTRUCTOR	**Prof. Bridget Terry Long**	longbr@gse.harvard.edu
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Course Website: http://isites.harvard.edu/icb/icb.do?keyword=k39739
Please check the course website periodically for important announcements and handouts.

COURSE DESCRIPTION

This course is designed to equip students with the ability to analyze education policies and their (often unintended) consequences using the framework of microeconomics. How can we attract good teachers to public schools? How do different types of government grant programs affect local school spending? What are the effects of policies that subsidize the cost of postsecondary education? A variety of questions will be addressed using the tools of microeconomics. Examples are drawn from multiple countries and include preschool to adult education.

Course Goals: The primary goal of this course is to teach you how to use microeconomics in analyzing a wide range of educational policy issues. Examples of policy problems are drawn from early childhood education, elementary and secondary education, and higher education in a variety of countries. The course has several secondary goals, including to provide you with an understanding of the results of recent research that bear on important educational policy issues and to help you to become skilled at writing brief policy memos the discuss the implications of economic reasoning and research. The course will prepare students to take other courses offered at Harvard that have a microeconomics prerequisite.

Is this course for you? There are no prerequisites, and the course does not use mathematics beyond high school algebra and geometry. Moreover, the teaching fellows provide a great deal of help and support. However, you should only take this course if you are willing to do the preparation for every class. Students who have had intermediate microeconomics or were undergraduate Economics majors should not take this course.

The Application Procedure for A205: *Enrollment in A205 is limited to 80 students*. All students interested in taking A205 *must complete the online application* at the course website by *Wednesday, September 10, 2008 at midnight.* Students for whom this is a requirement will be given first priority, including those in the International Education Policy (IEP) Program and Urban Superintendents

Program (USP). Next, preference will be given to doctoral students and students in the Education Policy and Management (EPM) Program. Thereafter, HGSE students enrolled in other programs will be considered. Admitted students will be emailed by noon on Thursday, September 11, 2008 (students not accepted will also be emailed). Leslee Friedman (Gutman 430) will also have the list of accepted students. To enroll, students must get their course card signed by Leslee Friedman (Gutman 430) in time for registration (on Friday, students can also get their course card signed by Amanda Scobie in Gutman 423).

Accepted students who elect to take the course are required to complete two online surveys (preferences for the presentations and an initial assessment that asks for answers to a group of educational policy questions) *by Saturday, September 13, 2008 at midnight*. Students enrolled in the course are also required to download the notes for the first class from the course website and read them carefully *before attending* on Monday, September 15th.

COURSE REQUIREMENTS

Students are required to attend all classes, do all of the readings, come to class prepared to answer questions listed in the class notes and to summarize the lessons from the brief articles at the end of the class notes, and complete the problem sets and four policy memos. Assignments must be turned in by the due dates listed on the syllabus.

For students who do meet these requirements, the following weighting scheme will be used to determine the final grade for the course:

Policy memos	25% of grade
Midterm exam	25% of grade
Final exam	30% of grade
Group Presentation and Class Member Responses	20% of grade

In the event that your final exam grade exceeds the grade on your midterm, I will re-weight the grade calculation so that 35% of your grade is determined by the final (and 20% by the midterm). Note: Student work will *not* be accepted via fax or email.

Class Attendance and Participation

Class attendance is required. In addition, class participation is required. The quality of your participation could affect your grade in positive ways. Likewise, those who do not participate in the lectures will find their grades negatively impacted.

There are many opportunities to participate, including giving verbal answers to the questions in the class notes (shaded in gray) and providing summaries of the lessons learned from the brief articles at the end of the class notes. You are also expected to participate in the discussion part of the group assignment (discussed below). Note, however, that the quality of one's contributions to the class discussion is what matters and not the number of times one speaks. Insightful questions are also viewed as positive contribution.

It is important to note that each of us brings certain ideas, personal experiences, and biases to any conversation about education. These thoughts are entirely reasonable and could serve as important contributions to this course. However, this course is not intended to become a conversation about our own personal experiences. Rather, the goal is to make you more aware of the broader landscape of experiences, perspectives and policies. Therefore, it is important for each of us to approach the course discussions with an open mind.

Late Policy

Problem sets will be reduced one grade for each day they are submitted late. For example, problem sets that would be graded as check-plus will be given a check. Likewise, problem sets that would have received a check will be given a check-minus. Grades below check-minus will be considered incompletes.

