Chapter 1: Introduction to Educational Research

1. List and briefly describe the major steps involved in conducting a research study. List and describe the four steps involved when conducting educational research.

2. State the goal of the scientific method. Discuss four limitations of the scientific method. Explain why the scientific method is preferred over other “ways of knowing.”

3. Describe the goal of educational research.

4. Describe, differentiate among, and provide examples of basic research, applied research, evaluation research, R & D, and action research.

5. Describe, differentiate between, and provide examples of qualitative and quantitative research.

6. Describe, differentiate among, and provide examples of the following quantitative approaches to research: descriptive, correlational, causal-comparative, and experimental.

7. Describe, differentiate between and provide examples of the following qualitative approaches to research: ethnographic, narrative, and case study.

8. Describe the complementary nature of the relationship between qualitative and quantitative research.

9. Given a research article, classify if by purpose and method.

10. Identify ethical principals that should guide the conduct of educational researchers. What are the “two overriding rules” of ethical ethical practice?

11. Provide an example of a professional organization and ethical principles they have developed for members. Identify the professional organization associated with your discipline (e.g., math, science, elementary education, language, special education, music education, early childhood education, etc.). Have they developed standards for ethical practice?

12. Define, differentiate among, and provide examples of the following terms:
informed consent, protection from harm, deception, confidentiality, and anonymity.

13. Describe the purpose and composition of a human subjects review committee. (Note: This is called the Institutional Review Board at the College of Charleston.)

14. List and describe the two major pieces of legislation that affect educational research.

15. Describe procedures for gaining access to research sites.

Chapter 2: Selecting and Defining a Research Topic

1. Describe and provide an example of a “research topic.” List and describe sources for research topics. Describe and provide an example of how a research topic is “narrowed.” Describe the characteristics of a “good” research topic. Describe, recognize, and provide an example of properly stated quantitative and qualitative research topics. Why is it important for the topic statement to be included in the introductory section of a research report.

2. Describe the purpose of a hypothesis. List the qualities and elements of a properly state hypothesis. Differentiate between hypotheses written for quantitative and qualitative research studies. Differentiate between “inductive” and “deductive” hypotheses. Differentiate between research directional and research non-directional hypotheses.

Chapter 3: Reviewing the Literature

1. Define “literature review” as it related to research. Explain the purposes and importance of a literature review. Define and provide examples of terms related to conducting literature reviews, including: keyword, Boolean operators, and primary versus secondary sources.

2. Provide examples of at least four databases that index important educational research information. Given a topic statement, conduct a search using ERIC, including the use of the Thesaurus function to identify search terms. Differentiate between ED and EJ sources found in ERIC.

3. Identify several web sites that could be useful when conducting literature reviews dealing with educational issues, including search engines. Identify advantages and disadvantages of using the Internet as a resource for information.
4. Identify the professional organization that is associated with your specific discipline (e.g., Council for Exceptional Children – “special education”). Describe how professional organizations can assist the literature review process. Why is it important for you to become a member of your professional organization?

5. Distinguish between literature reviews for quantitative and qualitative research studies.

6. Distinguish between “primary” and “secondary” sources. Which is preferred? Why?

7. Describe the process for creating an abstract.

8. Describe a “meta-analysis.” How are the results from a “meta-analysis” evaluated using an “effect size?”

Chapter 4: Preparing and Evaluating a Research Plan

1. Describe the term “research plan.” Discuss the purpose and importance (i.e., benefits) of a research plan.

2. List, describe, differentiate among, and recognize examples of the components (e.g., introduction, topic statement, hypothesis, literature review, methods, etc.) of a research plan. Describe how a plan for quantitative research differs from a plan for a qualitative study. Discuss how a research “plan” differs from a research “proposal.”

Chapter 5: Selecting a Sample

1. Define and identify the purpose of sampling from a quantitative perspective.

2. Define and differentiate among target population, accessible population, sample, and subject.

3. Define the terms “representativeness” and “generalization” in relation to sampling for research.

4. Identify and describe the steps involved in implementing four random sampling techniques: simple-random, stratified, cluster, and systematic. Discuss the advantages and disadvantages of each.

5. Describe the rules for determining sample sizes for correlational, causal-comparative, experimental, and descriptive research.

