

# ECON6120S Advanced Topics in Decision Theory (PhD)

2021-22 Fall, Department of Economics, HKUST

## TIME AND ARRANGEMENT

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Time: Tue/Thur 9:00-10:50

Classroom: LSK1032

Teaching Mode: in person (mixed-mode if necessary)

Course Material: video records and slides, available on Canvas

Course Credit: 4

Enrollment Requirement: none

Teaching and Learning Activities: lecture, tutorial and student presentation

## INSTRUCTOR

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Rui Tang

Office Hour (in person)

Office Hour (zoom)

email: ruitang@ust.hk

LSK6048A, Wed 17:00-18:00

By appointment

## COURSE DESCRIPTION

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This course provides graduate students in economics with a wide range of topics in decision theory. We will focus on classic and recent models of decision-making under risk and uncertainty and models of dynamic decision-making. The course aims to equip the students with the necessary background knowledge in decision theory and major techniques for them to conduct independent research in relevant topics.

## COURSE OBJECTIVE AND INTENDED LEARNING OUTCOME

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Students are expected to have up-to-date and in-depth knowledge of decision theory, leading to independent substantive scholarly research. They are also expected to demonstrate a sound grasp of the literature in decision theory, and know when to apply which model to solve related problems.

## EVALUATION AND EXAM SCHEDULE

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Presentation: 30%

Term Paper or Research Proposal or Literature Review: 70%

## RECOMMENDED READING

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1. Utility Theory for Decision Making, Peter C. Fishburn, Research Analysis Corp McLean VA, 1970
2. Notes on the Theory of Choice, David Kreps, Routledge, 2018

## WEEKLY COURSE SCHEDULE (PRELIMINARY AND SUBJECT TO MODIFICATION)

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1. Preference and Cardinal Utility Representation
2. Preference, Choice and Bounded Rationality
3. Choice with Risk and Uncertainty
  - Expected Utility Theory
  - Topics on Independence Axiom and Allais Paradox
  - Savage's Subjective Expected Utility Theory

- Probabilistic Sophistication
- Anscombe and Aumann's Framework of Subjective Expected Utility
- Ambiguity and Ellsberg Paradox
- Choquet Expected utility, Maxmin Expected Utility and Variational Representation

#### 4. Dynamic Choice and Menu Preference

- Preference for Flexibility
- Temptation and Self-Control
- Naivete and Time-Inconsistency
- Costly Contemplation
- Anticipating Regret

#### 5. Topics on Time Preference

- Kreps-Porteus Framework and Resolution of Uncertainty
- Epstein-Zin Preferences
- Monotone Recursive Preference
- Time Lotteries and Stochastic Impatience

#### 6. Belief Updating

- Updating a Single Prior
- Updating Multiple Priors
- Updating Qualitative Information

#### 7. Random Choice

- Discrete Choice Models
- Random Expected Utilities