

## AGEC 690: Applied Contract Theory

### Dr. Steve Wu

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### Course Information

Spring 2016  
Lectures: TTH 12:00-1:15PM  
Krannert G007

### Course Description

This is an applied microeconomics course designed for advanced graduate students interested in research that requires the use of modern economic tools drawn from the literature on contract theory. Broadly speaking, this course will cover conceptual models that are useful for analyzing markets that are plagued by asymmetric information (e.g. moral hazard and adverse selection), as well as markets that do not function well due to incentive, matching, or enforcement problems. For example, students working on agribusiness problems that involve supply contracting, organizational design, human resource management, and market design may find this course useful. Students working in international development may also find this course useful as it will cover the design of informal incentives and relational contracts in environments with imperfect institutions. Students in environmental and natural resource economics may find the course useful in thinking about how to design optimal policies and informal incentives for conservation and common pool resources.

### Prerequisites

The first year Ph.D. level microeconomic theory sequence in the Economics Department. A course in game theory at the advanced undergraduate level.

### Required Readings

I will provide pointers to specific journal articles during the semester. Unfortunately, there are no comprehensive textbooks that cover all the material that I will cover in the course. However, there are two very good textbooks that cover select topics. You should consider purchasing these books not just for this course but for your career if you plan on doing research. The texts are:

*Contract Theory*, Patrick Bolton and Mathias Dewatripont, MIT Press 2005.

ISBN: 0-262-02576-0

*The Theory of Incentives*, Jean-Jacques Laffont and David Martimort, Princeton, 2002.

ISBN: 0-691-09184-6

### Course Requirements

#### Homeworks

I will occasionally assign problem sets for this course so that you can get some practice modeling.

### Research Proposal

One of the goals of this course is to help you build your research tools and skills. If you are a Ph.D. student, you will ultimately be awarded a Ph.D. degree only after you demonstrate competence in research. Even if your ultimate aim is to teach or to work outside of academia, keep in mind that the Ph.D. is inherently a research degree.

Research and publishing in economics usually involves four to five major components:

- 1) Formulate an interesting and timely question or topic. If it is an applied topic, it should address a contemporary policy or social issue that people care about. If it is methodological or theoretical, it should address a current methodological or theoretical problem that economists are struggling with.
- 2) A review of related literature so that you know where your topic fits in the literature. Your goal should be to address a “gap” or unanswered question in the literature. That is, your topic should move the literature forward. Reviewing literature also prevents you from duplicating someone else’s work. If it has already been done, then you should only proceed if your research will improve upon what has already been done. Otherwise, move on to something else.
- 3) Use an economic approach to addressing the topic or question. This usually means using a microeconomic model to model the problem at hand. The model should produce some “propositions” or results. These results can also serve as hypotheses that can be falsified by empirical data.
- 4) If the work has an empirical component, then you should discuss the data and methods that you will use to test your hypotheses. Basically, you need to be clear about how you intend to use an empirical framework to answer the original research question that you posed.
- 5) The results and analysis has to be written up or presented in a coherent way. Good writing and a strong introduction that motivates the paper and discusses where it fits in the literature are **crucial** for publication.

In this course, I would like to develop your skills on (3) because learning how to model using microeconomics is one of the hardest skills to learn in economics. However, I would also like to help you develop (1) and (2) by having you formulate an interesting and timely research question. Your job is to come up with a precise and sharp research question using some of the theory that you’ve learned in this class. Then you will provide some motivation for why it’s important and review the literature to determine where your topic fits in the current literature. Specifically:

1. Formulate an interesting and timely research question. The question should be answerable either using an analytic model (e.g. applied theoretical analysis) or by using an empirical framework (e.g. applied econometrics).
2. Motivate why it is important. You should try to convince people why this research is needed and worth doing.
3. Review and highlight where your topic fits within the current literature. You should be familiar with the most important papers in your area.
4. Discuss how you might go about answering this question. I am not asking you to do the analysis but rather to lay out a strategy for how you would go about doing the

analysis. Your audience should be convinced that you have a plan and that plan should be credible.

Here are the guidelines for the research proposal:

- It should be no more than 2 pages long. I am essentially asking you to write an extended abstract in a format that is quite common for conference paper submissions.
- Use 1.25 margins on all sides.
- Use 12pt font.

