Critical Thinking and Methods of Inquiry

Dr. Javier Hidalgo
Office: 234 Jepson Hall
Email: jhidalgo@richmond.edu or hidalgoj@gmail.com
Class Time & Room:
• Section 2: 12:00-1:15pm in Jepson 102.
• Section 3: 1:30pm-2:45pm in Jepson 102.
Office Hours: I post a sign-up sheet for my office hours on blackboard. Please sign up for office hours there.

Course Description

Critical thinking is reasonable and reflective thinking focused on deciding what to do or believe. A good critical thinker has the ability to rigorously understand and evaluate arguments and evidence, and to use these things to come to a reasoned judgment. The fundamental aim of this class is to enhance your ability to become a good critical thinker. We’ll focus almost entirely on honing your ability to understand, evaluate, and create arguments. You can then use these skills to become a better critical thinker throughout your life.

Why should you become a better critical thinker? Here are some reasons.

Academic Benefits. The skills that you’ll learn in this class will help you benefit more from your academic work at the University of Richmond. Most classes emphasize the use of arguments and evidence. But few classes focus exclusively on enhancing argumentative skills. This class does.

Broader Benefits for Your Life. Critical thinking skills are useful in many domains of life. Most employers say that they want workers with excellent critical thinking skills. There’s some suggestive evidence that people with strong critical thinking skills make better decisions in the real world.1 You may also care about forming more accurate and justified beliefs for its own sake. Critical thinking skills can help you to achieve this goal.

Benefits to Others. Poor reasoning often harms other people. Bad arguments and evidence have persuaded people to commit harmful acts throughout history. For centuries, doctors probably killed more people than they saved because they didn’t use reliable evidence to guide their decision-making. Political leaders have

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1 Heather A. Butler, “Halpern Critical Thinking Assessment Predicts Real-World Outcomes of Critical Thinking,” Applied Cognitive Psychology 26, no. 5 (September 1, 2012): 721–29. But let’s be careful. Even if these results are correct, they only find is a correlation: critical thinking abilities may not cause better life outcomes. It’s possible that some third factor may drive these results.
launched pointless wars based on faulty decision-making and intelligence. And voters sometimes approve of toxic leaders and unjust policies on the basis of sloppy reasoning. While better critical thinking won’t fix all of our problems, it can contribute to making other people better off.

My Approach to Teaching

The goal of this course is to enhance your critical thinking abilities and learning. To this end, I’ve done my best to consult educational research in order to find out what most effectively promotes student learning and critical thinking skills in particular. This course includes the following learning strategies.

Quizzing. A robust result from cognitive and educational psychology is that frequent quizzing promotes learning and retention. There are several reasons for this. One reason is that quizzes give you an incentive to carefully study the course material. But another reason is that the practice of retrieving information from your memory in itself promotes learning (psychologists call this the “retrieval effect”). Finally, frequent quizzing encourages you to space out your learning over time. Spacing out your learning helps you to retain and understand the material much better than cramming for one or two high-stakes exams. While I understand that you may not enjoy frequent quizzes, this is one of the most powerful learning tools available to us.

Argument Mapping. This class will make extensive use of “argument mapping.” Argument mapping is a technique for visually representing and analyzing arguments typically with the aid of a computer program. You’ll often map out arguments in this class before evaluating them. Why use argument mapping? The evidence suggests that intensive argument mapping classes produce superior results relative to other ways of teaching critical thinking. Argument mapping seems to generate these benefits by encouraging students to understand the structure of arguments, coding information in both visual and verbal ways, and reducing cognitive load. Once you’ve mapped out an argument, you’ll be in a much better position to understand and evaluate it.

Debating. In the last third of the course, you’ll be required to engage in frequent in-class debates on controversial topics. Debating encourages people to see

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issues from multiple perspectives, anticipate objections, and develop persuasive arguments. Debating will also enhance your rhetorical abilities and oral communication skills.

