How to use this *Test Bank and Resource Guide*

This guide is a supplement to be used in conjunction with the Instructor's Edition of *Intro Stats,* 4th edition by De Veaux, Velleman, and Bock. The authors have integrated many instructor's resources into the text, and these sections precede each chapter. In this *Test Bank and Resource Guide*, all or some of the following features may be found for each chapter and unit.

Solutions to Class Examples
Answers are provided to the chapter examples presented in the Instructor's Edition of the text.

Investigative Tasks
Instead of a quiz, you may choose to have students do a written assignment that applies the major concepts of the chapter. Along with each classroom-tested task, there is a proposed solution to the task and a scoring rubric. Returning the completed rubric to the students will provide them the guidance needed to learn to write clear, complete, and concise statistical analyses.

Chapter Quizzes
You might choose to give a quiz after completing a chapter. For each chapter, there are two or three quizzes that you can choose from, along with solutions. If not used as a quiz, the questions can be used as additional class examples, homework assignments, or extra practice.

Unit Tests
Two or three sample exams (and solutions) are available for you at the end of each of the text's seven units. These exams include multiple-choice questions, short questions some calculations or written explanations, and longer questions requiring more in-depth analysis. They are not easy. Understanding Statistics means thinking about the world. All of the problems ask for clear understanding of important statistical concepts, accurate application of statistical techniques, and proper interpretation of the results. Expecting this from the start helps students establish the habit of clear statistical thinking.

Supplemental Resources
We've tried lots of things over the years to help students understand the beauty and power of Statistics. Where applicable, we've included some extra materials. These might be worksheets, group assignments, or class activities.

Chapter 1
Stats Starts Here

Solutions to Class Examples:

Consumer Reports
Who: energy bars
What: brand name, flavor, price, calories, protein, fat
When: not specified
Where: not specified
How: not specified. Are data collected from the label? Are independent tests performed?
Why: information for potential consumers
Categorical variables: brand name, flavor
Quantitative variables: price (US$), number of calories (calories), protein (grams), fat(grams)

Boston Marathon
Who: Boston Marathon runners
What: gender, country, age, time
When: not specified
Where: Boston
How: not specified. Presumably, the data were collected from registration information.
Why: race result reporting
Categorical variables: gender, country
Quantitative variables: age (years), time (hours, minutes, seconds)

Supplemental Resources:

The following page contains a list of the 50 United States of America. We have found it to be helpful if you collect class data on the number of States visited. On the next page is a potential blank survey that you can pass around on the first day of class to collect some data. Some of the survey questions are left deliberately vague, so that you can discuss potential sources of bias, informally of course.

States – Count the number you have visited

Alabama	Indiana	Nebraska	Rhode Island
Alaska	Iowa	Nevada	South Carolina
Arizona	Kansas	New Hampshire	South Dakota
Arkansas	Kentucky	New Jersey	Tennessee
California	Louisiana	New Mexico	Texas
Colorado	Maine	New York	Utah
Connecticut	Maryland	North Carolina	Vermont
Delaware	Massachusetts	North Dakota	Virginia
Florida	Michigan	Ohio	Washington
Georgia	Minnesota	Oklahoma	West Virginia
Hawaii	Mississippi	Oregon	Wisconsin
Idaho	Missouri	Pennsylvania	Wyoming
Illinois	Montana		

States – Count the number you have visited

Alabama	Indiana	Nebraska	Rhode Island
Alaska	Iowa	Nevada	South Carolina
Arizona	Kansas	New Hampshire	South Dakota
Arkansas	Kentucky	New Jersey	Tennessee
California	Louisiana	New Mexico	Texas
Colorado	Maine	New York	Utah
Connecticut	Maryland	North Carolina	Vermont
Delaware	Massachusetts	North Dakota	Virginia
Florida	Michigan	Ohio	Washington
Georgia	Minnesota	Oklahoma	West Virginia
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California	Louisiana	New Mexico	Texas
Colorado	Maine	New York	Utah
Connecticut	Maryland	North Carolina	Vermont
Delaware	Massachusetts	North Dakota	Virginia
Florida	Michigan	Ohio	Washington
Georgia	Minnesota	Oklahoma	West Virginia
Hawaii	Mississippi	Oregon	Wisconsin
Idaho	Missouri	Pennsylvania	Wyoming
Illinois	Montana		

Statistics – Class Survey

Gender (M/F)	Politics (L, M, C)	Number of Siblings	States Visited	Shoe Size

Statistics Quiz A – Chapter 1 ***Name*** _____

1. One of the reasons that the Monitoring the Future (MTF) project was started was "to study changes in the beliefs, attitudes, and behavior of young people in the United States." Data are collected from 8th, 10th, and 12th graders each year. To get a representative nationwide sample, surveys are given to a randomly selected group of students. In Spring 2004, students were asked about alcohol, illegal drug, and cigarette use. Describe the W's, if the information is given. If the information is not given, state that it is not specified.

   - Who:
   - What:
   - When:
   - Where:
   - How:
   - Why:

2. Consider the following part of a data set:

Age (years)	Sex	Only child?	Height (inches)	Weight (pounds)	Credit Hours	GPA	Major
21	Female	Yes	67.00	140.0	16	3.60	animal science
20	Female	No	62.00	130.0	18	3.86	biology
28	Female	No	64.00	188.0	21	3.25	psychology
21	Male	No	65.00	140.0	15	2.95	psychology
24	Female	No	67.00	130.0	20	3.00	anthropology
22	Male	Yes	68.00	135.0	15	2.94	journalism

   List the variables in the data set. Indicate whether each variable is treated as categorical or quantitative in this data set. If the variable is quantitative, state the units.