Policy memos that are late will also receive a reduction in grade for each day they are late. For example, an A paper would become an A-. Note that assignments submitted late will not be returned at the same time as other assignments. Therefore, students may not receive feedback on them before subsequent assignments are due.

Course Readings

The main "text" required for this course is a set of lecture notes developed by Prof. Richard Murnane with short additions from myself and others who have taught the course. It is important that you carefully read the notes for each class ***before*** coming to the class in which the material will be presented. You should also prepare answers to every question and problem that is included within the notes. You may find some difficult, but ***working on them before the class will increase your learning during the class***. *This is extremely important.* You will get good value from the classes only if you work out answers to all questions posed in the notes before coming to class. Finally, also read the newspaper articles at the end of each set of notes. They illustrate lessons in the notes. Students are expected to be able to summarize these lessons during the class discussion.

To get the course lecture notes and other readings, students should consult the following sources. While this method is not as simple as a single packet or set of books, it will minimize the cost of getting the materials. If you are having trouble locating a particular reading, please contact my Faculty Assistant, Leslee Friedman (friedmle@gse.harvard.edu).

(a) ***Required Course Packet***

The course packet contains the required lecture notes and other articles that are not available online. Students are required to purchase the course packet. The cost of copyright fees is included in the price of the course packet. (Coursepacks are automatically term billed.) The first two sets of lecture notes will also be available on the course website during the first two weeks of the course. For further information about the coursepacks, please consult the Course Materials link in the General Course Information topic box on MyGSE or contact Carol Kentner (kentneca@gse.harvard.edu).

(b) ***Required Books***

Two additional books that are required reading are:

Barnett, W.S. *Lives in the Balance: Age 27 Benefit-Cost Analysis of the High Scope Perry Preschool Project* (Ypsilanti, Michigan: High/Scope Press, 1996).

Okun, Arthur M. *Equality and Efficiency: The Big Tradeoff* (The Brookings Institution, 1975)

These books are available at the Harvard Coop. They are also on reserve at Gutman Library.

(c) ***Harvard Library Online Resources***

Many of the course readings are available online for free through the Harvard Library system of online resources. The syllabus notes which readings students should access in this way (e.g. "[HOLLIS]" meaning the article is available electronically via Hollis). There are several ways you can access the readings:

1. Use the Citation Linker for Harvard University Library e-resource items: http://sfx.hul.harvard.edu/citation/sfx_local/.
2. Access readings via the "Links to Readings on HOLLIS" list located at the "Readings" section of the course website.

Please note that while we have tested that these links work as of September 2008, we cannot guarantee that they will work when you need them. If they do not work, go to the Citation Linker.

Problem Sets

There are 8 problem sets, and they are posted on the course website. The due dates are listed on the course calendar. Students who do not pass in the problem sets on time will receive lower course grades. The problem sets may be submitted in hand-written form as long as the writing is legible.

The problem sets will be graded and returned promptly. So that the problem sets are graded blindly, put your on name *only on the back of your paper*. The answers will also be posted on the course website shortly after the problem set is due. If a problem set is graded "incomplete" or "not satisfactory," it must be revised. The revision is due ***within one week*** of the date when you received the original comments. Failure to do so will result in your course grade being lowered. Please also see the late policy outlined in the above section.

You should work on the problem sets by yourself and submit your own answers. However, you may discuss the problems with fellow students. For this reason, problem set grades do *not* contribute to your final course grade. Completion of the problem sets is still a course requirement.

Initially you may find the problem sets frustrating because they abstract from many real world considerations. This is necessary so that you can concentrate on the development of tools. As your mastery of tools increases, it will be possible to focus on more realistic problems. Be sure to read each problem set by the class *before* it is due so that you can ask for clarification of any question that may appear unclear.

Policy Memos

Four of the assignments are policy memos. No matter what professional path you follow, you will need to write brief memos. Doing this well is critical to making a difference (and to professional advancement). The assignments must be typed, and the due dates are shown on the course calendar. When grading these assignments, we will pay attention to:

- The quality of the economic reasoning
- The use of data to support your argument
- The quality of the writing, including the extent to which the memo or speech is appropriate for the audience to which it is intended.
- Adherence to maximum length requirements.

