

Student name: _____

Statistics is the science of collecting, organizing, analyzing, interpreting, and presenting data.

true

false

Inferential statistics refers to generalizing from a sample to a population, estimating unknown population parameters, drawing conclusions, and making decisions.

true

false

Descriptive statistics refers to summarizing data rather than generalizing about the population.

true

false

Estimating parameters and testing hypotheses are important aspects of descriptive statistics.

true

false

Inconsistent treatment of data by a researcher is a symptom of poor survey or research design.

true

false

Empirical data are collected through observations and/or experiments.

true

false

Business intelligence refers to collecting, storing, accessing, and analyzing data on the company's operations in order to make better business decisions.

true

false

When a statistician omits data contrary to her findings in a study, she is justified as long as the sample supports her objective.

true

false

A strong correlation between A and B would imply that B is caused by A .

true

false

The *post hoc* fallacy says that when B follows A then B is caused by A .

true

false

A statistical test may be significant yet have no practical importance.

true

false

Valid statistical inferences cannot be made when sample sizes are small.

true

false

Statistics is an essential part of critical thinking because it allows us to transform the empirical evidence from a sample so it will agree with our preferred conclusions.

true

false

Statistical challenges include imperfect data, practical constraints, and ethical dilemmas.

true

false

A business data analyst needs a Ph.D. in statistics.

true

false

The science of statistics tells us whether the sample evidence is convincing.

true

false

Pitfalls to consider in a statistical test include nonrandom samples, small sample size, and lack of causal links.

true

false

In business communication, a table of numbers is preferred to a graph because it is more able to convey meaning.

true

false

Statistical data analysis can often distinguish between real *versus* perceived ethical issues.

true

false

Excel has limited use in business because advanced statistical software is widely available.

true

false

Statistics helps surmount language barriers to solve problems in multinational businesses.

true

false

Statistics can help you handle either too little or too much information.

true

false

Predicting a presidential candidate's percentage of the statewide vote from a sample of 800 voters would be an example of *inferential* statistics.

true

false

Surveying electric vehicle owners would provide a representative random sample of Americans' views on global warming policies.

true

false

An example of *descriptive* statistics would be reporting the percentage of students in your accounting class that attended the review session for the last exam.

true

false

"Bob must be rich. He's a lawyer, and lawyers make lots of money." This statement *best* illustrates which fallacy?

using poor survey methods

confusing significance with importance

unconscious bias

generalizing from an average to an individual

Which is *not* an ethical obligation of a statistician?

to know and follow accepted procedures

to ensure data integrity and accurate calculations

to support client wishes in drawing conclusions from the data

to acknowledge sources of financial support

Which of the following statements is *correct*?

A parameter is a measure that is calculated from a sample.

Statistics is the science of collecting, organizing, analyzing, interpreting, and presenting data.

For day-to-day business data analysis, most firms rely on a large staff of expert statisticians.

A statistical test result that is significant also has practical importance.

Which is *least likely* to be an application where statistics will be useful?

predicting whether an airfare is likely to rise or fall

designing the most desirable features for a ski pass

deciding whether offering Rice Krispies improves restaurant sales

choosing the wording of a corporate policy prohibiting smoking

Because 25 percent of the students in my morning statistics class watch eight or more hours of television a week, I conclude that 25 percent of all students at the university watch eight or more hours of television a week. The most important logical weakness of this conclusion would be relying on a sample instead of surveying every student.

using a sample that may not be representative of all students.

failing to correct for unconscious interviewer bias.

assuming cause and effect where none exists.

Which of the following is *not* a characteristic of an ideal statistician?

Technically current (e.g., software)

Communicates well (both written and oral)

Advocates client's objectives

Can deal with imperfect information

Which of the following statements is *not* true?

Statistics helps refine theories through ongoing hypothesis testing.

Statistics is the science of collecting, organizing, analyzing, interpreting, and presenting data.

Estimating parameters is an important aspect of descriptive statistics.

Statistical challenges include imperfect data and practical constraints.

Which is *not* a practical constraint facing the business researcher or data analyst?

Time and money are always limited.

The world is no laboratory, so some experiments are impractical.

Research on human subjects is fraught with danger and ethical issues.

Survey respondents usually will tell the truth if well compensated.

Which is *not* an essential characteristic of a good business data analyst?

Effective writer

Stays current on techniques

Has a Ph.D. or Master's degree in statistics

Can deal with imperfect information

An ethical statistical consultant would *not* always

follow accepted statistical procedures.

support management's desired conclusions.

acknowledge sources of financial support.

report limitations of the data.

GM's experience with ignition switches suggests that statistics is not applicable to automotive manufacturing.
limited data may still contain important clues.
good engineers can eliminate all risks.
ignition switches are inherently dangerous.

