

**Student Workbook**

**Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**HSTA Teacher: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**HSTA Teacher Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Field Site: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Field Site Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Field Site Phone Number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**CRA: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**CRA Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Contents

[Fall Semester Meeting Attendance Log 5](#_Toc206599305)

[Spring Semester Meeting Attendance Log 7](#_Toc206599306)

[Required Research Project Submissions Log 9](#_Toc206599307)

[Summer Camp Attendance Log 9](#_Toc206599308)

[Senior Requirements Log 9](#_Toc206599309)

[Research Proposal Score Sheet – Prevalence/Statewide Survey Projects 11](#_Toc206599310)

[Research Proposal Score Sheet – Human Intervention Projects 13](#_Toc206599311)

[Research Proposal Score Sheet – Human Experiment Projects 15](#_Toc206599312)

[Research Proposal Score Sheet – Non-Human Experiment Projects 17](#_Toc206599313)

[Symposium Score Sheet 19](#_Toc206599314)

[HSTA Statewide Survey Cover Letter 21](#_Toc206599315)

[HSTA Statewide Survey Link/QR Code 21](#_Toc206599316)

[Lesson 2 – Ethics/CITI Training and Activities 23](#_Toc206599317)

[Lesson 4 – Project Selection and Observation 25](#_Toc206599318)

[Lesson 5 – Research Question 27](#_Toc206599319)

[Lesson 6 – Research Question and Variables 29](#_Toc206599320)

[Lesson 7 – Background Research and Citing Sources 31](#_Toc206599321)

[Lesson 9 – Hypothesis 35](#_Toc206599322)

[Lesson 10 – Introduction to Excel and Data Collection Sheet 37](#_Toc206599323)

[Lesson 11 – Procedures 39](#_Toc206599324)

[Survey Development 40](#_Toc206599325)

[Knowledge Assessment (Pre-test/Post-test) Development 41](#_Toc206599326)

[Lesson 16 – Descriptive Statistics: Measures of Central Tendency 43](#_Toc206599327)

[Descriptive Statistics for Projects with One Qualitative Variable and One Quantitative Variable 43](#_Toc206599328)

[Descriptive Statistics for Projects with Two Quantitative Variables 44](#_Toc206599329)

[Descriptive Statistics for Projects with Two Qualitative Variables 44](#_Toc206599330)

[Lesson 17 – Descriptive Statistics: Measures of Dispersion 45](#_Toc206599331)

[Lesson 18 – Graphing Data 47](#_Toc206599332)

[Lesson 19 – Probability (p-values) and Hypothesis Testing 49](#_Toc206599333)

[with a t-test or an ANOVA 49](#_Toc206599334)

[Lesson 20 – Hypothesis Testing with Chi-square and Correlation 51](#_Toc206599335)

# Fall Semester Meeting Attendance Log

|  |  |  |  |
| --- | --- | --- | --- |
| **Meeting Date** | **Time In** | **Time Out** | **Minutes Attended** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# Spring Semester Meeting Attendance Log

|  |  |  |  |
| --- | --- | --- | --- |
| **Meeting Date** | **Time In** | **Time Out** | **Minutes Attended** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# Required Research Project Submissions Log

|  |  |  |
| --- | --- | --- |
| **Activity** | **Due Date** | **Date Submitted** |
| CITI Training  (*Freshmen Only*) | October 17, 2025 |  |
| Ethics Contract | October 17, 2025 |  |
| Lab Safety | October 17, 2025 |  |
| Research Proposal –  Deadline #1 | October 31, 2025 |  |
| Research Proposal –  Deadline #2 | December 19, 2025 |  |
| Research Proposal –  Deadline #3 | February 6, 2026 |  |
| Final Project Submission | April 24, 2026 |  |

# Summer Camp Attendance Log

|  |  |  |
| --- | --- | --- |
| Camp Year | Location | Credit Received (Yes or No) |
| Freshmen |  |  |
| Sophomore |  |  |
| Junior |  |  |
| Senior |  |  |

\*Summer Camp applications will open March 1, 2025, and will close March 30, 2025.

# Senior Requirements Log

|  |  |  |
| --- | --- | --- |
| Requirement | Deadline | Completed Yes or No |
| Submitted 75 Hours of Community Service | December 1, 2025 |  |
| Senior Waiver Application | December 12, 2025 |  |

\*Senior Waiver Applications will December 1, 2025, and are due December 12, 2025.

