

Critical Thinking and Methods of Inquiry – Spring 2022

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Location and Contact Information

Dr. Javier Hidalgo

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Class Time: Tuesday & Thursday

- Section 1: 12:00 to 1:15pm
- Section 2: 1:30 to 2:45pm
- Section 3: 3:00pm to 4:15pm

Classroom: Jepson 120

Office Hours: [I post a sign-up sheet for my office hours online](#). 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. To achieve this goal, we'll focus on honing your ability to understand, evaluate, and create arguments.

What Are the Course Objectives for This Class?

More specifically, this course is designed to promote the following learning goals:

Improve Your Ability to Analyze and Evaluate Arguments

- *How will we achieve this goal?* Throughout this course, we will practice identifying the components of arguments by diagramming them. We will then evaluate the premises and inferences of these arguments to see whether they are successful at establishing their conclusion.
- *What will you be able to do by the end of the course?* You will be able to diagram a complex, paragraph-length argument and determine whether this argument is good or not.

Improve Your Ability to Construct and Communicate Arguments

- *How will we achieve this goal?* We will learn the features of good arguments throughout the course. In the final part of the course, you will construct and communicate your own argument.
- *What will you be able to do by the end of the course?* You will be able to write a short essay that clearly communicates a strong argument and responds to objections.

Improve Your Understanding of Critical Thinking Concepts

- *How will we achieve this goal?* We will learn and apply important critical thinking concepts such as inference, premise, logical structure, implicit assumptions, independent and dependent arguments, validity, and rules of logical inference.
- *What will you be able to do by the end of the course?* You will be able to explain the above critical thinking concepts and how they are relevant to analyzing and evaluating reasoning.

Why Are These Learning Goals Important?

The goal of this class is to improve your reasoning abilities. And good reasoning might be crucial to your personal and professional goals. Good reasoning is important to leadership too. We want leaders who can competently analyze and evaluate arguments, and construct arguments that can rationally persuade others. We also want to be able to analyze and evaluate the arguments that leaders give us in order to figure out whether we should support them.

But I don't consider the skills that you will learn in this class to be only instrumental to some other goal. The skills that you'll learn in this class will help you to think more clearly, if you choose to use them. It's good for us to think clearly, irrespective of whether this helps us to achieve other goals. At least, that's one guy's opinion.

What Are Some Distinctive Features of This Class?

This course includes the following learning strategies.

Argument Mapping. This class will make extensive use of "argument mapping." Argument mapping is a technique for visually representing and analyzing arguments. You'll often map out arguments in this class before evaluating them. The available evidence suggests that argument mapping is an effective way to enhance critical thinking skills. Argument mapping improves reading comprehension, encourages you to better understand the structure of arguments, and makes it easier to evaluate arguments in a systematic and precise way. You'll learn argument mapping both with pen-and-paper and with a computer program.

Mastery Learning. Perhaps the most distinctive element of this class is mastery learning. Mastery learning is a method of instruction in which students work at their own pace and must achieve a level of mastery before moving forward in the course. You'll need to complete several different steps in this course, and you have to master each step one-by-one. Once you think you're ready for the next step, you'll need to complete mastery checks. If you have achieved mastery, then you'll move onto the next stage. If you have yet to achieve mastery, there is no penalty. You'll just need to practice some more and then you can take a mastery check again.

Why use mastery learning? Learning how to analyze and evaluate arguments is a skill. Now, think about how you've mastered skills in the past. Maybe you've mastered a musical instrument, a sport, or even a video game. How did you do it? You likely didn't do this by listening to lectures about the topic. Instead, you probably practiced a lot and received feedback about the areas where you could improve. And you kept working until you mastered this skill.

This is the same idea that motivates mastery learning. Class time will be devoted to practicing your skills at argument analysis and evaluation until you have mastered them.

What Are the Steps in This Class?

Step 1: Premise/Ultimate Conclusion Arguments

- You'll learn the basics of argument analysis and evaluation in this step. We'll cover the concepts of inference, indicator words, premises, conclusions, and you'll learn basic argument mapping.

Step 2: Sub-Conclusions

- In this step, you'll learn how to identify, map, and evaluate sub-conclusions, intermediate conclusions in an argument.

Step 3: Dependent Reasons

- You'll learn how to map and identify dependent reasons, reasons that are linked with other premises in an argument. We'll continue to learn other components of argument analysis and evaluation, such as logical rules of inference.