A copy of the grading rubric is posted online under the "Assignments" tab.

We have prepared an on-line resource to help you learn to write effective policy memos. This “e-lecture” is available at the following website:

http://gseacademic.harvard.edu/~instruct/articulate/a205/player.html

There is also a link to this resource on the course website under the "Course Resources" tab. I urge you to listen to the “e-lecture” before preparing your first policy memo.

The TFs and I want to provide honest feedback about the quality of your memos. This means giving a low grade to a memo that would not serve you well if you wrote it in a professional setting. A challenge for us is to do this in a way that does not penalize those of you for whom writing policy memos is a new experience. Our solution is to count only your three highest policy memo grades. Consequently, if you have difficulty with the first memo, but learn by rewriting it, and then do a better job on the three subsequent memos, the grade on the first memo will not count toward your course grade.

So that the memos are graded blindly, put your on name *only on the back of your memo*. Additionally, list the word count of your essay at the end of the memo. You must write the memo by yourself. However, you may discuss the memo topic and ideas for approaching it with others. *If you do so, you must write on the back of your memo (below your name) the names of the people with whom you discussed the memo assignment.*

If you received a B+ or below on a policy memo and want to improve your grade, you may submit a revised version to the Teaching Fellow who graded your first draft ***within one week*** of the date when your original memo was handed back to you. You should also include the rubric used by the TF to grade your first version. Your final grade on the memo or speech will be the average of your grades on the original submission and the revised version.

If you do not agree with the TFs assessment, you are welcome to submit the paper along with a memo explaining your position to me. After reviewing the paper and comments, I may decide to change the grade either *up* or *down*. Please also see the late policy outlined in the above section.

Group Presentations and Discussion Questions

Each student taking the course will be part of a group that prepares and presents one of the readings in the course. After being accepted into the class, I will ask you to rank order your preferences for the paper that you would like to present. Please denote your preferences by Saturday, September 13, 2008 at midnight. [Under the "Assignments" tab on the course website, there is a quick summary of each article. Please review this before ranking your preferences.] The Teaching Fellows and I will use these preferences to compose the groups. As a member of the class, you are also required to participate in the discussion of the article after the presentation. Below I detail the various roles one needs to play as part of this assignment:

(a) As Part of a Presentation Group

1. The group should prepare two discussion questions concerning the reading. These questions should be specifically tailored to the issues of the article (no generic questions please). The discussion questions must be posted on the course website in the "Discussions" folder a *minimum of three days* before your presentation. Leslee Friedman or one of the TFs can show you how to do this. Course participants should

come to class prepared to discuss the answers to the questions (see the course requirement described below).

2. The group should prepare an ***eight-minute presentation*** of the main themes of the reading. This presentation should bring classmates up to speed who did not have a chance to closely review the article as well as clarify some of the more difficult points of the article for those who did do the reading. The presentation might address some of the following questions:
   a) Briefly, what is the question the article addresses and why is it interesting and/or important? How does the author answer the question and what data does s/he use? (only relevant to empirical articles) What is the author's answer to the question? Remember to keep this brief as class members are required to review the articles beforehand.
   b) What economic principle(s) does the article illustrate?
   c) What assumptions underlie the author’s analytical strategy and/or interpretation of the results?
   d) What are the implications of the author's answer?

   Presentations that take longer than eight minutes will receive lower grades.

3. The group will then lead an 8-minute discussion of the answers to the questions it prepared and posted beforehand. I encourage the group members to read before class the responses that students provided to the group’s questions on the course website. Note that the eight-minute presentation should not answer the questions distributed to class members. To make this work, the content of the presentation and the content of the discussion questions will need to be jointly planned. Some of the questions listed above might be addressed in the presentation while others could be revised to serve as a specific discussion question for the article. For example, the group might have a discussion question focus on the specific policy implications of their reading. The group giving the presentation should come to class having thought through its answers to the discussion questions.

   A Teaching Fellow will be available to help each group plan its presentation. Additionally, I urge you to practice the presentation beforehand. Grades for presentations will be based on:
   a) The quality of the 8-minute presentation (based on its clarity and the extent to which the presentation provides a well-defined message)
   b) The quality of the discussion questions and the effectiveness of the group in leading the class discussion of the questions

4. The group must submit *electronically* one short report that includes: (a) their final slides in PowerPoint format, (b) any relevant notes that aided in the review of the article and development of the presentation, and (c) a description of how each group member contributed. Part (c) will help me understand how the work was divided (including meeting with a TF, brainstorming the presentation materials, designing and formatting the slides, presenting in front of the class, monitoring the discussion comments, etc.).

