

# Reasoning & Rational Decision Making



## Instructor

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## Office Hours

M, Tu 10:45-11:45am  
 (or by appointment)  
[CTIHB](#) 417



## Class Meetings

M, W, F 9:40-10:30am  
[OSH](#) 113  
 1/12/2015 - 4/28/2015



## COURSE DESCRIPTION

We often praise or condemn others on account of their reasoning skills. We admire scientists for reasoning well from experimental facts to hypotheses. Sherlock Holmes criticizes Watson for missing an "elementary" inference from the evidence of a case to the culprit. And you might argue with your peers about whether they have made reasonable decisions in their personal lives. This course introduces the student to the philosophical study of such human reasoning. We will investigate the following questions (along with others) in this course:

- What does it mean to reason well?
- What sorts of things can be reasonable (beliefs, hypotheses, decisions, etc.)?
- What are the standards of good reasoning?
- Do humans typically meet these standards?

In this course, students develop a better understanding of human reasoning. Accordingly, such students will learn to be better reasoners themselves.

## COURSE OBJECTIVES

By the end of this course and successful completion of all course requirements, the student will be able to do all of the following:

- explain the importance and relevance of the study of formal logic to human reasoning,
- compare and contrast philosophical accounts of what it means to reason well, showing how they relate to one another and pointing to their strengths and weaknesses,
- display an understanding and working knowledge of the formal logics that we cover,
- display an improved ability to construct, clarify, and evaluate arguments encountered in the real world.

## COURSE MATERIALS

Walter Sinnott-Armstrong and Robert Fogelin, *Understanding Arguments: An Introduction to Informal Logic*, 8th Edition (Cengage Learning, 2010).

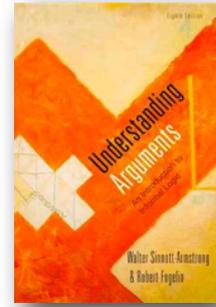
- This is our primary textbook for the course.
- You must have the *8th edition* of this book.

Turning Technologies Response Card NXT ("clickers").

- Students must register their clicker for this course online before using it in class. Follow the registration instructions on our CANVAS site.

CANVAS <[utah.instructure.com](http://utah.instructure.com)>

- I will use this resource throughout the term to keep you updated on your grades, for course communication, and for our course calendar. Class handouts and some assigned readings will be posted here as well.



## COURSE REQUIREMENTS

### Attendance / Participation / Course Wiki

(20% of final grade)

Learning will come much more easily and enjoyably if you're actively participating in your education! Accordingly, I emphasize student participation and discussion in the classroom. I expect you all to bring questions, ideas, and insights to class and to be prepared to share them. Of course, if you're not attending class, then you're not participating well either; so attendance is required. You may also improve this part of your final grade by contributing to course wikis (available through our CANVAS site). These wikis provide online venues for students to share their notes, ask each other questions, and to prepare for exams.

### Homework

(40% of final grade)

In order to make sure that you are doing the reading carefully and understanding the material, you will have weekly homework assignments. Assignments are due at the beginning of class time, and *students may not work on their assignments during our class meetings*. Students may work together on HW, but each student actually needs to contribute. It should go without saying that students may not copy other students' answers. Students who are struggling with HW should not hesitate to seek help. The best solution is to talk to your fellow classmates and try to work out issues together. The next best solution is to come to office hours for help. Remember which problems you struggled with; we will want to go through these as a class during our meetings.

### Exams

(40% of final grade — Exam 1: 10%, Exam 2: 10%, Final Exam: 20%)

Exams will cover significant ideas, principles, and methods treated in the course — i.e., those covered in the readings, homework, and *especially* in class times. We will spend one full class time reviewing the relevant material together before each exam. Check the course calendar and schedule for exam dates, times, and locations.

## GRADING

Final grades will follow a standard 10-point scale: 98-100 A+, 92-98 A, 90-92 A-, 88-90 B+, 82-88 B, 80-82 B-, etc.

