“Concentrate on knowing the material below. If you do, you should do well on the exam.”
Professor: Dr. Brian Morley

What logic deals with. [It deals with the relation between the premises and the conclusion. Generally, logic cannot tell you whether the premises are in fact true or not—that is known either by common knowledge or consulting someone who has expert knowledge.]
The difference between a real and an apparent dispute. [A dispute is real only when one party believes a certain statement is true while the other believes that statement is false. A verbal dispute occurs whenever one party believes a statement is true, while the other party believes a different statement is false.]

How do you solve an apparent dispute? [By a re-examination of the argument itself.]

What is the principle of non-contradiction? Identity? Excluded Middle?
What is the difference between induction and deduction with regard to certainty? [Deduction offers complete proof; induction a level of certainty]
What is the difference between induction and deduction with regard to the relationship between the premises and the conclusion? [In a (sound) deductive argument, all the information needed to draw the conclusion is included in the premises; in an inductive argument it is not. So the conclusion of a deductive argument does not go beyond the premises, but the conclusion of an inductive argument does (that is why induction is so useful and powerful—but also less certain.)
Be sure you can tell the difference between inductive and deductive arguments when given examples of each.

What is a sound deductive argument? [One with valid logic and true premises.]
What is the case with the conclusion of a sound deductive argument? [It must be true—that is the power of deduction.]

What is the difference between truth and validity? [Propositions (i.e., statements about the world) are true or false; arguments are valid or invalid. Normally, deductive arguments are considered valid or invalid; inductive arguments are considered strong or weak.]

What is a persuasive definition? A stipulative? A denotative? Connotative?

Know the specific name and definition of each informal fallacy. Be sure you can identify an example of each fallacy, especially the following: begging question, equivocation, bifurcation, complex question, amphiboly, ad hominem, common practice, tu quoque, post hoc, red herring, composition, division, straw man (person).

Know the rhetorical ploys: snow job, hypothetical question, softening words, mixing fact and opinion, shifting burden of proof

What are potential problems when reasoning with statistics? [For example, sample size too small or unrepresentative].
Types of causes: efficient cause (triggers the event), proximate (nearest in time), necessary cause (one without which an event cannot happen), sufficient cause (one which, by itself, will trigger the event), necessary and sufficient (by itself will trigger the event—nothing else is needed).

Reasoning with probability. To find the chances that two events will occur together, multiply the chances of them occurring separately (called the restricted conjunction rule). For example, \( \frac{1}{4} \times \frac{1}{4} = \frac{1}{16} \). To find the chances that either of two events will occur, add the chances of their occurring separately (called the restricted disjunction rule). For example, \( \frac{1}{4} + \frac{1}{4} = \frac{1}{2} \).

Is deduction always going from the general to the specific? Is induction always going from the specific to the general?

What is induction by enumeration?

What is induction by analogy? How do you make a strong inductive argument? Be able to analyze an example of an argument using the criteria for a strong inductive argument (e.g., number of cases where the analogy is said to hold, number of points of comparison, relevance of points of comparison, strength of the conclusion compared to the premises, number of disanalogies).

What does it mean to analyze something according to a higher level of induction?

Conditional arguments. Know the valid arguments (affirming the antecedent, or modus ponens; and denying the consequent, or modus tollens); know the invalid arguments that look like the valid ones. Be sure you can identify examples of each.

What is hypothetical syllogism, disjunctive syllogism, constructive dilemma?

What is it for a term to be “distributed”? [When a term is distributed, something is being said about all of a class. In the proposition, “All dogs are friendly,” the term “dogs” is distributed because something is beings said about all dogs. In the proposition, “Some dogs are friendly,” “dogs” is not distributed.]

What is an immediate inference? [Something that can be concluded from only one piece of information.]

What is an enthymematic argument? [One with a premise unstated; in some rare cases even a conclusion can be left unstated.]

What is conversion? [No mushrooms are fruit = no fruit are mushrooms]

What is conversion by limitation? [All oranges are fruit = some fruit are oranges]

Know the square of opposition, specifically:

A and E statements are contraries: they cannot both be true but both could be false
I and O statements are subcontraries: they cannot both be false but both could be true.

The A is the superaltern of the I; the E is the superaltern of the O. If the A is true the I has to be true [e.g., if it is true that “all dogs are friendly,” it has to also be true that “some dogs are friendly.” Similarly, if the E is true the O has to be true. Also, if the I is false the A has to be false [i.e., if it is false that “some dogs are friendly,” it has to be false that “all dogs are friendly.”]

The A and the O are contradictories; the E and the I are contradictories. Because they are denials of each other, they cannot both be true and they cannot both be false.

[It’s a technical point, but the above is for the non-Boolean interpretation of logic. You won’t be required to know this on the test, but it has to do with whether we assume that A and E propositions imply that at least one member of a class exists (when a statement assumes that something exists, it is said to have existential import). On the non-Boolean interpretation, “all unicorns fly” can be true only if at least one unicorn exists. But on the Boolean interpretation, it could be true even if there are no unicorns]
unicorns. Accepting the Boolean interpretation has implications for the square of opposition; as it turns out, few of the relationships in the above (non-Boolean) square of opposition hold.]

*** End of Study Guide ***