6. Explain why it is sometimes important to use stratified random sampling. Provide an example of situations in which this technique should be used.
How does “proportional” stratified sampling differ from “equal?”

7. Identify and describe “nonrandom” sampling techniques, including: convenience, purposive, and quota. How does the nonrandom nature of samples produced using these techniques affect representativeness and generalizability?

8. Differentiate between and provide examples of “sampling error” and “sampling bias.” Discuss ways in which these can be controlled.

9. Identify, describe, and provide examples of qualitative sampling strategies. Describe how sampling for a qualitative study differs from sampling for a quantitative study. Explain why the characteristics of qualitative research require alternative sampling techniques.

Chapter 6: Selecting Measuring Instruments

1. Describe and provide examples of the different types of variables (i.e., scales of measurement, including nominal, ordinal, interval, and ratio.

2. Define, differentiate among, and provide examples of major concepts related to testing, including: standardized test, assessment, measurement, selection, supply, performance assessment, raw score, norm- and criterion-referenced scoring.

3. Describe the purposes of and differentiate among the following types of tests: achievement, aptitude, attitude, personality, projective, non-projective, and self-report.

4. Define and differentiate between validity and reliability as these concepts apply to instrumentation.

5. Describe and differentiate among content, criterion-related (concurrent & predictive), and construct validity. State the steps involved in determining each type.

6. Describe the purposes of and ways to determine stability (test-retest), equivalence (alternate forms), internal consistency (split-half), and scorer/rater reliability.

7. Define standard error of measurement (SEM). Explain how SEM is related to reliability.

8. Compare and contrast the Mental Measurement Yearbooks with Tests in Print as sources for information about tests.
9. Identify factors that should be considered when selecting an instrument for use in a research study.

Chapter 7: Survey Research

1. Describe the purpose of and provide examples of survey research. Differentiate survey research from other research methodologies. Explain the importance of survey research.

2. List the major steps involved in designing and conducting a survey research study.

3. Explain why “non-response” is a major problem for survey researchers. Provide examples of methods for increasing response rates. (See Objective 10).

4. Describe, differentiate between, and provide examples of “cross-sectional,” “longitudinal,” and “follow-up” studies.

5. Describe, differentiate between, and provide examples of trend, cohort, panel, and follow-up studies.

6. List and briefly describe the steps involved in conducting a questionnaire study.

7. Differentiate among and discuss the advantages and disadvantages of using the following types of questionnaires: telephone survey, personal administration of the questionnaire, personal interview, and mail out.

8. Describe guidelines for constructing a questionnaire, including:
   * structured versus unstructured items
   * characteristics of “good” items
   * cover letter
   * pilot testing

9. Explain why non-response is a problem when conducting questionnaire research. Describe methods of determining if non-response is problematic to a study. Describe and provide examples of methods for increasing rate of response after the return deadline has passed.

10. List, describe, and provide examples of characteristics of “good” questionnaire items.
11. Describe, provide examples of, and differentiate between “interview” and “questionnaire” studies. Discuss advantages and disadvantages of both techniques.

12. List and describe the skills needed to effectively conduct an interview.

13. Provide examples of online/web-based survey tools.

Chapter 8: Correlational Research

1. Define correlational research. Describe two purposes of correlational research. Explain why we need to treat the results of correlational research with caution when we speak of cause and effect.

2. List and briefly describe the major steps involved in basic correlational research. What is an acceptable sample size?

3. Define and interpret “correlation coefficient.” Describe the range of values possible for a correlation coefficient.

4. Describe and differentiate between a positive, negative, and curvilinear correlations. Provide examples of each.

5. Describe a “scatterplot.” Provide an example.

6. State the range of values used to define “low,” “moderate,” and “high” correlation coefficients.

7. Define “common variance.” Describe how it is calculated.

8. Describe the meaning of “statistical significance” in relation to correlational research.

9. Describe, differentiate between, and provide examples of “relationship” and “prediction” studies.

10. Differentiate between the types of correlation coefficients used to correlate “continuous” (i.e., interval and ratio) and “ordinal” data.

11. Briefly define or describe predictor variables and criterion variables.

Chapter 9: Causal-Comparative Research

1. Briefly state the purpose of causal-comparative research.
2. Compare and contrast causal-comparative, correlational, and experimental research.

