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## Critical Thinking and Reasoning

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Office Hours:  
TBD

### Course Description:

This is a skill-based course. You will learn strategies for developing and evaluating arguments, planning for the future, making choices that are in your best interest, overcoming typical human errors in reasoning, avoiding being manipulated, finding the truth, and persuading others to agree with you. We will focus on informal and formal logic, on decision theory, and on the work of psychologists and philosophers who focus on errors in reasoning. You will learn to practically apply these strategies in the dynamic communities of your school, career, and home. This class is *useful* to anyone; its skills will help you in life, no matter what you choose to do. Everyone makes decisions, is persuaded and persuades, seeks truth, and sometimes makes mistakes.

In short, you will develop skills in critical thinking, and come to better understand the role of these skills in life: personal, professional, and educational. This class will involve some math, and you will learn basic logic and logical notation. You will also study philosophical theories about planning, and the work of psychologists on assessing probabilities. Throughout, the class will focus on helping you to develop skills that will help you succeed in reaching your goals.

### Course Objectives:

- \* Demonstrate creative problem-solving, tolerance and appreciation for ambiguity, and respect for collaborative learning.
- \* Better understand the ways in which humans tend to err and become manipulated or misled, and acquire skills for overcoming these possible difficulties. Recognize and learn to avoid common formal and informal fallacies in arguments and other common errors in reasoning.
- \* Learn how to identify, evaluate, and construct inductive arguments and valid deductive arguments without missing premises. Learn how to better convey persuasive arguments in everyday English, and gain a basic understanding of truth-functional symbolic logic.
- \* Reflect and think critically about your own life, decision processes, and the strategies by which you learn, study, and solve problems.

\* Achieve a basic understanding of what decision theorists and philosophers teach about how individuals determine which choices are in their best interest, and about how we productively plan for the future. Demonstrate ability to apply these strategies to circumstances you might experience in life.

\* Appreciate the important role that emotion should play in decision making and argumentation, in addition to reason.

\* Recognize that applied philosophy, through the study of critical thinking, can be valuable to personal, professional, and educational life.

### Required Texts:

---- Two Books For This Course ----

(1) Judith A. Boss, *Think: Critical Thinking and Logic Skills For Everyday Life (Second Edition)* (New York: McGraw-Hill, 2012). [The page numbers in the “Tentative Schedule” section, below, come from the Kindle edition of this book; they may need to change to reflect the hardcover edition.]

(2) COURSE READER. The other assigned texts for this class have been gathered together into a course book, printed by the copy center and available at the student bookstore.

### Course Requirements:

You will participate in course discussions and problem solving sessions, work in groups with other students, and complete writing assignments, logic problem-sheets, several quizzes, a mid-term and a final.

The course content is meant to be practical and useful in your life, and the written assignments reflect this. For your first take-home writing project, you will take an argument you have or are writing for another college class, break it down into distinct premises and conclusions, and write it out in English as a formally valid argument. This will prove to be useful, as you consider how to strengthen your persuasive papers, regardless of the subject. For your second take-home written assignment, you will use a decision-making technique to choose which house to buy in a hypothetical example. Techniques such as these might prove useful in numerous other circumstances. You will also complete an in-class writing assignment, in which you will reflect on your own life, in order to better appreciate the choices you, yourself, are considering.

[Note for Job-Search Committees: For this in-class writing assignment, students will write three obituaries for themselves – what they fear will happen in their lives, what they expect will happen, and what they hope will happen. This assignment will encourage students to consider their current choices in light of long-term goals and the kind of people they want to be. This assignment fits perfectly in the context of discussing life-plans and utility-maximization. This assignment has had a profound effect on many students who have

completed it. It helps a student re-organize priorities and take action, sometimes with life-changing results.]

You will also complete a number of Logic problem sheets. These sheets, which involve “mathematical” type thinking, will help you to learn the fundamentals of logic and prepare for your quizzes and exams. You will have three short quizzes, a mid-term, and a final. These will confirm that you have learned, retained, and can apply the skills acquired in class.

The grading breakdown will go as follows:

14% Class participation

15% Quizzes (3 quizzes, 5% each)

28% Major Take-Home Writing Assignments (2 assignments, 14% each)

5% In-Class Writing Assignment

10% Logic Homework

14% Midterm exam

14% Final exam

To translate letters into numbers, I will use the following grading scale:

A: 94-100, A-: 90-93, B+: 87-89, B: 83-86, B-: 80-82, C+: 77-79, C: 73-76, C-: 70-72,  
D: 60-69, F: Below 60.

#### Class Participation:

Classroom participation is valuable to the proper functioning of any philosophy course. It is even more essential to this one. In addition to theoretically-rich discussions, we will work together on solving logical problems and responding to hypothetical real-world decisions, applying the reasoning techniques we discuss. You will sometimes in work in groups with other students. We will also have several hands-on activities. Our classroom will be a collaborative environment.

