Sociology 357 Summer 2002
Study guide part I

In general, the exam will focus on material that has been discussed in class, although you will find that the textbook deepens your understanding of major concepts. Test questions will be objective: multiple choice, matching, true-false, short answer. I will be less interested in rote memory of definitions or details and more in testing whether you really understand the major concepts.

1.   Distinguish empirical statements (or questions) from other kinds of statements. Especially contrasted with
    a.   Definitions
    b.   Value statements (things that are good or bad)
    c.   Abstract statements with no empirical referent (i.e. with unconcretized abstractions) – these will be obvious examples, not borderline cases
2.   Recognize the difference between casual observation and controlled scientific observation in clear examples, not borderline cases.
3.   Recognize examples of observation errors and be able to distinguish among them:
    a.   Inaccurate observation
    b.   Overgeneralization
    c.   Selective observation
4.   Scientific attitude
    a.   Knowledge as an end in itself
    b.   Not introspection, interested in things outside yourself, in knowing how it works, not projecting your own ideas
    c.   Respect the facts, respect the evidence
    d.   Tell the truth about your research
    e.   Recognize the boundaries of expertise: know what you know and what you do not know
5.   Role of theory in science
6.   Variables
    a.   Definition (exhaustive, mutually exclusive set of categories)
    b.   Recognize examples, determine whether something is or is not a variable
    c.   Be able to distinguish independent and dependent variables in short research descriptions in which implied causal direction is unambiguous
    d.   Understand difference between precision and accuracy in categories of a variable
    e.   Understand tradeoff between precision and accuracy in measuring a variable
7.   Level of measurement: nominal, ordinal, interval, ratio.
    a.   Recognize examples
    b.   Know which kinds of statistics can be done with each (percentages, means, correlations)
8.   Units of analysis
    a.   Recognize examples
    b.   Recognize variables appropriate to different units of analysis
    c.   Distinguish among variables and units of analysis in example propositions
9.   Propositions

a. Distinguish propositions from non-propositions
b. Distinguish among univariate, bivariate, and multivariate propositions (be able to correctly classify examples)
c. Recognize examples of hypotheses (defined as the proposition being tested in a particular project)
d. Recognize examples of assumptions (defined as propositions being taken as givens in a particular project)
e. General form of a proposition at abstract and concrete/operational level.
f. Role of measurement assumptions in relation between abstract and concrete propositions

10. Relations
a. Recognize examples of bivariate or multivariate relations
b. Recognize examples of positive, negative, curvilinear relations
c. Recognize examples of causal relations (as opposed to merely statistical associations)

11. Operationalization (measurement)
a. Recognize clear examples of unconcretized abstractions versus operational variables.
b. Know steps of operationalization (procedures for collecting data which are concrete and specific + clear definition of the different categories)
c. Operationalization in survey research with closed-ended questions is the exact question used and the possible response categories plus what you did with non-response or other problematic answers
d. Operationalization in surveys with open-ended questions is the exact question used plus the information about how the responses were coded into categories
e. Operationalization in observation is the exact and specific observational procedures used plus the detailed rules and procedures for classifying behaviors into different categories, both in the field and later in revising the data for statistical computation.
f. Operationalization in content analysis is exact description of how documents are read/examined plus detailed procedures for classifying documents into different categories based on their content.
g. Idea of an indicator: an indirect measure of what you are interested in.

12. Reliability as intersubjective
a. Different observers agree on what is observed
b. Relation between procedures in your observation assignment and concept of reliability
c. Examples of possible results of observation and what they imply for reliability
d. Difference between reliability of measure and validity (whether it measures what you think it measures)

13. Logic of induction as linked to sampling theory (more in sampling notes)

14. Deductive logic of falsification
a. Understand how hypotheses are falsified and how this reflects upon the theory and measurement assumptions
b. Recognize illogical conclusions ("proving" the theory, rejecting the result because you reject the theory)

    c.   Understand how accumulation of failure to falsify increases support for the theory

15.   Read simple statistical tables (differences of means, percentages, correlations) and recognize whether they confirm or disconfirm a theory.
    a.   Confirm: in direction predicted and large (statistically significant)
    b.   Disconfirm: no association or opposite prediction
    c.   Indeterminate: in direction predicted but not statistically significant
    d.   If hypothesis is zero association, only zero statistical association confirms; indeterminate is small nonsignificant association; any significant association disconfirms. I will test for confirmation or disconfirmation of zero association, but not for indeterminate as we have not studied the correct way to identify indeterminate results in this case.

16.   Criteria for identifying causation
    a.   Statistical association
    b.   Causes come before effects
    c.   Understand the mechanism
    d.   Eliminate alternate explanations for the statistical association
    e.   Be able to recognize whether claims of causation are well-founded in particular examples

17.   Experiments
    a.   Recognize whether something is a true experiment, a quasi-experiment, or not an experiment
    b.   Recognize whether a variable is manipulable
    c.   Recognize whether something is an example of true randomization
    d.   Recognize examples of experimental control through holding factors constant
    e.   Distinguish randomization from random sampling
    f.   Given a description of an experiment, be able to tell whether a particular extraneous variable is controlled by randomization, controlled by holding constant, or uncontrolled as an alternate explanation for the result.
    g.   Identify the kinds of research that can and cannot be studied through experiments

18.   Surveys
    a.   Identify the kinds of things that can and cannot be researched by asking people questions
    b.   Recognize obvious examples of errors in question-writing: ambiguous or unclear, double-barreled, biased, responses do not match question, responses not in ordinal order, responses not exhaustive and mutually exclusive.

19.   Articles we have read for class
    a.   Given author's name, article title, and short description of the research, be able to recognize major features of the article: independent and dependent variables, type of research, measures of variables, hypothesis being tested, major results, main purpose of research. This will be tested at the level at which we went over the homework in class. Questions will be designed to jog your memory enough that they should be testing your understanding of concepts and whether you read the article at all, rather than detailed rote memory.
    b.   Research from these articles may be used as examples for other questions on the test.
    c.