Course Requirements

There is a total of 1000 possible points in this class. The points will be distributed as follows:

1. Quizzes (150 points)
   a. You’ll take a brief quiz at the beginning of each class session unless noted otherwise on the syllabus. This quiz will ask you to remember and apply concepts from the readings. I expect each quiz to take about 10 minutes to complete.
   b. The quizzes will ask you to recall and apply information from the latest readings and readings from prior sessions. In other words, the quizzes will require you to retain concepts and information from the entire class, not just the readings for one session.
   c. This may sound tough, but here are some upsides: (1) each quiz only counts for an extremely small fraction of your total grade, (2) I’ll drop your lowest two grades on the quizzes, and (3) there will be no midterm or final exam.

2. Class Participation (150 points)
   a. You’re expected to listen attentively to other students and to participate in class discussion. Much of this class will focus on practicing mapping and evaluating arguments. So, I also expect you to work diligently on practice problems in class.
   b. I will often pair you with other students to work on exercises. One major component of your participation grade is whether you make a good faith effort to help your partners to improve their learning and the quality of their work.
   c. While attendance is not strictly required, you cannot expect to get a good grade unless you attend the vast majority of classes.

3. Problem Sets (500 points)
   a. You will be required to complete problem sets most weeks. The content of these problem sets will vary, but they will typically include argument maps and written evaluation of arguments. The problem sets will be submitted through blackboard.
   b. Late penalties: if you turn in a problem set late, I will drop it by 1/3 of a grade. I will then continue to drop your grade by 1/3 for every day that passes. The same policy applies to other assignments.
4. **Argumentative Essay, Map, and Final Debate (200 points)**
   a. You’ll complete one argumentative essay for the course that will be about 2000-2500 words long. This essay will be developed in response to a debate proposition and case study that I’ll give you toward the end of the semester. The essay is a cumulative assignment: it should reflect the principles and concepts that we’ve learned throughout the semester. You’re also required to submit a complete map of your argument along with your paper.
   b. You’ll debate other students during the final session of the class. The aim of this debate is to practice your argumentative and communication skills and to engage in argumentation in a good faith and productive manner.

5. **LSAT for Educational Research (extra credit)**
   a. I will be conducting a study in this class that aims to measure the impact of this class on your critical thinking skills. To participate, you will need to take two versions of the logical reasoning portion of the LSAT, the test for law school admissions. One will be administered at the start of the semester and the second will be administered at the end.
   b. Your participation in this study is voluntary—there will be no penalty for not participating. But there are benefits to participating. First, if you participate, you’ll be receive extra credit. Second, you will get a better sense of whether you’ve improved your critical thinking skills this semester. And, finally, this information will help me to determine whether this class is achieving its goals: enhancing your reasoning abilities.
   c. To receive extra credit, you must complete both version of the test—the one administered at the beginning of the semester and the one at the end.

6. Please see the rubrics on blackboard for more information about each assignment.

**Policies**

1. Please use your laptop, ipad, or phone during class only when I explicitly instruct you to do so. We will often use laptops in this class, but only when I ask you to take them out. You can only use your laptops for class assignments.
2. I can only offer make up assignments in cases of extreme duress like documented medical emergencies and/or religious observance.
3. If you have a documented disability and would like some form of academic accommodation, please contact me as soon as possible to discuss whether such accommodation can be provided.

Required Materials


All other readings are available on the blackboard page for this class. I may make some modifications to the syllabus as the semester progresses. I’ll announce any changes to the syllabus in class and you can always find the updated syllabus on blackboard. It’s your responsibility to make sure that you have the updated version of the syllabus.

Week 1: Introduction and Pre-test

Description of Week 1: This week will serve as an introduction to the course. On Tuesday, we’ll review the syllabus and introduce ourselves to the rest of the class. I’ll also explain the rationale for this class, why I’ve adopted certain learning strategies to teach critical thinking skills, and how you can succeed in this class. On Thursday, I’ll administer the first extra-credit test. If you choose to participate, you’ll take the logical reasoning portion of the LSAT in class. There will be no graded quizzes for the first week.