(b) As a Member of the Class

Even when not presenting, class members are expected to have reviewed the article and to participate in the discussion during lecture. Students are required to closely read at least **eight** of the articles. To help foster this preparation, each class member must respond to a discussion question posted on the website for ***eight*** of the articles. To receive credit, students need only respond to one of the two questions posed by each group. The deadline for posting a response is *24 hours before the class* featuring the presentation. No credit will be given for responses that do not reflect a thoughtful reading of the article. In other words, you must demonstrate your understanding of the article in your discussion response.

Responding to questions on fewer than eight articles will result in a reduction in your grade for the group project. If you choose to respond to more than eight presentations, you can increase your group presentation grade. Your grade will increase by one point (on a 100-point scale for this part of the grade) for each paper you provide thoughtful responses to above the required eight.

Please note: *All students are required to read and respond to a discussion question concerning Okun (1975).* This means you must respond to Okun and at least seven other articles (unless, of course, you are part of the presentation group for Okun and therefore must respond to eight other articles).

Midterm and Final Exams

At least two weeks before the midterm and the final exams, I will make available copies of exams and answers from previous years on the course website. The mid-term exam will be completed during class on Wednesday, October 22. The Take-home Final Exam will be available online on Monday, January 12 at 9:00 am. It is due by 3:00 pm on Wednesday, January 14, in Gutman 430 (Leslee Friedman's office).

ACCESS TO HELP

There are numerous ways for you to get help with the course. First, among the most important responsibilities for the Teaching Fellows is to answer questions and teach review sessions. Each Teaching Fellow will hold weekly review sessions at times that fit into the schedules of most students. The sessions will review questions and examples from lectures as well as the types of problems that might be on the problem sets. However, TFs will not answer questions about specific problems on the assignments before they are due. Nor will they discuss questions on upcoming memos except to provide clarification of the assignments. The review sessions are scheduled for the following times:

- Ben: Mondays 3:00-4:30
- Angela: Tuesdays 5:30-7:00
- Rachel: Wednesdays 4:00-5:30
- Kolajo: Thursdays 8:30-10:00
- Michael: Fridays 1:00-2:30

The Teaching Fellows will also make appointments with students to obtain help outside of the review sessions. (Send an email message to a TF to request a time for a help session.)

In addition, I will try to stay after each class to answer quick questions. Moreover, I have weekly office hours (students can use the sign up sheet online to see me during those times). You are also encouraged to form study groups to use your fellow students as resources.

CONCERNS ABOUT PLAGIARISM

Please read the HGSE policy on plagiarism, presented in the Student Handbook. Pay particular attention to the notion that "in the preparation of all papers and other written work submitted … a student must be careful to distinguish between ideas that are his or her own and those that have been derived from other sources. Information and opinions drawn from all sources are to be attributed specifically to these sources" (p. 34). *Students who submit work that is not their own or without clear attribution to the original source will be dismissed from HGSE.*

<u>LIST OF READINGS</u> (listed by the author's last name and year on the calendar)

Barnett, W.S. (1996) *Lives in the Balance: Age 27 Benefit-Cost Analysis of the High Scope Perry Preschool Project.* Ypsilanti, Michigan: High/Scope Press. [Required book available at the Harvard COOP]

Banerjee, Abhijit, Shawn Cole, Esther Duflo, and Lee Linden. (2007) "Remedying Education: Evidence from Two Randomized Experiments in India." *Quarterly Journal of Economics*, 122(August 2007)3: 1235-1264. [HOLLIS]
http://www.mitpressjournals.org.ezp2.harvard.edu/doi/pdf/10.1162/qjec.122.3.1235

Deininger, Klaus. (2003) "Does Cost of Schooling Affect Enrollment by the Poor? Universal Primary Education in Uganda." *Economics of Education Review* 22(3): pp. 291-305. [HOLLIS]
http://www.sciencedirect.com.ezp1.harvard.edu/science?_ob=MImg&_imagekey=B6VB9-4834GB0-3-9&_cdi=5921&_user=209690&_orig=browse&_coverDate=06%2F30%2F2003&_sk=999779996&view=c&wchp=dGLbVzz-zSkWb&md5=34c5cf9dbf5160f5bd58391a65ef6511&ie=/sdarticle.pdf

