

Exam 1 Study Guide

Topic 1: What is Science?

The definition of science

How is science done

The basics of the scientific method: experiment, explain, predict, test

The four properties common to all scientific endeavors

The “magic” words of science: Law, hypothesis, theory, fact.

Topic 2: Case study: Astrology

What is astrology – its goals and methods.

To what degree does it follow the four properties common to all science?

Be able to describe the ways that astrology is not scientific!

Topic 3: Critical Thinking Basics

Know what a *claim* is, and what an *argument* is. Be able to identify the *premise* and *conclusion* of an argument.

Know what subjectivism and value judgments are, and when they are okay to use, and when they are not okay.

Know what deductive and inductive arguments are, and be able to tell the difference between the two.

Know the differences between arguments and explanations.

Topic 4: Credibility

Credibility must be assessed for both claims and their sources.

Understand the different ways you can evaluate a claim for credibility.

Understand the criteria by which you can evaluate the credibility of a source.

Be able to distinguish between credible and uncredible claims and sources.

Topic 5: Case Study: Cold Fusion

What is regular fusion?

What is cold fusion, and how does it differ from regular fusion?

What kind of experiment did Pons and Fleischman do to “discover” cold fusion?

What went wrong with their experiment?

What went wrong with the publicity surrounding the experiment?