For the class to succeed, you must be engaged and participate regularly, and when you work in groups, you must engage with others and remain on topic. At three points in the semester, I will communicate with each of you privately about how your class participation is proceeding. There are many ways to participate in this course.

#### Assignments, Quizzes, Exams:

Many of the Logic homework assignments were created by Thomas McKay and Mark Brown, as acknowledged in the homework assignments’ footers. (All of the homework sheets are available online here: <http://www.writersthoughts.com/CriticalThinking.pdf>). Other assignments sheets were created for our course’s specific concerns, using problem examples from *Think* and from Thomas McKay’s *Modern Formal Logic (Second Edition)*. Each assignment is only one page, and focus on introductory truth-functional symbolic logic.

It is OK to work with others in doing these Logic homework assignments. If you do, you might enjoy the course more, do better, and better learn to apply the techniques. But you should actively participate in all group work, and you should not copy anyone else’s answers.

You should NOT work in groups when you are working on your major take-home writing assignments (the *Argument Construction Written Assignment* and the *Decision-Matrix Written Assignment*). These should be completed on your own.

I will not accept any assignments that are emailed to me or which are left in my department mailbox. You *must* hand in your papers during class (but you may hand in papers at an earlier class than required). I expect that your logic homework and the decision-matrix section of your second major assignment will be handwritten. Everything else must be typed/printed in black ink, double-spaced, with 1" margins in either Times or Courier fonts, with 12-point font. For every class an assignment is late, its grade will drop by a letter grade, say from an A to a B. If you are ill, and have a doctor's note or there is a family emergency, then please contact me about it.

I encourage you to work together, to study and prepare for your major exams. NEITHER will be graded on a curve. To encourage you to work together in preparation for the exam, each student will have added, to his or her own score on the exam, a percentage of the mean grade of the class as a whole. This means that the better everyone else does, the better you will do.

Academic Honesty:

TBD

Tutoring:

TBD

Accommodations:

TBD

## ----- Tentative Schedule -----

### Part I: Introduction To Critical Thinking

#### **Day 1: Introduction To Class**

#### **Day 2: What Is Critical Thinking? What Role Does it Play In Everyday Life?**

Read: *Think* 4-5 (Read up to "Cognitive Development in College Students")

Read: *Think* 7-12 (Read from "Characteristics of A Good Critical Thinker" to "Critical Thinking and Self Development")

Read: *René Descartes Selection* (5 pages) (Complete Citation: René Descartes, "Meditation One," *Discourse on Method and Meditations on First Philosophy*, trans. Donald A. Cress (Indianapolis: Hackett Publishing Company, 1998): 59-63.)

#### **Day 3: Overcoming Manipulation: Milgram, Zimbardo, Cognitive/Moral-Development**

Read: *Think* 1-3

Read: *Think* 5-7 (Read from “Cognitive Development in College Students” to “Characteristics of Good Critical Thinking”)

Read: *Milgram Selection* (11 pages) (Complete Citation: Stanley Milgram, *Obedience to Authority: An Experimental View* (HarperCollins: 1974): 3-5, 7-8, 10, 27-31.)

#### **Day 4: What is Metacognition? What Role Does It Play In Everyday Life?**

Read: *John Dunlosky and Janet Metcalfe Selection* (6 pages) (Complete Citation: John Dunlosky and Janet Metcalfe, *Metacognition* (Los Angeles: Sage Publications, 2009): 1-6.)

Read: *Think* 20-21 (Read from “The Three-Tier Model of Thinking” to “Resistance”)

Read: *Kenneth L. Higbee, Ph.D. Selection* (11 pages) (Complete Citation: Kenneth L. Higbee, Ph.D. *Your Memory: How it Works & How To Improve It* (Philadelphia: Da Capo Press, 2001): 6-7, 98-101, 133-137.)

Optional, Read: *K. Anders Ericsson, et al. Selection* (Complete Citation: K. Anders Ericsson, William G. Chase, and Steve Faloan, “Acquisition of a Memory Skill,” *Science* 208 (1980): 1181-1182.)

#### **Day 5: Overcoming Ourselves: Cognitive Shortcuts**

Read: *Think* 37 (Read from “What is Reason” to “Traditional Views of Reason”)

Read: *Think* 112-116 (Start at: “Probability Errors”)

Read: *Kevin McKean Selection* (9 pages) (Complete citation: Kevin McKean, “Decisions, Decisions,” *Discover Magazine* (July 1985).)

