COURSE SYLLABUS
Spring, 2014

Course: ECON 689-602: Advanced Economic Theory

Instructor: Guoqiang Tian
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Lectures: TR 3:05 – 4:20 pm
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Office Hours: TR 10:50-11:50 am or by appointment
Bush Academic Building West 3090

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Text: The textbooks are: (1) Contract Theory by P. Bolton and M. Dewatripon; (2) The Theory of Incentives by J. Laffont and D. Martimort; and (3) Auction Theory by V. Krishna. The lectures on the mechanism design, however, will be mainly based on my lecture notes: Microeconomic Theory, which can be downloaded from my website. It is greatly acknowledged that some materials in the lecture notes are drawn from the references in the end of each charter, especially from the textbooks.

Grade: You will be evaluated on the basis of a series of homework problems, one presentation, and two exams. Homework will be handed out periodically. Your grade will be calculated using the method list below.

Homework: 25%
Presentation: 25%
Exam: 50%

Course Objectives: This is a course in the field of advanced microeconomic theory. The course will study the foundations and recent developments economic theory and their applications to economic organizations. The purpose of this course is
to provide students with tools and topics that will help them find ideas for their dissertations at the frontier of research in economic theory. The course will cover the topics in mechanism design in general and optimal contract theory and auction theory in particular. As regards tools, this course will use incentive theory and game theory as a methodological thread to connect the material presented. The course will provide basic analytical frameworks to study incentive issues under incomplete information and have wide applications to almost all fields of economics. Part I will study the optimal contract theory or so-called the principal-agent theory: one-agent models of hidden characteristics (adverse selection) and hidden action (moral hazard). Part II will study general mechanism design with multi-agents: contract theory and implementation theory. Part III will study auction theory. Part IV will study dynamic contract theory. The course will bring students to the frontier of theoretical research. The course will begin with optimal contract theory, implementation theory, and auction theory, followed by increasingly recent work in dynamic contract theory and dynamic mechanism design, to end with open questions.

*ADA Policy Statement:* The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Office of Support Services for Students with Disabilities in Room 126 of the Student Services Building. The phone number is 845-1637.

*Academic Integrity Statements:* “An Aggie does not lie, cheat, or steal or tolerate those who do.”

*Prerequisites:* ECON 629 and ECON 630 or have the permission from me

*Tentative Topics Outline:*

Readings: Chapters 1, 2, 4 of Bolton and Dewatripon, Chapters 1-5 of Laffont and Martimort, Chapters 13-14 of Mas-Colell, Whinston, and Green, and Chapters 13-14 of my lecture notes *Microeconomic Theory.*
Part II. Mechanism design with multi-agents – contract theory and implementation theory: incentives and information of an economic system, economic mechanism design, implementation in Nash equilibrium and in Bayesian equilibrium, truth telling and dominant mechanism, the pivot mechanism, and optimal dominant mechanisms.

Readings: Chapter Chapters 1 and 7 of Bolton and Dewatripon, Chapter 23 of Mas-Colell, Whinston, and Green, and Chapters 15 of my lecture notes Microeconomic Theory.

Part III. The auction theory: private value auctions, independent private values auctions, revenues equivalence principle, auctions with interdependent values, revenue ranking principle efficiency and the English auction, mechanism design with interdependent values, multiple object auctions Auction Theory.

Readings: Chapters 1-10 of Krishna.

Part III Dynamic contract theory: dynamics of incentive contracts, dynamic contracts with commitment, dynamic contracts without full commitment, dynamics with short-term contracts, and long term renegotiable contracts.

Readings: Chapters 1 and 9 of Bolton and Dewatripon and Chapters 16 of my lecture notes Microeconomic Theory.