Study Questions for Chapter 2

- Using the terms *theory* and *hypothesis,* describe the process by which the scientific method can be used to learn about the world.
- Explain how *complexity, variability,* and *reactivity* make the study of human behavior difficult, and provide an example of each attribute.
- Distinguish between the two keys of scientific measurement—*definition* and *detection*—by providing an *operational definition* and *measure* of a property.
- Describe three properties of a good measure: *validity, reliability,* and *power*.
- Define *demand characteristics,* and explain how *naturalistic observation,* anonymity, the use of unobtrusive measures, and *double-blind observation* may be used to diminish the problems they present.
- Interpret a *frequency distribution* and describe the basic characteristics of a *normal distribution*.
- Define three measures of *central tendency* and two measures of *variability*.
- Explain what is meant by the statement "Two variables are correlated," and describe how a *correlation coefficient* measures both the direction and strength of this relationship.
- Explain why *natural correlations* cannot be used to infer causality due to the possibility of *third-variable correlations;* differentiate between the *matched samples* and *matched pairs techniques* to reduce the third-variable problem.
- Describe the following critical features of an experiment*: random assignment* of participants to the *experimental* and *control groups,* manipulation of an *independent variable,* and measurement of a *dependent variable*.
- Explain what is meant when an experimental result is described as *statistically significant*.
- Distinguish between the *internal* and *external* validity of an experiment.
- Describe the case method.
- Distinguish between a *population* and a *sample,* explain the process of *random sampling* to achieve representativeness, and provide three reasons why random sampling is not always needed in psychological research.
- Describe the three basic principles and specific rules within psychology of ethical research using human and animal participants.