Which is *not* a goal of the ethical data analyst?

To be an honest broker of data.
To learn to downplay inconvenient data.
To understand the firm's code of ethics (or help create one).
To look for hidden agendas in data collection.

Which of the following statements is *not* true?

A statistic is a single measure (usually numerical) that is calculated from a sample.
Statistics is the science of collecting, organizing, analyzing, interpreting, and presenting data.
For day-to-day business data analysis, most firms rely on a large staff of expert statisticians.
A statistical test may be significant yet have no practical importance.

"Smoking is not harmful. My Aunt Harriet smoked, but lived to age 90." This *best* illustrates which fallacy?

Unconscious bias
Significance versus practical importance
Post hoc reasoning
Small sample generalization

Which *best* illustrates the distinction between statistical significance and practical importance?

"In 2016, 240 out of 400 statistics students at Oxnard Technical College sold their textbooks at the end of the semester, compared with 220 out of 330 students in 2015, a significant decrease."

"Our new manufacturing technique has increased the life of the 80 GB USB AsimoDrive external hard disk significantly, from 240,000 hours to 250,000 hours."

"In 50,000 births, the new vaccine reduced the incidence of infant mortality in Morrovia significantly from 14.2 deaths per 1000 births to 10.3 deaths per 1000 births."

"The new Sky Penetrator IV business jet's cruising range has increased significantly from 3,975 miles to 4,000 miles."

"Circulation fell in the month after the new editor took over the newspaper *Oxnard News Herald*. The new editor should be fired." Which is *not* a serious fallacy in this conclusion?

Generalizing from a small sample

Applying *post hoc* reasoning

Failing to identify causes

Using a biased sample

An ethical data analyst would be *least likely* to

check data for accuracy.

cite his/her data sources and their limitations.

acknowledge sources of financial support.

rely on consultants for all calculations.

"Tom's SUV rolled over. SUVs are dangerous." This *best* illustrates which fallacy?

Unconscious bias

Significance versus practical importance

Post hoc reasoning

Small sample generalization

"Bob didn't wear his lucky T-shirt to class, so he failed his chemistry exam." This *best* illustrates which fallacy?

Small sample generalization

Poor survey methods

Post hoc reasoning

More than one of the above

Which is *not* a reason for an average student to study statistics?

Improve technical writing skills

Gain information management skills

Enhance technical literacy

learn stock market strategies

Which is *not* a likely area of application of statistics in business?

Auditing supplier invoices for correct payment

Questioning the executives' strategic decisions

Looking for patterns in a large marketing database

Making forecasts of several key product lines

Which is *not* a likely task of descriptive statistics?

Summarizing a sample

Describing data numerically

Estimating unknown parameters

Making visual displays of data

We would associate the term *inferential statistics* with which task?

Making visual displays of data

Estimating unknown parameters

Describing a sample of data

Tabulating a survey

A good data analyst

removes data if so instructed by client.

works alone to avoid team conflicts.

communicates with numbers rather than with graphs.

reports findings that may contradict client's ideas.

Which is *not* an analytical method commonly used to improve business decisions?

Descriptive analytics.

Predictive analytics.

Prescriptive analytics.

Reactive analytics.

Every quarter, a media firm surveys random customers to learn about their monthly spending on streaming service. Which of the following statements is *not* correct?

The average spending based on the survey data is a statistic.

Using the survey data to plan the firm's strategy is an example of prescriptive analytics.

Estimating the population average spending based on the survey data is referred to as descriptive analytics.

Assessing the likelihood that average spending will continue to increase is referred to as predictive analytics.

“Three years ago, none of my neighbors owned an electric car. Now half of them do. Electric cars are apparently becoming much more popular among car buyers”. This statement best illustrates which fallacy?

Poor survey methods.

Conclusions from rare events.

Generalization to individuals.

Conclusion from non-random samples.

In a business organization, only trained statisticians should be allowed to perform statistical analysis.

true

false

“My favorite sports team is currently on a hot streak as they have won three consecutive games. The players and coaching staff must have finally found the formula to win.” This statement best illustrates which fallacy?

Significance versus practical importance.

Small sample generalization.

Post hoc reasoning.

Unconscious bias.

A good data analyst must always find useful answers from the data provided.

true

false

Consider the following business activities:

(i) Predicting customer's demand.

(ii) Assessing drug efficacy in a clinical trial.

Which of the above are likely applications of statistics in business?

(i) only

(ii) only

(i) and (ii)

None of the above.

It is acceptable for a data analyst to ignore the scope of the main problem and focus only on crunching numbers.

true

false

Answer Key

Test name: Ch1_Applied Statistics in Business and Economics_7e

TRUE

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