## POLICIES, ETC.

### Missing and Late Assignments

Students will not be allowed to make up exams or turn in late homework assignments without a valid reason excusing them and evidence of that reason (e.g., sickness and a doctor's note). If you're going to be absent from class when HW is due, you need to turn it in to me before class or have a friend turn it in for you at the beginning of that class time.

### Humanities Academic Misconduct Policy

Academic misconduct includes cheating, plagiarizing, research misconduct, misrepresenting one's work, and inappropriately collaborating. Definitions can be found in the [Student Code](#).

If you are suspected of academic misconduct, the process proceeds according to the rules found in the [Student Code](#), University Policy 6-400(V). According to that policy, after meeting with you, the instructor must determine whether academic misconduct has, in fact, occurred.

- If s/he determines that no academic misconduct has occurred, s/he will document that you are not responsible for any academic misconduct.
- If s/he determines academic misconduct has occurred and this is the first instance in which you have been alleged to have committed academic misconduct, s/he will take into account whether the act was intentional or a result of negligence in determining the appropriate sanction, which can be up to failing the course. The sanction will be noted in the resolution of the case and your right of appeal is as specified in Policy 6-400(V).
- If s/he determines academic misconduct has occurred, and you have previously been sanctioned for an act of academic misconduct, and the prior instance of misconduct resulted in a sanction less than failing the course, the department will follow the process to fail you for the course. If the prior sanction was failure of the course, your new act of misconduct will result in failure of the course and the department will also follow the process to seek your dismissal from the program and the University.

### ADA Statement

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the [Center for Disability Services](#), 162 [Olpin Union Building](#), 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

### General Education Statement

This course contributes to the University of Utah's Quantitative Reasoning requirement. For such courses, academic units must identify three essential learning outcomes (ELOs) that are relevant to university general education objectives. The ELOs for this course are: Inquiry and Analysis, Quantitative Literacy, and Foundations and Skills for Lifelong Learning.

## COURSE SCHEDULE

In the course schedule below, the course is broken into four main sections: 1. Reasoning, Language, & Arguments, 2. Good Reasoning by Deductive Standards, 3. Good Reasoning by Inductive Standards, and 4. Rational Choice. Our textbook, Understanding Arguments, is abbreviated below as "UA". In the right column, I list your assigned reading for the week, then any *homework, review sessions, or exams*. Homework assignments are all due by the beginning of the following Monday's class, unless otherwise noted.

<p><b>Week 1 (Jan 12-16)</b></p> <p>Course Introduction, Rationality &amp; Arguments, Uses of Arguments</p>	<p>UA, ch. 1</p> <p>Register clickers (instructions on CANVAS)</p>
<p><b>Week 2 (Jan 19-23)</b></p> <p>Arguments in Everyday Language, Argument Evaluation</p> <p>NO CLASS on 1/19 — MLK, Jr Day</p>	<p>UA, pp. 51-69</p> <p>Ch. 1: Ex I (5,6,7), Ex II, Ex III (4,9); Ch. 3: Ex I (odds), Ex II (all)</p>
<p><b>Week 3 (Jan 26-30)</b></p> <p>Extracting Arguments out of Everyday Language</p>	<p>UA, ch. 4</p> <p>Ch. 3: Ex III (evens), Ex IV (evens), Ex V (all), Ex VII (1,3,5,8)</p>
<p><b>Week 4 (Feb 2-6)</b></p> <p>Standards of Rationality, Formal Logic, Deductive Standards, Propositional Logic</p>	<p>UA, pp. 139-62</p> <p>Ch. 6: Ex I, Ex II, Ex IV (1,3,5), Ex V (1,2,3), Ex IX (1,2,4,6), Ex XII (2,4,6,8,10), Ex XV (odds), Ex XVIII, Ex XIX (2,4,6,8)</p>
<p><b>Week 5 (Feb 9-13)</b></p> <p>Propositional Logic: Connectives, Truth Tables, Truth-Functionality, Logical Equivalence, Validity</p>	<p>UA, pp. 162-78; Handout: "Some Reasons to Formalize 'If... then...,' with the Connective <math>\supset</math>"</p> <p>Ch. 6: Ex XX, Ex XXI, Ex XXIII, Ex XXIV (1,3,5,7), Ex XXV, Ex XXVII (1,5,7,8), Ex XXVIII (2,4,6,8; you don't have to do part (c) for these)</p> <p>** HW DUE ON WEDNESDAY, 2/18 **</p>
<p><b>Week 6 (Feb 16-20)</b></p> <p>Limitations of Propositional Logic, Categorical Logic</p> <p>NO CLASS on 2/16 — President's Day</p>	<p>UA, pp. 179-190</p> <p>Ch. 7: Ex I (odds), Ex II (2-20 evens), Ex III</p>
<p><b>Week 7 (Feb 23-27)</b></p> <p>Categorical Logic, Limitations of Deductive Logic</p>	<p>UA, pp. 190-202</p> <p>Ch. 7: Ex V (odds), Ex VI, Ex VII (evens), Ex VIII</p>
<p><b>Week 8 (Mar 2-6)</b></p> <p>Wrapping up Deductive Logic</p> <p>TEST WEEK</p>	<p>REVIEW SESSION: Wednesday</p> <p>EXAM 1: Friday, regular class time</p>