Step 4: Independent Reasons

- This step will teach you how to identify independent reasons (reasons that don't depend on other claims), arguments with no inference indicators, the logic of conditional "if, then" statements, and more.

Step 5: Implicit Conclusions

- Authors don't always explicitly state one or more of their sub-conclusions and sometimes they might not explicitly state their ultimate conclusions either. In this step, you'll learn how to identify missing ultimate conclusions and sub-conclusions.

Step 6: Analyzing Objections with Computer-Assisted Argument Mapping

- You'll learn how to analyze and evaluate objections and rebuttals.
- In addition, you'll learn how to map arguments with a computer program, Mindmup. This will be useful for mapping more complex arguments, for constructing arguments, and for reviewing what you've learned.

Step 7: Argument Construction

- In this step, you'll hone your skills at constructing your own argument. Your mastery check in this step will be a paper that develops and defends an extended argument, and maps of the central arguments in your paper.

How Does Grading Work in This Class?

As this course incorporates mastery learning, the grading system will be a bit unusual. Here's how it works. If you complete a step, you receive a certain number of points. The points for all steps are as follows:

| Step | Points | Your Total Score Once You Have Passed this Step |
|-------------|---------------|--|
| Step 1 | 15 | 15 |
| Step 2 | 15 | 30 |
| Step 3 | 15 | 45 |
| Step 4 | 15 | 60 |
| Step 5 | 10 | 70 |
| Step 6 | 10 | 80 |
| Step 7 | 10 | 90 |

So, for example, if you complete steps 1-6, you'll receive 80 points in the class. At the end of the class, I'll assign you an overall grade based on your point total using a conventional grading scale (70 points is a C-, 89 points is a B+, 95 points is an A, etc). If you want to stop at a certain step, that's up to you. You could read more about my grading policies [here](#).

You can also increase your point total above your base grade. Here's how. This class will have both a pre-test and post-test with a test of

critical thinking. You'll take the pre-test on the first day of class and the post-test near the end of the semester. The purpose of these tests is to help me to know whether this class is effective and for you to measure how much you've learned. You can receive up to 10 points by taking the critical thinking tests. How much of this bonus you receive will depend on how well you do. But I'll only count your best performance on the two tests that you take. For example, suppose that you do badly on your pre-test, but you do well on your post-test. I'll only count your post-test, and I'll drop the pre-test. To receive credit, you must complete both the pre-test and the post-test.

I'll administer the pre-test and post-test for the class on:

- Pre-test: **Tuesday, January 11th**
- Post-test: **Tuesday, April 12th**

Just come to the regular classroom to take these tests. They should take about 50 minutes to finish.

How Do Mastery Checks Work?

You'll need to take most mastery checks in class. Expect mastery checks to take anywhere from about 10 minutes to a full session of class. For the more advanced steps, you'll also need to complete take-home assignments.

To pass a mastery check, you must demonstrate that you fully understand the material and can complete the mastery check with a minimal number of errors. *This means that you need to receive about 90 percent or higher on a mastery check to pass.*

Once you've completed a mastery check, I'll evaluate your work as promptly as I can and let you know whether you've passed the check. If you haven't passed yet, I'm happy to go over your mastery check in class or office hours and explain what you can do to improve next time.

See below for a complete list of mastery checks.

What Should I Do in Order to Take a Mastery Check?

Before you take a mastery check, you need to complete the keys for this check. The keys are reading assignments and quizzes that aim to prepare you for a mastery check.

There are two types of keys: reading keys and quiz keys.

Reading keys ask you to read some of the textbook on a computer program called Perusall. Perusall is a collaborative annotation tool that helps students to do the readings in a more effective and thorough way. This program will encourage us to do the reading together as a class and will allow me to answer your questions as you read. To pass a reading key, you will need to complete the reading and write annotations on it.

Quiz keys are short quizzes that help you to test your understanding of the material and that are similar to the mastery checks. You can take the quiz keys at any time and you can also take them as many times as you want.

To complete the keys for a mastery check, you need to receive at least 90 percent on each of them. Once you do that, you can then take the mastery check. You can find all of the keys on blackboard in the folders for the steps.

The keys will help you to prepare for mastery checks. However, I also recommend that you complete practice exercises and check your answers with me before you take a mastery check. Once you feel ready, go ahead and take a mastery check from a folder I have laid out in the class. Please feel free to ask me if you're confused about what to do.