3. Describe and provide examples of independent variables used in causal-comparative research. Explain reasons for the non-manipulation of independent variables in causal-comparative research.

4. Diagram and describe the basic causal-comparative design. Explain the difference between an “experimental control group” design and a “comparison group” design.

5. Define and provide examples of “extraneous variables.” Identify and describe procedures that can be used in causal-comparative studies to control for potential extraneous (or, “confounding”) variables.

6. Explain why the results of causal-comparative studies must be interpreted cautiously when discussing “causality.”

Chapter 10: Experimental Research

1. Briefly state the purpose of experimental research. Explain how experimental research differs from causal-comparative, and correlational research

2. Differentiate between and provide examples of “random selection” and “random assignment.”

3. Differentiate between and provide examples of “control group” and “comparison group” designs in experimental research.

4. Describe and provide examples of “control” in experimental research. Explain why “control” of potentially confounding (i.e., extraneous) variables is so important in experimental research. Describe and provide examples of the two kinds of variables that need to be “controlled.”

5. Differentiate between and provide examples of “actively manipulated” and “assigned” (or, “attribute”) variables. Which type of variable is used in experimental research?

6. Differentiate between “internal” and “external” threats to validity. Describe and provide examples of the major “internal” and “external” threats to validity in an experimental study.

8 Identify and briefly describe five ways to control extraneous variables.
9. Differentiate among pre-experimental, true experimental, and quasi-experimental group designs. Which are the “strongest” designs (i.e., control for the most potential threats to validity)? Which are the weakest?

10. Given an experimental design, determine potential threats to validity.

11. Describe the purpose of a factorial design. Explain how it differs from “single-variable” designs. Describe and provide an example of an “interaction effect” produced in the context of a factorial study.

Chapter 12: Descriptive Statistics

1. Describe, differentiate between, and provide examples standardized and self-developed tests.

2. List the steps involved in constructing a frequency polygon (graph). Provided with data, construct and interpret a frequency polygon.

3. Define, differentiate among, and provide examples of measures of central tendency, variability, relationship, and relative position.

4. Define, differentiate among, and calculate the three measures of central tendency (i.e., mean, median, and mode). Describe the uses and limitations of each of these measures.

5. Define, differentiate among, and provide examples of measures of variability, including range and standard deviation. Calculate range. Describe the uses and limitations of these measures.

6. List and describe four characteristics of normal distributions. Describe the relationship between the mean, median, and mode in a normal distribution. Describe the relationship between the mean, median, and mode in positively and negatively skewed distributions.

7. Define, differentiate among, and provide examples of measures of relationship (i.e., correlation). (Specifically, you are responsible for the Spearman rho and the Pearson r.) Describe the uses and limitations of these measures.

8. Define, differentiate among, and provide examples of measures of relative position, including percentile ranks, standard scores (z and T), and stanines. Describe the uses and limitations of these measures.

Chapter 14: Qualitative Data Collection

1. Define and state the purpose of qualitative data collection.
2. List and describe sources of qualitative data (i.e., observing, interviewing, and examining records).

3. Describe and differentiate among participant observation, nonparticipant observation, and collecting field notes.

4. Differentiate between and recognize examples of “unstructured” and “structured” interviews.

5. Describe strategies used to address the “trustworthiness” (i.e., validity) of qualitative research. What is “triangulation?” *

6. Describe strategies used to address the “replicability” (i.e., reliability) of qualitative research. *

7. Explain why the qualitative research is less concerned about generality than quantitative researchers.

* (We will discuss “observer bias” and “observer effect” in class.)

Chapter 16: Ethnographic Research

1. Describe the purpose and characteristics of ethnographic research.

2. Provide educational research examples that use ethnographic methodology.

3. Describe the steps involved in the ethnographic process.

4. List the data collection procedures typically used in ethnographic research.

5. Describe how data are analyzed in the context of ethnographic studies.

6. How does “triangulation” apply of the ethnographic method?

7. Within the ethnographic methodology, is it possible to be both “observer” and “participant?” Explain your response.

8. What are “field notes.” What purpose do they serve?

Chapter 20: Action Research

1. State a definition of action research.

2. Describe the purposes of action research.
3. Describe the processes of action research.

4. Identify the four basic steps in conducting action research.

5. Describe the key characteristics of action research.

6. Identify common data collection sources and strategies used to carry out action research in schools.