<p><b>Week 9 (Mar 9-13)</b></p> <p>Deduction &amp; Induction, Statistical Generalizations, IBE</p>	<p>UA, pp. 213-225, 257-267</p> <p>Ch. 8: Ex I (1,3,5,7,9), Ex II (1,2,3,4,6,8,10)</p> <p>Ch. 10: Ex I (all), Ex II (evens), Ex III (evens)</p>
<p><b>Week 10 (Mar 16-20)</b></p> <p>NO CLASSES all week — Spring Break</p>	--
<p><b>Week 11 (Mar 23-27)</b></p> <p>Inference to the Best Explanation; Formal Inductive Logic, Probability Theory</p>	<p>UA, pp. 277-291; Sir Arthur Conan Doyle, "<a href="#">The Bruce-Partington Plans</a>"</p> <p>Ch. 11: Ex I (all except for 6), Ex II (1-8), Ex III (1-7), Ex IV (1-6)</p>
<p><b>Week 12 (Mar 30-Apr 3)</b></p> <p>Probability Theory, Bayes's Theorem, Inductive Strength</p>	<p>UA, pp. 291-302; Timothy McGrew, "<a href="#">Sherlock Holmes, Mathematician</a>"</p> <p>Ch. 11: Ex VIII (1-8), use Bayes's Theorem directly in HW instead of the "table method"</p>
<p><b>Week 13 (Apr 6-10)</b></p> <p>TEST WEEK NO CLASS on Friday</p>	<p>REVIEW SESSION: Monday</p> <p>EXAM 2: Wednesday, regular class time</p>
<p><b>Week 14 (Apr 13-17)</b></p> <p>Rational Choice, decisions under risk, expected values</p>	<p>UA, ch. 12; Hacking, ch. 8 (available on CANVAS)</p> <p>Recommended: SEP, "<a href="#">The St. Petersburg Paradox</a>"</p> <p>Ch. 12: Ex I (all); Hacking, ch. 8: Ex's 1,2,6</p>
<p><b>Week 15 (Apr 20-24)</b></p> <p>St. Petersburg Paradox, diminishing marginal utility, decisions under ignorance, Pascal's Wager</p>	<p>Hacking, ch. 9-10 (available on CANVAS)</p> <p>Recommended: SEP, "<a href="#">Pascal's Wager</a>"</p> <p>Hacking, ch. 9: Ex's 1-7; ch. 10: 1-4</p>
<p><b>Week 16 (Apr 27-May 1)</b></p> <p>TEST WEEK</p>	<p>REVIEW SESSION: Monday</p> <p>EXAM 3, CUMULATIVE FINAL: Friday, 5/1, 8-10am</p>