ZHOUZHOU GU

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Last updated: Oct. 2021

EDUCATION

Peking University *September 2018 - Present*
Bachelor of Science in Physics Overall GPA: 3.84/4, with 159 credits
Department of Physics Ranked 5% out of 180.

Peking University *September 2019 - Present*
Bachelor of Arts in Economics Double Major GPA: 3.91/4
National School of Development

FEATURED COURSES

1. Core Economic Courses
Intermediate Microeconomics (A+), Intermediate Macroeconomics (A+), Econometrics (A+), Game Theory and Society (A+), Industrial Organization (A-), Topics in Quantitative Finance (A);

2. Mathematical Courses
Linear Algebra (A), Probability and Statistics (A), Methods of Mathematical Physics (Complex Analysis, Ordinary Differential Equations, Partial Differential Equations) I & II (A+), Computational Physics (Numerical Analysis) (A+), Function of Real Variables (On going, 2021 Fall).

3. Grad Courses
Advanced Microeconomics I (A), Advanced Microeconomics II (Game Theory) (A+), Advanced Macroeconomics I (A+), Advanced Econometrics I (A), Contract Theory (A+), Stochastic Analysis and its Application (A+).

RESEARCH INTERESTS

Corporate Finance, Market Micro-structure, Macro-finance, Contract Theory, Industrial Organization, Real Estate Economics.

RESEARCH EXPERIENCE

Firm Quality Dynamics and the Slippery Slope of Credit Intervention
Prof. Wenhao Li, Marshall School of Business, University of Southern California *June. 2021 - present*

- Explored the issue of firm quality dynamics with public liquidity provision during a crisis and also replicated and double-checked the theory and numerical part (with Matlab and Python).
- Developed a method to solve ordinary differential equation sets with jumps in R. Compared to the original algorithm, the convergence property becomes 100 times better.

Data as a Production Factor: Privacy Concern vs Product Quality
Advisor: Prof. Zhuoran Lu, Yifan Dou, School of Management, Fudan University *Jan. 2021 - present*

- Developed a benchmark model on the production side without privacy concern, which utilized data as production factor in a Cobb-Douglas function.
- Included privacy concern consideration and found the optimal government privacy regulatory level.
- (on-going) Construct an optimal menu of the supplier and take R&D decision into firm's problem
- (On-going) Extend the model from monopolist to duopoly competition.

Econometric Analysis of US Cancer Death Rate and its Causes (*Term Project, Econometrics*)
Instructor: Prof. Junni Zhang, National School of Development, Peking University Apr. 2020 - June. 2018

- Explored several causes of the cancer by OLS regression and verified what is the determinant factor.
- Collected and cleaned state-level panel data from CDC by Python and Stata and performed IV regression to estimate the causal effect of smoking on lung cancer.
- Identified a once overlooked cause of cancer and some possible policies for the government to reduce the cancer's death rate.

Simulation of Ultracold Atom Gases and Dynamical Phase Transition
Advisor: Prof. Xuzong Chen, Department of EECS, Peking University Feb. 2020 - Present

- Studied dilute cold atom gases' critical behaviors and dynamic phase transition of Bose-Hubbard Model in an optical lattice.
- Proposed a new experimental setup to verify the layered structure in the liquid helium phase transition.
- (on-going) Perform Path Integral Monte-Carlo simulation to identify the critical exponents of dilute cold atom gases and Time of Flight spectrum.

SELECTED IN PROGRESS

Dynamic Land Provision, Urbanization and Economic Growth. *Aug. 2021 - present*

Introduction: Selling land is an effective way for governments to collect revenue and fuel infrastructure construction, according to anecdote records on colonial America and China. I build up an OLG model to study the optimal dynamic land provision rule to characterize urbanization process and economic growth. Coase conjecture may not hold true if the land seller is a monopolist on land selling case because households' diminishing utility on consumption goods and the expanded Pareto frontier.

ACADEMIC ACTIVITIES

Participant, University of Southern California Macro-finance Reading Group	2021
Speaker, Fudan University, Digital and Behavioral Economics Reading Group	2021
Teaching Assistant for Intermediate Microeconomics, Prof Xin Wang, Peking University	Fall 2021

HONORS AND AWARDS

Benz Scholarship (5%)	2021
Merit Student (5%)	2021, 2020
The First Prize of Peking University Scholarship (2%)	2020
Peking University Freshman Scholarship (2%)	2018
Gold Medal in the 19th Asian Physics Olympiad (APhO)	2018

SKILLS

Programming skills:
C/C++, Python. Matlab, LaTex, R, Stata

Languages:
Chinese (Native), English (Fluent).

Test Score:
TOEFL: 107, GRE: 326 (V: 156/170, Q: 170/170) + 4.5 (AW).