**Your proposal will be submitted on Purdue's Gradient Software**

**([www.purdue.edu/review](http://www.purdue.edu/review)) by April 1.** Gradient is a calibrated peer review software program that is designed to facilitate writing assignments and peer-reviews of those writing assignments. There are four major parts to Gradient and you will receive points for each part. Here is how Gradient works:

1. You will write your essay conforming to the above guidelines. And then you will cut and paste it into the Gradient Software program. You also need to submit a hardcopy to me to ensure that your essay conforms to the guidelines.
2. You will do a calibration exam within Gradient. Because you will be peer-reviewing three essays of your peers, the calibration exam will assign you an RCI score depending on how well you do on this exam. The RCI score is essentially a rating of your competency as a reviewer. People with high RCI scores will have reviews that are given more weight by the software program. The Calibration exam also doubles as a mid-term exam for the course.
3. Once you have been calibrated, you will now be assigned three essays written by your peers. You will rate each of these essays from 1-10. You will also provide helpful feedback to your peers.
4. After reviewing others' essays, you will self-evaluate your own essay by giving it a rating from 1-10.

How are you graded on Gradient?

- 30% of your Gradient grade will depend on how three peers rate your essay. Note that each peers' grade will be weighted by their RCI score so more competent reviewers' ratings count more.
- 50% of your Gradient grade will depend on how you do on the calibration exam. Keep in mind that the Calibration exam doubles as the mid-term.
- 10% of your Gradient grade depends on how your rating of the essays you've been assigned to evaluate match up against the ratings of the other peer reviewers assigned to evaluate the same essay. This is just an incentive compatible way for you to avoid over-inflating or over-deflating a rating for an essay for strategic reasons. With this system, your best bet is to provide an honest rating.
- 10% of your Gradient grade depends on how well your self-rating matches up against the average ratings of your essay by your peers. Again, your incentive is to be honest rather than to over-inflate your score for your own essay.

### Exams

There will be one comprehensive exam near the end of the semester or during the Purdue scheduled final exam time for this course. There will also be a Calibration exam as part of your Gradient assignment. **The Calibration Exam will take place on April 5 from noon-1:15pm in computer lab BRNG B286.** So instead of coming to class on that day, you will go directly to the lab.

**Important:** There will be **no makeup exams** unless a student can provide written evidence of an unavoidable emergency that prevents the student from taking the exam during the normal time. If the emergency is deemed to be valid, then I will allow the student to take a make-up exam, although the exam will not be the same version as the one taken by his/her classmates. If the excuse is not deemed valid, the student will not be excused and will receive a zero.

### **Grading**

Points assignments (% of total points for the course):

Homeworks	5%
Gradient	55%
Final exam (written)	40%

### **Policies**

#### Academic Dishonesty

As a student you should be familiar with the student guide to academic integrity. Understand that in this class cheating will not be tolerated in any form. Students suspected of cheating will be dealt with on an individual basis. I am actively looking for cheaters on exams. If I catch you cheating on an exam, you will be dismissed from this class with a failing grade (F) and you will be reported to the Dean of Students Office for disciplinary action. It should go without saying that the benefits of cheating (slightly higher grade) do not outweigh the potential costs of cheating (possible expulsion from the university). Therefore, it is in your best interest not to cheat. The student guide to academic integrity is at:

<http://www.purdue.edu/odos/aboutodos/academicintegrity.php>

#### Students with Disabilities

If you have a disability that requires special academic accommodation, please make an appointment to speak with me within the first three (3) weeks of the semester in order to discuss any adjustments. It is important that we talk about this at the beginning of the semester. It is the student's responsibility to notify the Disability Resource Center (<http://www.purdue.edu/drc>) of an impairment/condition that may require accommodations and/or classroom modifications.

#### Emergencies

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised

semester calendar or other circumstances beyond the instructor's control. Relevant changes to this course will be posted onto Blackboard or can be obtained by contacting the instructor via email or phone.

*Nondiscrimination*

*Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability, or status as a veteran. The University will conduct its programs, services and activities consistent with applicable federal, state and local laws, regulations and orders and in conformance with the procedures and limitations as set forth in [Executive Memorandum No. D-1](#), which provides specific contractual rights and remedies.*