

Details: The final exam in this class will be available in Blackboard on **Tuesday, December 10th from 5:15 PM – 7:15 PM (no extra time will be provided – you will have 2 hours to complete the exam starting at 5:15 PM)**. Once you begin the exam, you will have two full hours to complete all the questions. At the end the two-hour period, all work that you have completed (if you are unable to finish) will be automatically submitted, so be sure to complete the exam within that two-hour window. The final exam will consist of 50 – 60 questions. The format will be similar in structure to the weekly quizzes. There will multiple choice and true or false questions on the exam. Please follow all instructions when listed and be sure to read each question carefully.

For the exam, you should know the following information from both the text and the in-class lectures:

Propositional Logic/Sentential Logic/Truth Table Logic:

- You should know that Propositional Logic/Sentential Logic/Truth Table Logic is a form of deductive reasoning – you should also know what that means.
- You should know who originated this form of logic (see chapter 11 in your text).
- You should know the definition of claim variables (and the difference between claim variables and term variables).
- You should be able to answer the following question (or any variation of the following question) as I have repeatedly defined it in class: A claim is a sentence/statement that is either _____ or _____.
- You should know what it means for something in propositional logic to be contradictory (be able to define it), and you should know the symbolic notation for that type of claim.
 - o You should also be able to set up a truth table to illustrate what it means for something to be contradictory. Also, know what the following symbol is called: \sim
- Know the difference between a contradictory claim and a contrary claim (and be able to define both).
- Know the difference, in terms of propositional logic, between a simple claim and a compound claim.
 - o Know what a **conjunctive** claim is (and be able to illustrate it symbolically using claim variables).
 - What is the only instance that a conjunctive claim is true (be able to illustrate it using a truth-table as well)? I gave you a general “rule” to illustrate this. Know that general rule.
 - Know that all compound claims are either true or false based on the truth of the simple claims that make them up.
 - o Know what a **Disjunctive** claim is (and be able to illustrate it symbolically using claim variables).
 - What is the term that I used to refer to the simple claims that make up a disjunctive claim?
 - What is the rule that I gave you about when a disjunctive claim is true and when it is false? Meaning, you should be able to complete the following rule: “A disjunctive is false if and only if _____” (also know how we symbolically illustrate *if and only if*).
 - What symbol do we use to illustrate disjunctive claims? What is it called?
 - Be able to recognize and or provide the truth table for disjunctive claims.
 - o Know what a **Conditional** claim is and how to symbolically illustrate it.
 - Know the meaning of and be able to identify the following parts of a conjunctive claim: antecedent and consequent.

- Be able to complete the following rule for the truth of a conditional claim: A conditional claim is false *iff* its _____ is true and its _____ false
- Be able to identify and create a truth table for a conditional claim. Don't forget that row 4 in a conditional truth table is **true** (as weird as it looks at first).
- What is the only case in which a conditional claim is false? ... A conditional claim is only false when its _____.
 - Know, for example, when the following conditional claim is false: "If John is paid a dollar, then he'll jump out the window."
- Be able to recognize and/or provide the truth tables for the following four conditional forms: *modus tollens*, *modus ponens* (also know what these mean), *denying the antecedent* and *affirming the consequent*. You should also be able to explain if these forms are valid or invalid.
- You should be able to identify and/or create a truth table to check for validity for of an argument for each of the propositional forms that we spoke about in class. You should also know what we look for in a truth table to illustrate that a propositional argument is valid and/or invalid.
 - If I give you a propositional argument, you should be able to put that argument in truth table form and tell me if it is valid or invalid and why it is valid or invalid. Review the examples that we did repeatedly in class.
- For example: You should be able to create a truth table for a hypothetical syllogism (remember that there are 8 rows).
- You should also be able to answer any potential questions on the Short Cut Method of testing propositional arguments (this was the short cut method discussed in class).

Categorical Logic:

- Know what a categorical term is and how to check if a term in a claim is a categorical term.
- Be able to define what a syllogism is
- Be able to define what a categorical syllogism is
- Be able to define what a categorical claim/proposition is
- You should be able to identify each of the following parts of a syllogism: Major premise/term, Minor premise/term, and Middle term
- Know what it means to say that a categorical syllogism is valid or invalid and sound or unsound
- You should know how to put a syllogism into variable form (remember that a claim variable is different than a term variable)
- You should know how to identify the figure and mood of a syllogism and what figure and mood are. And you should be able to convert a figure-mood form (like IAI-2) into a categorical syllogism
- You should know how to use a Venn diagram to illustrate both a categorical claim a categorical syllogism
- Know how to use shading and how to use 'x' to check for validity
- Know mood and figure and be able to identify an argument as a particular mood/figure. You should also be able to move from the Mood/Figure to the argument form and a venn diagram.
- Know each of the rules of validity that I outlined in class and provided on the handout for Categorical Reasoning

Inductive Reasoning/Logic:

- Know what concepts/standards we use when we evaluate the truth of an inductive claim/argument (I.E., how it is different from deductive reasoning)
- Know what cogent means in terms of inductive arguments
- Know the 3 types of inductive arguments that we discussed in class
- Be able to define the following terms: Target Group, Sample Group, and Relevant Property
 - Be able to identify each in an argument

- Know the two things (conditions) an inductive argument's strength is dependent upon – as discussed in class and as identified on the Power Point for Induction that is posted on Blackboard
- If provided with an inductive argument, you should be able to determine and explain whether or not it is strong or weak
- Know what a biased sample is and how it can affect the strength of an inductive argument
 - o In this context, in terms of *enumerative induction*, know the two conditions that I discussed must be met for a sample to be *properly representative*
- Know the 5 questions to ask (methods to use) when evaluating an *analogical inductive* argument (the “Summary of the Rules” on the PowerPoint for analogical induction)
- What is Aristotle’s “Principle of Sufficient Reason” state and, from the first half of the semester, what are Aristotle’s four principles of logic?
- Know the following for causal arguments: Causal Explanation, Causal Claim, and Causal Argument
 - o You should be able to define each and explain the relationship between them (e.g., that we use a causal argument to support a causal claim – etc.)
- What is the most common form of a causal inductive argument called?
- Know the methods of evaluation of an Inference to the Best Explanation

Fallacies (there is more below to know that it might seem. Remember the number of fallacies that we reviewed. Please reserve the time needed to sufficiently review all the relevant information concerning fallacies:

- Know the difference between Formal and Informal Fallacies.
- Be able to identify/define each of the fallacies that we spoke about in class and the particular categories that I outlined for these fallacy types (see the slides that I posted)

The exam will be completed online in CANVAS. It will begin at 5:15 PM on Tuesday, December 10th and must be completed prior to 7:15 PM. No extensions will be provided. If you have any issues with CANVAS during this time, please contact me at joshua.carboni@csus.edu.