

Final Exam also covers material from the following topics:

### *Inductive arguments*

Difference between inductive and deductive arguments. Use of inductive reasoning in science. Types of inductive arguments: analogical arguments, and inductive generalizations. The basis for evaluating the soundness of these inductive arguments. Samples, sample size, confidence level, margin of error.

### *Peer Review and Scientific Journals*

What are scientific journals for? Know the major parts of a scientific research article. The principle of easy and open dissemination of scientific research. Know the peer review process for scientific research articles. What are the roles of the editor and the referee?

## *Dark Matter*

Why do astronomers claim there is such a thing as dark matter – what observation does dark matter serve as the best explanation for? Escape velocity, gravity, rotation curves, galaxy clusters. What might dark matter be made of – baryons versus non-baryons? Baryons: faint stars, gas clouds, black holes, neutron stars, white dwarfs. Non-baryons: WIMPs.