
Department of Philosophy

PHIL 325: RISK, CHOICE AND RATIONALITY — *Katalin Bimbo*

[Course description — Winter term (2021)]

Decision theory addresses an issue — *decision making* — that everybody faces multiple times a day. Occasionally, decisions are made by a collection of people such as a parliament or a congress. In thinking about decisions, the projected results of the actions have to be considered, and perhaps, compared and evaluated. Modern decision theory, which uses certain mathematical tools to analyze decision problems and to give rational reasons for particular choices, emerged in the middle of the 20th century.

Some of the basic concepts in decision theory include states, actions and outcomes. The latter are compared through a preference order, which has an equivalent numerical representation. Actions may lead to certain outcomes in a very direct fashion, with negligible uncertainty about the connection between the action and its outcome, or they may yield a particular result with some likelihood. In these situations, we might be able to assign probabilities to various circumstances or groups of outcomes, and to compute *expected values* and *expected utilities* for the various options.

A concept that plays an important role in decision problems is *information*. The availability or the absence of information pertains to *epistemic* aspects of a situation and can markedly alter which choice is optimal. A decision can become quite complicated when there are several agents, whose preferences have to be considered or whose actions have explicit or hidden dependencies. This is a perennial problem in society, in communities or in a group of interacting people, in general.

The course will incorporate elements of *utility theory*, *probability theory* and *game theory* to sharpen the formulations and the solutions of a whole range of decision problems. Learning the content will not only enhance your knowledge about decision theory, but it will allow you to make better decisions by heeding the recommendations of the theory.

[There is no official prerequisite for this course. The mathematical concepts and tools used in this course are relatively simple; they are typically elementary.]

Time: M, W, F 11:00 am–11:50 am

Texts and readings will be linked in the e-classroom.

For **further information**, please contact the instructor at <bimbo@ualberta.ca>
The (official) **course outline** is available in the e-classroom during the course.