#### **Day 6: Emotion, Persuasion, and Reason (Logos vs. Pathos)**

Read: *Think* 43-45 (Start at “Emotional Intelligence and the Positive Effects of Emotion”)

Read: *Think* 82-86 (Read from “The Use of Language to Manipulate” to “Deception and Lying”)

Read: *Sylvan Barnet and Hugo Bedau Selection* (5 pages) (Complete citation: Sylvan Barnet and Hugo Bedau, *Critical Thinking Reading and Writing: A Brief Guide to Argument, Third Edition* (Boston and New York: Bedford/St. Martin’s, 1999): 50, 73-76.)

---- FIRST QUIZ !!! ----

### **Part 2: Logos, or An Introduction to Arguments**

#### **Day 7: An Introduction to Arguments**

Read: *Think* 165-177 (Read up to “Diagramming an Argument”)

#### **Day 8: Inductive Arguments**

Read: *Think* 201-212

Written Homework: Sheets #1 and #2 [You can find them online at: <http://www.writersthoughts.com/CriticalThinking.pdf>]

#### **Day 9: Deductive Arguments**

Read: *Think* 239-243 (Read from “What is a deductive argument” to “Arguments Based on Mathematics”)

Read: *Think* 247-251 (Start at “Hypothetical Syllogisms”)

### **Day 10: Argument Forms and Instances, and Logical Symbolization, Part 1**

Read: *Thomas J. McKay Selection* [Part 1, Pages 17-29] (13 pages) (Complete Citation: Thomas J. McKay, “Chapter 2: Truth-Functional Representation: Conjunction, Disjunction, Negation,” *Modern Formal Logic, Second Edition*, (Thomson, 2006): 17-29).

Written Homework: Sheets #3 and #4 [online at:  
<http://www.writersthoughts.com/CriticalThinking.pdf>]

### **Day 11: Argument Forms and Instances, and Logical Symbolization, Part 2**

Read: *Thomas J. McKay Selection* [Part 2, Pages 30-45] (16 pages) (Complete Citation: Thomas J. McKay, “Chapter 2: Truth-Functional Representation: Conjunction, Disjunction, Negation,” *Modern Formal Logic, Second Edition*, (Thomson, 2006): 30-45).

Written Homework: Sheets #5, #6 and #7 [online]

### **Day 12: Evaluating Arguments and Advertisements**

Read: *Think* 182-184

Read: *Think* 323-329 (Start at “Evaluating Advertisements”)

Written Homework: Sheets #8, and #9 [online]

### **Day 13: Constructing Arguments**

Read: *Think* 185-191 (Start at: “Constructing an Argument”)

Written Homework: Sheet #10 [online] [*this will NOT be on the Midterm Exam*]

### **Day 14: Midterm Exam**

## **Part 3: Plans and Decisions**

### **Day 15: Life And Death Plans (Part 1)**

Read: *Think* 13-15

Read: *John Rawls Selection* (7 pages) (Complete Citation: John Rawls, *A Theory of Justice* (Cambridge, MA: Belknap Press of Harvard University Press, 1971): 92-93, 410-412, 419-420.)

[Please read the entire Rawls selection, even granting that you might not understand some sentences.]

Optional, (Challenging), Read: *Joe Mintoff Selection* (Complete Citation: Joe Mintoff, “In Defense of the Ideal of a Life Plan,” *The Southern Journal of Philosophy* 47 (2009): 159-186.

## **Day 16: Making Decisions And The Value Of A Bet**

Read: *Michael D. Resnick Selection* (3 pages) (Complete Citation: Michael D. Resnick, *Choices: An Introduction to Decision Theory* (Minneapolis: University of Minnesota Press, 1987: 45-47).

Read: *Rafael Olivas Selection* (7 pages, pages 3-9) (Complete Citation: Rafael Olivas, "Decision Trees: A Primer for Decision-Making Professionals" (2007):

[http://www.stylusandslate.com/decision\\_trees/download/files/decision-tree\\_v5\\_1b.pdf](http://www.stylusandslate.com/decision_trees/download/files/decision-tree_v5_1b.pdf): 3-9).

[The mathematical reasoning is important in the first reading. In the second, please focus on the basic idea/strategies, rather than the trickier math.]

## **Day 17: In Class Writing Assignment**

## **Day 18: Life and Death Plans (Part 2)**

Read: *Andrew J. Corsa Selection* ("Writing My Own Obituary")

Read: *Marcus Aurelius Selections* (5 pages) (Excerpts from: Marcus Aurelius, *Meditations*, Trans. Gregory Hays (New York: Modern Library, 2002.)

--- !!! Argument Construction Written Assignment Due !!! ----

## **Day 19: Making Decisions (Part 2)**

Read: *Percy H. Hill et al. Selection* (8 pages) (Complete Citation: Percy H. Hill et. al., "Chapter 8: Decision Matrix," *Making Decisions: A Multidisciplinary Introduction* (Addison-Wesley Publishing Company, 1979: 120-127).