Tuesday, January 15th:
- Please review the syllabus before class.

Thursday, January 17th:
- LSAT Pre-test.

Week 2: Mapping an Argument

Description of Week 2: This week will introduce argument mapping. Argument mapping is a technique for visually modeling arguments in order to better analyze and evaluate these arguments. To map out arguments, the class will use an online program called MindMup. On both the Tuesday and Thursday sessions, we’ll learn the basics of argument mapping and familiarize ourselves with MindMup’s argument visualization program. During class, we’ll practice mapping out different arguments. Please make sure to bring your laptops to class!
Tuesday, January 22nd:
- Watch: “Getting Started with MindMup’s Argument Visualization Mode.”
- First quiz this session.

Thursday, January 24th:
- *Improving Your Reasoning*, chapters 4-5.

Week 3: Mapping an Argument

Description of Week 3: This week will continue to learn the mechanics of argument mapping. The lessons for this week will focus on implicit premises—premises that are not explicitly stated in an argument. We’ll learn strategies for identifying implicit premises and charitably interpreting arguments. We’ll again practice mapping out arguments for most of class.

Tuesday, January 29th:
- First problem set due. There will be a problem set due before class on Tuesday every week unless noted otherwise on the syllabus.

Thursday, January 31st:

Week 4: Evaluating Arguments

Description of Week 4: We’ll now move from identifying arguments to evaluating them. We’ll begin to learn strategies for judging the plausibility of premises and the relevance of arguments. Questions that we’ll address include: what makes a premise plausible or implausible? Which premises are supported by good reasons and which aren’t? When do premises support a conclusion?

Tuesday, February 5th:
- Recommended: “Basis Boxes and How to Create Them with Mindmup” (available on blackboard)

Thursday, February 7th:

Week 5: Inductive Reasoning and Analogies
Description of Week 5: There are different kinds of arguments and different standards for evaluating them. For the next few weeks, we'll learn about these different arguments and how we should go about evaluating them. This week we’ll focus on inductive reasoning and arguments that rely on analogies. Some concepts that we’ll explore include inductive strength, sample size, base rates, counterexamples to generalizations, and evaluating the strength of analogies.

Tuesday, February 12th:
- *Workbook for Arguments*, chapter II.

Thursday, February 14th:
- *Workbook for Arguments*, chapters II and III.

Week 6: Sources and Causes

Description of Week 6: Arguments often depend on sources, such as newspaper reports, the testimony of experts, and published research. On Tuesday, we’ll consider what makes a source a good one and when you should trust testimony and scientific publications. On Thursday, we’ll begin exploring causal arguments—arguments that aim to show that one event caused another. We’ll read about how scientists study causality and how we can use different research designs to distinguish between causation and correlation.

Tuesday, February 19th:
- *Workbook for Arguments*, chapter IV.
- Edward Diener and Robert Biswas-Diener, “The Replication Crisis”

Thursday, February 21st:
- *Workbook for Argument*, chapter V.

Week 7: Causal and Deductive Arguments

Description of Week 7: On Tuesday, we’ll finish our preliminary discussion of causal arguments and reliable sources. On Thursday, we’ll begin studying deductive arguments—arguments that aim to show that a conclusion necessarily follows from the premises of an argument.

Tuesday, February 26th:
- *Workbook for Argument*, chapter V.

Thursday, February 28th:
• Workbook for Arguments, chapter VI.

Week 8: Deductive Arguments

Description of Week 8: On Tuesday, we’ll continue our study of deductive arguments at the start of this week, and we’ll work with argument forms that guarantee the validity of arguments. On Thursday, we’ll map out longer and more complex deductive arguments.

Tuesday, March 5th:
• Workbook for Arguments, chapter VI.

