

**Philosophy 4300: Topics in Philosophy**  
**Decision Theory**  
**Spring 2019**

**Basic Information**

Instructor: Joel Velasco

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Office: 265G Eng/Phil

Office Hours: M, T, Th 12:00-1:00 or by appointment

Class meets MWF 11:00 – 11:50 in Phil 164

**Course Description:** We often criticize one another's decisions. People who spend their money at casinos are charged with being ignorant, people who save too much are regarded as miserly, people who chose unpleasant mates are fooling themselves, etc. Sometimes this criticism is failure to recognize diversity – others care about different things than we do – but other times we still regard decisions as wrong even after we know what the decider values. Implicitly judgments like this rely on a notion of “correct” decision making, which will be the topic of our course.

This theory, as it has been developed over many years, is now very detailed and complicated; it involves significant mathematics. The theory is not without its critics either, and we will review a few of those criticisms at the end of the course. Ultimately, learning about this theory will help to tune ones thinking about a variety of problems from gambling to investing to one's romantic life.

**Required text:** Michael D. Resnik (1987) *Choices: An Introduction to Decision Theory*. University of Minnesota Press

The basic idea of the course is to work our way through this book. The book covers decision theory, game theory, philosophy of probability, and social choice theory. We will also read interesting philosophical papers along the way. These topics are covered in a philosophical way focusing on foundational issues, but in order to comprehend many of the arguments in these fields we will also need to learn some basic formal and mathematical tools.

**Grades**

The grades will be based on a combination of homeworks and essays.

- There will be (roughly) 6 homework assignments consisting of a combination of problems and short essays throughout the course. The sum of all of the homeworks is worth 50% of your final grade.

- There will be one paper essay due roughly half way through the term and one final paper due (in lieu of a final exam) each worth 25% of your grade.
- There is a blackboard site for the course so that you will be able to keep track of your grade up to any given point.

**Rough Grading Scale:**

92—100% → A  
 90—91% → A-  
 88—99% → B+  
 82—87% → B  
 80—81% → B-  
 78—89% → C+  
 70—77% → C  
 65—70% → C-  
 50—64% → D  
 0—49% → F

**Late Paper Policy:** Late papers will be penalized at a rate of approximately one grade letter increment per day.

**Academic Integrity:** Cheating and plagiarism are, of course, prohibited in this class just as they are in all university classes. They will be taken particularly seriously in this class, and any cases that may arise will be treated in a manner consistent with University policy. These two violations of academic integrity are each defined in the section of the Texas Tech online official publications titled “Academic Integrity.” Plagiarism is there described as follows:

“Plagiarism’ includes, but is not limited to, the appropriation of, buying, receiving as a gift, or obtaining by any means material that is attributable in whole or in part to another source, including words, ideas, illustrations, structure, computer code, other expression and media, and presenting that material as one’s own academic work being offered for credit.”

<http://www.depts.ttu.edu/studentconduct/academicinteg.php>

You can find excellent explanations of what specifically constitutes plagiarism as opposed to proper citation, and also tutorials on how to avoid plagiarism at the following websites:

<http://www.dartmouth.edu/~writing/sources/>

<http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml>

**Note:** If, at any time, you are at all unclear about what counts as plagiarism, or about boundaries such as between working together in a group on homework (encouraged) and copying work from another person (prohibited), please just come by and ask me about it. You do not want to be confused or careless about this serious matter.

**Religious holy days:** a student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent for the observance of a religious holy day shall be allowed to take an exam or complete an assignment scheduled for that day within a reasonable time after the absence.

**ADA Statement:** Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note: instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services in West Hall or call 806-742-2405.

**Rough Course Schedule (subject to change) – see the course webpage at <http://joelvelasco.net/teaching/4300> for a more detailed schedule**

Weeks 1-2: Representations of decisions – normal and extensive form (Resnik Ch 1)

Weeks 2-4: Preferences as orderings, Revealed preference theory, Constructing utilities, Decision under complete ignorance – dominance strong and weak, etc. Decision under complete ignorance – maximin, etc. (Resnik Ch 2)

Weeks 4-6: Naïve probability, Bayes Theorem and belief revision, Interpretations of probability, Dutch book defense of subjective probability (Resnik Ch 3)

Weeks 7-9: Expected utility of money, Problems in interpersonal comparison, Von Neumann/Morganstern utility theory, Criticisms of decision theory, Allais' and Ellsberg's Paradox, St. Petersburg and Newcomb (Resnik Ch 4)

Weeks 10-13: Game Theory: Equilibrium strategies, competitive and cooperative games (Resnik Ch 5)

Weeks 14-15: Introduction to social choice, Arrow's theorem, Harsanyi's theorem (Resnik Ch 6)