Is Class Attendance Required?

Attendance on any given class session is not required. You can also come to class and leave whenever you want. Once again, you get to decide how you'll learn.

Here's the one exception. You should come to class to take the pre-test and post-test (January 11th and April 12th). I will, however, allow

make-up sessions for these tests if you have a medical emergency, religious observation, or another very good reason.

I will also allow you to take mastery checks during office hours. But you can only take mastery checks during office hours if you are also attending class regularly.

How Can I Meet with the Instructor?

I'm happy to help you during office hours and you can sign up for office hours on my schedule at this [link](#).

Where Can I Find the Course Materials?

There is a packet of exercises for the class that you can purchase in the book store. All of the other readings and exercises are available on the blackboard page for this class.

How Does the Final Session Work?

The final for this course is scheduled for:

| | |
|---|-------------------|
| Section that meets Tuesday and Thursday 12-1:15pm | April 22 2-5pm |
| Section that meets Tuesday and Thursday 1:30-2:45pm | April 28 9am-12pm |
| Section that meets Tuesday and Thursday 3:00-4:15pm | April 28 2-5pm |

The final session will function as an extended class session. During the final session, you can do practice exercises, ask questions, take mastery checks, and so on. As always, attendance is not mandatory and you don't have to stay for the whole session. But this will be your last chance to submit mastery checks for steps 1-6.

When is the Final Deadline for All Course Work?

The final deadline for all course work is midnight on Friday, April 29th. There can be no more extensions beyond that point except for medical emergencies.

Is There Any Extra Credit in This Class?

Yes. The extra credit in this class aims to reward cooperative and helpful behavior from you and other students. I want students to work together and help each other. If I see that you are working collaboratively and helping other students, I may give you a token and each token is worth a small amount of extra credit. Each token is worth 0.1 point in the class and you can continue to collect tokens until you receive 2 points. They might not sound like much, but it could make a difference for your final grade if you accumulate enough tokens.

Complete List of Mastery Checks

| Step | Mastery Check | Keys | What You Need to Know or Do |
|-------------|----------------------|-------------------------|--|
| 1 | 1.1 | Reading Key Quiz Key | Indicator Words |
| | 1.2 | Reading Key Quiz Key | Basic Argument Identification, Analysis, and Evaluation |
| 2 | 2.1 | Reading Key Quiz Key | Argument Identification When to Place Claims on a Map |
| | 2.2 | Reading Key Quiz Key | Map Arguments with Subconclusions |
| | 2.3 | Reading Key Quiz Key | Evaluate Arguments with Subconclusions Distinguish Between Valid and Invalid Inferences |
| 3 | 3.1 | Reading Key Quiz Key | When to Divide Claims Argument Identification |
| | 3.2 | Reading Key Quiz Key | Map Arguments with Dependent Reasons |
| | 3.3 | Reading Key Quiz Key | Identify Missing Premises |

| | | | |
|----------|-----|-------------------------|--|
| | 3.4 | Quiz Key | Evaluate Arguments with Dependent Reasons |
| 4 | 4.1 | Reading Key Quiz Key | Identify Valid and Invalid Inferences Argument Identification |
| | 4.2 | Reading Key Quiz Key | Map Arguments with Independent Reasons |
| | 4.3 | Quiz Key | Evaluate Arguments with Independent Reasons |
| 5 | 5.1 | Reading Key Quiz Key | Identify Valid and Invalid Inferences Argument Identification |
| | 5.2 | Quiz Key | Map Arguments with Missing Conclusions |
| | 5.3 | Quiz Key | Evaluate Arguments with Missing Conclusions |
| 6 | 6.1 | Reading Key | Use a Computer Program to Map Arguments |
| | 6.2 | Reading Key Quiz Key | Map Arguments with Objections and Rebuttals |
| | 6.3 | Reading Key Quiz Key | Map Dialogues with Objections and Pseudo Objections |
| | 6.4 | Quiz Key | The Disagreement Project |
| 7 | 7.1 | Reading Key Quiz Key | Come up With a Topic for Your Paper |
| | 7.2 | Reading Key Quiz Key | Develop an Argument for Your Paper |
| | 7.3 | Reading Key Quiz Key | Write a Paper that Satisfies the Rubric |