Fryer, Roland G. Jr. and Glenn C. Loury (2005). "Affirmative Action and Its Mythology" *Journal of Economic Perspectives* 19(3) (Summer): 147-162. [HOLLIS].
http://www.atypon-link.com.ezp1.harvard.edu/AEAP/doi/pdfplus/10.1257/089533005774357888

Goldin, Claudia, Lawrence F. Katz, and Ilyana Kuziemko. (2006) "The Homecoming of American College Women: The Reversal of the College Gender Gap," *Journal of Economic Perspectives*, 20(4): 133-156. [HOLLIS]
http://www.atypon-link.com.ezp1.harvard.edu/AEAP/doi/pdf/10.1257/jep.20.4.133

Hammond, John S. (2002) "Learning by the Case Method." Harvard Business School, April 16. [COURSE PACKET]

Hanushek, Eric A. (2003) "The Failure of Input-Based Schooling Policies." *The Economic Journal* 113(February)485: F64-F98 [HOLLIS].
http://edpro.stanford.edu/hanushek/admin/pages/files/uploads/input_based.EJ.pdf

Ludwig, Jens and Deborah A. Phillips. (2007). "The Benefits and Costs of Head-Start." NBER Working Paper No 12973. (March) [HOLLIS].
http://www.nber.org.ezp1.harvard.edu/papers/w12973.pdf

Holcombe, Rebecca (2008). Equity and Efficiency: Vermont's Act 60 (Equal Educational Opportunity Act). A Case Study prepared for the Harvard Graduate School of Education. [COURSE PACKET]

Moore, David S. (1985) "The Consumer Price Index and its Neighbors." In D.S. Moore, *Statistics: Concepts and Controversies*, 2nd edition. W.H. Freeman & Co.: pp. 234-257. [CP]

Muralidharan, Karthik and Venkatesh Sundararaman (2007). "Teacher Incentives in Developing Countries: Experimental Evidence from India." Working Paper. [WEB]
http://siteresources.worldbank.org/INTINDIA/4371432-1194542398355/21543218/TeacherIncentivesinDevelopingCountries.pdf

Murnane, Richard J. (2005). "The Role of Markets in American K-12 Education," in Richard R. Nelson (ed.), *The Limits of Market Organization*, Russell Sage Foundation, 2005, pp. 161-184. [COURSE PACKET]

Murnane, Richard and Frank Levy. (1996) "Evidence from Fifteen Schools in Austin, Texas." In Gary Burtless, ed. *Does Money Matter?* Washington, DC: Brookings Institution Press: pp. 93-96. [COURSE PACKET]

Neal, Derek. (2004) "The Measured Black-White Wage Gap Among Women is Too Small." *Journal of Political Economy* 112(1), pp. S1-S28. [HOLLIS]
http://www.journals.uchicago.edu.ezp1.harvard.edu/doi/pdf/10.1086/379940

Okun, Arthur J. (1975) *Equality and Efficiency: The Big Tradeoff*. Washington, DC: Brookings Institution Press. [Required book available at the Harvard COOP]

Reschovsky, Andrew (2006). "Financing Schools in the New South Africa." *Comparative Education Review* 50(1), February: 21-45. [HOLLIS]
http://www.journals.uchicago.edu.ezp1.harvard.edu/doi/pdf/10.1086/498327

Schanzenbach, Diane Whitmore. (2007) "What Have Researchers Learned from Project STAR?" *Brookings Papers on Education Policy*, pp. 205-228. [HOLLIS]
http://muse.jhu.edu.ezp-prod1.hul.harvard.edu/journals/brookings_papers_on_education_policy/v2006/2006.1schanzenbach.pdf

Schultz, T. Paul. (2002) "Why Governments Should Invest More to Educate Girls." *World Development* 30(2), February, pp. 207-225. [HOLLIS]
http://www.sciencedirect.com.ezp1.harvard.edu/science?_ob=MImg&_imagekey=B6VC6-44KWKJF-1-1&_cdi=5946&_user=209690&_orig=browse&_coverDate=02%2F28%2F2002&_sk=999699997&view=c&wchp=dGLbVzW-zSkWb&md5=71b3ef1d1b69c9d95cf740dfbe9ada4a&ie=/sdarticle.pdf