## **Day 20: Making Decisions (Part 3) and the Value of Emotion**

Read: *Antonio R. Damasio Selection* (23 pages) (Complete Citation: Antonio R. Damasio, *Descartes' Error* (New York: HarperCollins, 2000): 34-37, 40-41, 50-51, 170-175, 207, 212-217, 220-221.)

---- !!! SECOND QUIZ !!! ----

## **Day 21: Overcoming Manipulation: Persuasion and Propaganda**

Read: *Think* 117

Read: *Anthony Pratkanis and Elliot Aronson Selection* (3 pages) (Complete Citation: Anthony Pratkanis and Elliot Aronson, *Age of Propaganda: The Everyday Use and Abuse of Persuasion (Revised Edition)* (New York: W. H. Freeman and Company, 2000): 77-79).

Read: *Robert B. Cialdini Selection* (8 pages) (Complete Citation: Robert B. Cialdini, *Influence: Science and Practice (Fourth Edition)* (Boston: Allyn and Bacon, 2001): 20-23, 36-40).

## **Part 4: Evaluating Arguments, Logic, Truth Tables**

## **Day 22: Evaluating Arguments, Truth Tables, Part 1 (Validity and Consistency)**

Read: *Thomas J. McKay Selection* [Part 3, Pages 46-55] (12 pages) (Complete Citation: Thomas J. McKay, "Chapter 3: Truth-Functional Analysis" *Modern Formal Logic, Second Edition*, (Thomson, 2006): 86-100).

--- !!! Decision-Matrix Written Assignment Due !!! ----

### **Day 23: Evaluating Arguments, Truth Tables, Part 2 (Validity and Consistency)**

Re-Read: *The Thomas J. McKay Selections*, as needed.

Written Homework: Sheets #11 and #12 [online at:  
<http://www.writersthoughts.com/CriticalThinking.pdf>]

## **Part 5: Recognizing and Avoiding Fallacies**

### **Day 24: Recognizing and Avoiding Fallacies (Equivocation, Ad Hominem, Appeal to Force)**

Read: *Think* 131-134 (Read up to "Amphiboly")

Read: *Think* 137-141 (Read from "Fallacies of Relevance" to "Appeal to Pity")

Read: *Think* 146 (Read From "Straw Man" to "Red Herring") [Straw Man]

Written Homework: Sheet #13 [online]

### **Day 25: Inductive Fallacies (Hasty Generalization, etc.)**

Read: *Think* 144-146 (Read from "Hasty Generalization" to "Straw Man")

Re-Read: *Think* 112-113 (Read from "Probability Errors" to "Self-Serving Biases")

Read: *OneGoodMove.com Selection* [Unrepresentative Sample, Accident, Complex Cause]

Read: *Alice Park Selection* (Complete Citation: Alice Park, "Cutting Out Soda Curbs Children's Weight Gain, Studies Show," *Time: Health & Family*, September 22, 2012,  
<http://healthland.time.com/2012/09/22/studies-show-that-cutting-out-soda-curbs-childrens-weight-gain/> )

### **Day 26: Fallacy of Popular Appeal and Appeal to Ignorance**

Read: *Think* 142-144 (Read From "Popular Appeal" to "Hasty Generalization")

Read: *Think* 118-121 (Start at "Social Errors and Biases")

Read: *Gregory Berns Selection* (10 pages) (Complete Citation: Gregory Berns, *Iconoclasts: A Neuroscientist Reveals How to Think Differently* (Boston: Harvard Business Press, 2010): 88-97).

---- !!! THIRD QUIZ !!! ----

### **Day 27: Fallacies Involving Unwarranted Assumptions**

Read: *Think* 149-152 (Read from "Fallacies Involving Unwarranted Assumptions" to "Slippery Slope")  
[Begging the Question, Inappropriate Appeal to Authority, Loaded Question, False Dilemma, Questionable Cause, Slippery Slope, Naturalistic Fallacy]

Read: *Sheryl Gay Stolberg Selection* (Complete Citation: Sheryl Gay Stolberg, "Obama Lifts Bush's Strict Limits on Stem Cell Research," *New York Times: Politics*, March 9, 2009, [http://www.nytimes.com/2009/03/10/us/politics/10stem.html?\\_r=0](http://www.nytimes.com/2009/03/10/us/politics/10stem.html?_r=0))

**Day 28: Fallacy of Denying the Antecedent and Affirming the Consequent**

Read: *Wikipedia Selection* [Denying the Antecedent, Affirming the Consequent]

Read: *Brendan Nyhan Selection* (Complete Citation: Brendan Nyhan, "What Huckabee and MIMS Have in Common," January 11, 2008, <http://www.brendan-nyhan.com/blog/2008/01/what-mike-hucka.html>)

--- **!!! FINAL EXAM !!!** ---