Statistics Quiz A – Chapter 1 – Key

1. One of the reasons that the Monitoring the Future (MTF) project was started was "to study changes in the beliefs, attitudes, and behavior of young people in the United States." Data are collected from 8^{th}, 10^{th}, and 12^{th} graders each year. To get a representative nationwide sample, surveys are given to a randomly selected group of students. In Spring 2004, students were asked about alcohol, illegal drug, and cigarette use. Describe the W's, if the information is given. If the information is not given, state that it is not specified.
   - Who: 8^{th}, 10^{th}, and 12^{th} graders
   - What: alcohol, illegal drug, and cigarette use
   - When: Spring 2004
   - Where: United States
   - How: survey
   - Why: "to study changes in the beliefs, attitudes, and behavior of young people in the United States"

2. Consider the following part of a data set:

Age (years)	Sex	Only child?	Height (inches)	Weight (pounds)	Credit Hours	GPA	Major
21	Female	Yes	67.00	140.0	16	3.60	animal science
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22	Male	Yes	68.00	135.0	15	2.94	journalism

   List the variables in the data set. Indicate whether each variable is treated as categorical or quantitative in this data set. If the variable is quantitative, state the units.

   Categorical: sex, only child?, major
   Quantitative: age (years), height (inches), weight (pounds), credit hours, GPA

Statistics Quiz B – Chapter 1 ***Name*** _____

In November 2003 *Discover* published an article on the colonies of ants. They reported some basic information about many species of ants and the results of some discoveries found by myrmecologist Walter Tschinkel of the University of Florida. Information included the scientific name of the ant species, the geographic location, the depth of the nest (in feet), the number of chambers in the nest, and the number of ants in the colony. The article documented how new ant colonies begin, the ant-nest design, and how nests differ in shape, number, size of chambers, and how they are connected, depending on the species. It reported that nest designs include vertical, horizontal, or inclined tunnels for movement and transport of food and ants.

1. Describe the W's, if the information is given:
    - Who:
    - What:
    - When:
    - Where:
    - How:
    - Why:

2. List the variables. Indicate whether each variable is categorical or quantitative. If the variable is quantitative, tell the units.

Statistics Quiz B – Chapter 1 – Key

In November 2003 *Discover* published an article on the colonies of ants. They reported some basic information about many species of ants and the results of some discoveries found by myrmecologist Walter Tschinkel of the University of Florida. Information included the scientific name of the ant species, the geographic location, the depth of the nest (in feet), the number of chambers in the nest, and the number of ants in the colony. The article documented how new ant colonies begin, the ant-nest design, and how nests differ in shape, number, size of chambers, and how they are connected, depending on the species. It reported that nest designs include vertical, horizontal, or inclined tunnels for movement and transport of food and ants.

1. Describe the W's, if the information is given:
    - Who: Colonies of ants. "Many species of ants," but no indication of exactly how many.
    - What: scientific name, geographic location, average nest depth, average number of chambers, average colony size, how new ant colonies begin, the ant-nest design, and how nests differ in architecture.
    - When: November 2003
    - Where: not specified
    - How: The results of some discoveries found by myrmecologist Walter Tschinkel of the University of Florida
    - Why: Information of interest to readers of the magazine

2. List the variables. Indicate whether each variable is categorical or quantitative. If the variable is quantitative, tell the units.

    Categorical: species, geographic location, how new ant colonies begin, and nest design.
    Quantitative: nest depth (feet), number of chambers (units), and colony size (units).

Statistics Quiz C – Chapter 1 ***Name*** _____

In June 2012 *Consumer Reports* published an article on some sport-utility vehicles they had tested recently. They reported some basic information about each of the vehicles and the results of some tests conducted by their staff. Among other things, the article told the brand of each vehicle, its price, and whether it had a standard or automatic transmission. They reported the vehicle's fuel economy, its acceleration (number of seconds to go from zero to 60 mph), and its braking distance to stop from 60 mph. The article also rated each vehicle's reliability as much better than average, better than average, average, worse, or much worse than average.

1. Describe the W's, if the information is given:

- Who:
- What:
- When:
- Where:
- How:
- Why:

2. List the variables. Indicate whether each variable is categorical or quantitative. If the variable is quantitative, tell the units.

Statistics Quiz C – Chapter 1 – Key

In June 2012 *Consumer Reports* published an article on some sport-utility vehicles they had tested recently. They reported some basic information about each of the vehicles and the results of some tests conducted by their staff. Among other things, the article told the brand of each vehicle, its price, and whether it had a standard or automatic transmission. They reported the vehicle's fuel economy, its acceleration (number of seconds to go from zero to 60 mph), and its braking distance to stop from 60 mph. The article also rated each vehicle's reliability as much better than average, better than average, average, worse, or much worse than average.

1. Describe the W's, if the information is given:

- Who: SUV's currently on the market. We don't know how many models.
- What: When: prior to June 2012
- Where: not specified, probably the United States
- How: testing the vehicles by driving each
- Why: information for potential consumers

2. List the variables. Indicate whether each variable is categorical or quantitative. If the variable is quantitative, tell the units.

Categorical: brand, transmission type, reliability
Quantitative: price (US$), fuel economy (mpg), acceleration (seconds), braking distance (probably feet?)