Winston, Gordon G. (1999). "Subsidies, Hierarchy and Peers: The Awkward Economics of Higher Education." *Journal of Economic Perspectives* 13(1), Winter: 13-36. [HOLLIS].
http://www.jstor.org.ezp1.harvard.edu/cgi-bin/jstor/printpage/08953309/di014717/01p0094r/0.pdf?backcontext=table-of-contents&dowhat=Acrobat&config=jstor&userID=80673ce1@harvard.edu/01c0a848660050a764a&0.pdf

A205 – COURSE CALENDAR

Date	Assignment Due	Lecture Topic	Required Readings beyond the Class Notes
9/15		1. How Economists Analyze Problems of Scarcity and Choice	
9/17		2. Supply and Demand in Education: How Markets Allocate Scarce Resources	
9/22	Problem Set 1	3. Elasticities: Measures of Responsiveness	
9/24		4. How Taxes and Subsidies Affect Prices and Quantities	
9/29	Problem Set 2	5. Price Discrimination: Charging Different Prices to Different Consumers of the Same Educational Service	*Presentation:* Deininger (2003)
10/1		6. Producing Education Efficiently: Choosing How to Produce	*Presentation:* Banerjee, Cole, Duflo, & Linden (2003)
10/6	Problem Set 3	7. How Economists Define Costs, and the Implications for Decision Making	*Presentation:* Hanushek (2003) *Required for Everyone:* Murnane & Levy (1996)
10/8	Memo 1	8. Price Indices and "Cost of Living Adjustments"	*Required for Everyone:* Moore (1985), pp. 234-257
10/13		NO CLASS - Columbus Day Holiday	
10/15	Problem Set 4	9. Why Are Some Teachers Paid More Than Others?	*Presentation:* Muralidharan & Sundararaman (2007)
10/20		**Review Class**	
10/22		**Midterm Exam** (in class)	
10/27		10. Evaluating Benefits and Costs Over More than One Year	
10/29	Problem Set 5	11. Evaluating Educational Investments	*Presentation:* Schultz (2002)
11/3		12. Education, Earnings, and the Growing Importance of Skills in the Labor Market	*Presentation:* Neal (2004)
11/5	Problem Set 6	13. Human Capital, Ability, and Screening	*Presentation:* Fryer & Loury (2005)
11/10		14. Welfare Economics: The Search for the “Least Leaky Buckets”	*Presentation:* Okun (1975)

			Note: All students are *required* to read and respond to the discussion questions.
11/12	Memo 2 Due 11/13	15. Externalities, and Roles for Government in the Market for Post-Secondary Education	*Presentation:* Winston (1999)
11/17		16. Analyzing the Incentives Provided by Different Types of Grants	*Presentation:* Goldin, Katz, and Kuziemko (2006)
11/19		17. Types of State Aid Plans for Financing Public Education	*Presentation:* Murnane (2005)
11/24	Memo 3	NO CLASS - Thanksgiving Holiday	
11/26		NO CLASS - Thanksgiving Holiday	
12/1		18. Three Issues that Complicate the Design of Efficient and Equitable School Finance Systems	*Presentation:* Reschovsky (2006)
12/3	Problem Set 7 Due 12/4	19. The Vermont State School Finance Case (Equity and Efficiency: Vermont's Act 60)	*Required for Everyone:* Hammond (2002) and Holcombe (2007)
12/8		20. Benefit-Cost Analysis	*Presentation:* Ludwig & Phillips (2007)
12/10	Problem Set 8	21. Applying Benefit-Cost Analysis to the Perry Pre-School Program	*Required for Everyone:* Barnett (1996)
12/15		22. Applying the Tools of Microeconomics: Research Issues and Policy-Related Questions	*Presentation:* Schanzenbach (2007)
12/17 to 1/1		WINTER BREAK	
1/5 to 1/9		Review Sessions for the Exam	
1/12		**Take-Home Final Exam** available online at 9:00am	
1/14	Memo 4 due with Final Exam	**Final Exam due** at 3:00 pm in Gutman 430	