Reasoning & Rational Decision Making

Instructor

Professor Jonah Schupbach
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Office Hours

Tuesdays, 10:30-11:30
(or by appointment)
CTIHB 417

Class Meetings

T, R, 9:10-10:30am
CTIHB 101
1/7/2013 - 4/24/2013

TA

Kim Johnston
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TA Office Hours

Mondays, 11:30-12:30
CTIHB 405

Grader

Aaron Kenna
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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 chastises 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.

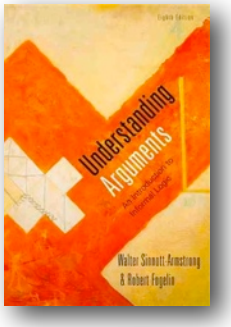
Course Objectives

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 only textbook for the course. We'll be using it right away, so you should buy your copy ASAP.
- You are required to have the ***8th edition*** of this book.
- I highly recommend you don't buy or rent a digital version of the book. You're not allowed to use tablets in class; thus, you would not be able to refer to a digital version in class. Also, you'll be marking up passages in the book, which will be difficult with a digital copy.

Turning Technologies Response Card NXT ("clickers").

- Students must purchase this style of clicker for this course. Turning Technologies' "ResponseWare" is not allowed.
- 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>

- 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 (occasionally) readings will be posted here as well.

COURSE REQUIREMENTS

Attendance / Participation / Course Wiki

(10% 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

(30% 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 when doing so. 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 (Kim's or mine) for help. Remember which problems you struggled with; we will want to go through these as a class during our meetings.

Exams

(3 x 20% of final grade each)

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. I will ***not*** be using a curve when calculating your grades.

POLICIES, ETC.

Missing and Late Assignments

Students will not be allowed to make up exams without a valid reason excusing them and evidence of that reason (e.g., sickness and a doctor's note). Late homework will not be accepted in any case (even with a valid excuse); I'll throw out your lowest HW score at the end of the course. 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.

Electronic Devices

Please turn off your electronic devices during class. This includes your cell phones, tablets, computers, etc. If you absolutely feel like you have to have your tablet or laptop with you to take notes during class, please talk to me outside of class to argue your case.

Academic Integrity

You're expected to adhere to the standards of academic honesty. Any student engaged in cheating, plagiarism, or other acts of academic dishonesty will face disciplinary action. Students should refer to the University of Utah student code for a description of academically dishonest behavior and a summary of the actions that the university will take in punishing students who do not adhere to the standards described therein.

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.

COURSE SCHEDULE

In the course schedule below, you'll see that 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, exams, and the like. Homeworks are all due by the beginning of the following Tuesday's class.*

Week 1 (Jan 7-11) Course Introduction, Rationality & Arguments, Uses of Arguments	UA, ch. 1 Register clickers (instructions on CANVAS)
Week 2 (Jan 14-18) Arguments in Everyday Language, Argument Evaluation	UA, pp. 51-69 Ch. 1: Ex I (5,6,7), Ex II, Ex III (4,9); Ch. 3: Ex I (odds), Ex II (all)
Week 3 (Jan 21-25) Extracting Arguments out of Everyday Language	UA, ch. 4 Ch. 3: Ex III (evens), Ex IV (evens), Ex V (all), Ex VII (1,3,5,8)
Week 4 (Jan 28 - Feb 1) Standards of Rationality, Formal Logic, Deductive Standards, Propositional Logic	UA, pp. 139-62 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)
Week 5 (Feb 4-8) Propositional Logic: Connectives, Truth Tables, Truth-Functionality, Logical Equivalence, Validity	UA, pp. 162-78; Handout: "Some Reasons to Formalize 'If…, then…' with the Connective ⊃" 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)
Week 6 (Feb 11-15) Limitations of Propositional Logic, Categorical Logic	UA, pp. 179-190 Ch. 7: Ex I (odds), Ex II (2-20 evens), Ex III
Week 7 (Feb 18-22) Categorical Logic, Limitations of Deductive Logic	UA, pp. 190-202 Ch. 7: Ex V (odds), Ex VI, Ex VII (evens), Ex VIII

Week 8 (Feb 25 - Mar 1) TEST WEEK	REVIEW SESSION: Tuesday EXAM 1: Thursday, regular class time
Week 9 (Mar 4-8) Deduction & Induction, Statistical Generalizations, IBE	UA, pp. 213-225, 257-267 Ch. 8: Ex I (1,3,5,7,9), Ex II (1,2,3,4,6,8,10) Ch. 10: Ex I (all), Ex II (evens), Ex III (evens)
Week 10 (Mar 11-15) NO CLASSES (Spring Break)	--
Week 11 (Mar 18-22) Inference to the Best Explanation; Formal Inductive Logic, Probability Theory	UA, pp. 277-291; Sir Arthur Conan Doyle, "The Bruce-Partington Plans" Ch. 11: Ex I (all except for 6), Ex II (1-8), Ex III (1-7), Ex IV (1-6)
Week 12 (Mar 25-29) Probability Theory, Bayes's Theorem, Inductive Strength	UA, pp. 291-302; Timothy McGrew, "Sherlock Holmes, Mathematician" Ch. 11: Ex VIII (1-8), use Bayes's Theorem directly in HW instead of the "table method"
Week 13 (Apr 1-5) TEST WEEK	REVIEW SESSION: Tuesday EXAM 2: Thursday, regular class time
Week 14 (Apr 8-12) Rational Choice, decisions under risk, expected values	UA, ch. 12; Hacking, ch. 8 (available on CANVAS) Recommended: SEP, "The St. Petersburg Paradox" Ch. 12: Ex I (all); Hacking, ch. 8: Ex's 1,2,6
Week 15 (Apr 15-19) St. Petersburg Paradox, diminishing marginal utility, decisions under ignorance, Pascal's Wager	Hacking, ch. 9-10 (available on CANVAS) Recommended: SEP, "Pascal's Wager" Hacking, ch. 9: Ex's 1-7; ch. 10: 1-4 REVIEW SESSION: Thursday
Week 16 (Apr 22-24) TEST WEEK	EXAM 3: Tuesday, 4/23, regular class time