Thursday, March 7th:
• No reading & no quiz.
• We’ll work on problem set 7 in class.

Week 9: Spring Break

Description of Week 9:

No class! And no problem set due this week.

Week 10: Fallacies and Biases

Description of Week 10: This week we’ll study fallacies and cognitive biases. Fallacies are common mistakes in arguments and cognitive biases are intellectual distortions that hinder our ability to form accurate judgments. On Tuesday, we’ll examine common fallacies. On Thursday, the class will learn about cognitive biases as well as common statistical mistakes.

Tuesday, March 19th:
• Workbook for Arguments, appendix I: Some Common Fallacies, pages 227-246.

Wednesday, March 20th:
• Problem set 7 due at midnight.

Thursday, March 21st:
• Daniel Kahneman, “The Law of Small Numbers,” “Regression to the Mean,” “The Illusion of Validity,” “Expert Intuition,” and “The Outside View.”

Week 11: First Debate
Description of Week 11: We’ll begin a new segment of the course this week. First, we’ll start mapping out and evaluating longer and more complex arguments in academic articles. Second, students will begin debating each other in class after doing some preparation first. On Tuesday, we’ll prepare for a debate by reading two short academic articles, mapping out their central arguments, and evaluating them. On Thursday, we’ll discuss some strategies for effective debating and oral communication. Finally, you’ll debate each other for much of the Thursday class session. The topic of the debate will be about the nature and limits of altruism.

Tuesday, March 26th:
- Ole Martin Moen, “Should We Give Money to Beggars?”

Thursday, March 28th:
- Workbook for Arguments, chapter IX.
- Debate.

Week 12: Second Debate

Description of Week 12: During this week, the class will prepare for the next debate. But you’ll pick the topic. I’ll give you a list of controversial ethical or policy questions, and I’ll allow the class to vote on which controversy you want to explore. The readings will depend on which controversy the class picks. But the readings will be academic papers on this topic, and you’ll spend most of the sessions mapping out their central arguments and evaluating them.

Tuesday, April 2nd:
- John Arthur, “Sticks and Stones.”
- Sarah Conly, “When Free Speech is False Speech.”

Thursday, April 4th:
- Debate.

Week 13: Second and Third Debate

Description of Week 13: Same as last week. On Thursday, I also plan to assign you debate propositions and case studies for the final class debate.

Tuesday, April 9th:
- Michael Huemer, “America’s Unjust Drug War.”
- Tim Hisao, “The Case for Marijuana Prohibition.”
Thursday, April 11th:
- Debate.

Week 14: Fourth Debate

Description of Week 14: The debate continues....

Tuesday, April 16th:
- Daniel Callahan, “A Case Against Euthanasia.”
- James Rachels, “Active and Passive Euthanasia.”

Thursday, April 18th:
- Debate.

Week 15: Writing and Post-Test

Description of Week 15: The Tuesday session will be dedicated to preparing for the final debate. We’ll cover tips for writing your final papers and generating effective arguments. On Thursday, I’ll administer the second extra-credit version of the LSAT.

Tuesday, April 23rd:
- Paper Rubric.
- Recommended reading:
  - Workbook for Arguments, chapters VII & VIII.
  - Improving Your Reasoning, chapter 11.

Thursday, April 25th:
- LSAT post-test.

Final Session

Description: During the final session, you and a partner will engage in an extended debate with an opposing team, and the rest of the class will ask questions and give you feedback on the quality of your arguments. The point of this exercise is to give you one last opportunity to practice your argumentative and communication skills and to demonstrate your ability to publicly debate others in a good faith and productive manner.

Section 2 (12-1:15pm class):
- Tuesday, April 30th 2-5pm.
- Papers and maps due at 5pm on Monday, April 29th.
Section 3 (1:30pm-2:45pm class):

- Saturday, May 4th 2-5pm.
- Papers and maps due at 5pm on Friday, May 3rd.