

# Observational Study Design Glossary Assignment

**STEP ONE:** Go to the web URL <http://stattrek.com/statistics/data-collection-methods.aspx?Tutorial=Stat> . Link available on the Business Statistics Website.

Under the topic “SURVEY SAMPLING”, “SAMPLING METHODS”, review all three subsections, “*Data Collection*”, “*Data Collection Methods: Pros & Cons*”, and “*Survey Sampling Bias*”.

## I. SAMPLING METHODS, Data Collection

### A. METHODS OF DATA COLLECTION

1. Population
2. Sample
3. Census
4. Sample Survey
5. Experiment
6. Observational study

### B. DATA COLLECTION METHODS: PROS & CONS

7. Causal Influence, Causation
8. Generalizability
9. Resources (Cost)

## II. SAMPLING METHODS, Sampling Methods

### A. POPULATION PARAMETER VS. SAMPLE STATISTIC

10. Parameter
11. Statistic

### B. NON-PROBABILITY SAMPLING METHODS

12. Non-probability Samples
13. Voluntary Sample
14. Convenience Sample

### C. PROBABILITY SAMPLING METHODS

15. Probability Samples
16. Simple Random Samples
17. Stratified Random Samples
18. Cluster Samples
19. Systematic Random Samples
20. Multistage Samples

### III. SAMPLING METHODS, Survey Sampling Bias

#### A. BIAS DUE TO UNREPRESENTATIVE SAMPLES

21. Representative Sample
22. Undercoverage
23. Nonresponse Bias
24. Voluntary Response Bias
25. Random Sampling (Note the two mathematical characteristics)

#### B. BIAS DUE TO MEASUREMENT ERROR

26. Response Bias
27. Leading Questions
28. Social Desirability

#### C. SAMPLING ERROR & SURVEY BIAS

29. Sampling Error

**STEP TWO:** Go to the web URL <http://stattrek.com/statistics/data-collection-methods.aspx?Tutorial=Stat>. Link available on the Business Statistics Website.

Under the topic “SURVEY SAMPLING”, “SIMPLE RANDOM SAMPLES”, review both subsections, “*Survey Sampling*”, and “*SRS Analysis*”

### IV. SIMPLE RANDOM SAMPLES, Survey Sampling

#### A. QUALITY OF SURVEY RESULTS

30. Accuracy
31. Precision
32. Standard Error (Click on link for more complete definition)
33. Margin of Error

#### B. SAMPLE DESIGN

34. Sampling Method
35. Estimator

### V. SIMPLE RANDOM SAMPLES, SRS Analysis

#### A. ANALYSIS OF SIMPLE RANDOM SAMPLES

36. Simple Random Sampling (Include all three bullet points)

#### B. NOTATION

Copy the **entire chart** shown in this section. (12 symbols are defined in all).  
This notation chart should be its own page, NOT MIXED WITH THE VOCAB PART OF GLOSSARY.

**STEP THREE:** Go to the web URL <http://stattrek.com/statistics/data-collection-methods.aspx?Tutorial=Stat> . Link available on the Business Statistics Website.

Under the topic “SURVEY SAMPLING”, “STRATIFIED SAMPLES”, review just the subsection, “*Stratified Sampling*”. **At this point, there is no need to review “*Stratified Analysis*”.**

## VI. STRATIFIED SAMPLES, Stratified Sampling

### A. ADVANTAGES & DISADVANTAGES

37a, 37b,, 37c, 37d. - List Four Advantages of Stratified Sampling

38a, 38b. - List A Disadvantage (and add a second – “Increases the potential for bias in determining strata”)

### B. PROPORTIONATE VERSUS NONPROPORTIONATE STRATIFICATION

39. Proportionate Stratification (List three bullet points in your definition)

40. Homogeneous Strata

41. Sampling Fraction

42. Disproportionate Stratification (Do not list three bullet points)

**STEP FOUR:** Go to the web URL <http://stattrek.com/statistics/data-collection-methods.aspx?Tutorial=Stat> . Link available on the Business Statistics Website.

Under the topic “SURVEY SAMPLING”, “CLUSTER SAMPLES”, review just the subsection, “*Cluster Sampling*”. **At this point, there is no need to review “*CLS Analysis*”.**

## VII. CLUSTER SAMPLES, Cluster Sampling

### A. CLUSTER SAMPLING STAGES

43. One-stage Sampling

44. Two-stage sampling

### B. CLUSTER SAMPLING: ADVANTAGES AND DISADVANTAGES

45. List One Disadvantage of Cluster Sampling

46. List One Advantage of Cluster Sampling

47. List One Way To Mitigate The Disadvantage Listed

### C. WHEN TO USE CLUSTER SAMPLING

48. Natural Clusters

### D. THE DIFFERENCE BETWEEN STRATA AND CLUSTERS

49a, 49b - List two ways that clusters differ.

50. Heterogeneous Clusters

**STEP FIVE:** Go to the web URL [http://www.sciencebuddies.org/science-fair-projects/project\\_ideas/Soc\\_observation.shtml](http://www.sciencebuddies.org/science-fair-projects/project_ideas/Soc_observation.shtml) . Link available on the Business Statistics Website.

**ADD THESE TEN TERMS AT THE END OF YOUR GLOSSARY WITH THEIR DEFINITION, & WRITE A BRIEF DESCRIPTION OF AN EXAMPLE FOR THE TERM USING GHCHS STUDENTS AS A POPULATION.**

## VIII. OTHER STUDY DESIGN TERMS

51. Natural setting
52. Contrived Setting
53. Disguised Observation
54. Non-disguised Observation
55. Human Observation
56. Mechanical Observation
57. Direct Observation
58. Indirect Observation
59. Structured Observation
60. Non-structured Observation

**MR. NELSON MAY ADD A FEW TERMS TO THIS LIST IN THE COMING WEEKS. BUT THIS IS MOST OF THE TERMS YOU WILL NEED TO KNOW FOR THE SAMPLING SURVEY PROJECTS & SPRING MIDTERM #1.**