# Research Proposal Score Sheet – Prevalence/Statewide Survey Projects

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CONTENT | | | 0 or 1 | |
| Title  *3 pts* | Title was a complete statement/question. | |  | |
| Title matched the research question. | |  | |
| Title clearly defined the purpose of the project. | |  | |
| Observation  *3 pts* | Observation stated the project’s problem clearly. | |  | |
| Observation included why this project was important to the community and me. | |  | |
| Observation included a short summary of project including project type: prevalence, intervention, human experiment, or non-human experiment. | |  | |
| Background Research  *8 pts* | Background information included two facts about the independent variable or variable one. | |  | |
| Background information included two facts about the dependent variable or variable two. | |  | |
| Background information included four facts about the relationship between the independent and the dependent variables or variable one and variable two. | |  | |
| Background information was referenced using correct in-text APA citations. | |  | |
| Background information is cited from at least four academic references (i.e. government agency, Google Scholar articles). | |  | |
| Background information was highlighted in bulleted format, not in paragraph form. | |  | |
| Background information was not plagiarized (summary in own words). | |  | |
| Background information was limited to 20% of quotes. | |  | |
| Research Question  *3 pts* | Research question includes the independent and dependent variables or variable one and variable two, and characteristics of the study population (where applicable). | |  | |
| Research question identifies the relationship or difference being investigated between the independent and dependent variables or variable one and variable two. | |  | |
| Research question has been reviewed by a CRA and has been determined to be safe and ethical. | |  | |
| Variables  *4 pts* | Correct independent variable OR variable one. | |  | |
| Correct dependent variable OR variable two. | |  | |
| Correct control (If no control, state no control). | |  | |
| Correct Inclusion Criteria or Constants   * Two or more inclusion criteria * Cross Sectional/Prevalence * Intervention * Human Subject Experiment     OR     * Two or more constants * Non-Human Subject Experiment | |  | |
| Hypotheses  *4 pts* | Alternative hypothesis is a statement of an effect/relationship between the independent and dependent variables or variable one and variable two. | |  | |
| Null hypothesis has been reviewed by a CRA and has been determined to be testable using an approved statistical test. | |  | |
| Alternative hypothesis is justified using some of your background research on the hypotheses slide. | |  | |
| Null hypothesis is a statement of no effect/relationship between the independent and dependent variables or variable one and variable two. | |  | |
| Procedures  *11 pts* | Procedures were numbered in the order that each step was completed. | |  | |
| Procedures identified all safety precautions (including how participants' identities will be kept confidential, i.e., CITI Training completed).​ | |  | |
| Procedures explained who the study population was.​ | |  | |
| Procedures explained what the study population did. ​ | |  | |
| Procedures explained how at least 100 participants were recruited. ​ | |  | |
| Procedures included a list of materials used for the project. ​ | |  | |
| Procedures included a copy of the measurement tools (Example: Survey/observation sheet). ​ | |  | |
| Procedures included a participant cover letter explaining the project. ​ | |  | |
| Procedures included data collection sheet. ​ | |  | |
| Procedures explained how data was collected. ​ | |  | |
| Procedures included how data will be analyzed (i.e. states the name of the statistical test to be used). | |  | |
| References  *4 pts* | | Reference slide included 4 or more academic references. | |  |
| Reference slide had ONLY in-text citations that were included as full references. | |  |
| References were in the correct APA format (including being placed in alphabetical order). | |  |
| References were listed with hanging indents. | |  |

# Research Proposal Score Sheet – Human Intervention Projects

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CONTENT | | | 0 or 1 | |
| Title  *3 pts* | Title was a complete statement/question. | |  | |
| Title matched the research question. | |  | |
| Title clearly defined the purpose of the project. | |  | |
| Observation  *3 pts* | Observation stated the project’s problem clearly. | |  | |
| Observation included why this project was important to the community and me. | |  | |
| Observation included a short summary of project including project type: prevalence, intervention, human experiment, or non-human experiment. | |  | |
| Background Research  *8 pts* | Background information included two facts about the independent variable or variable one. | |  | |
| Background information included two facts about the dependent variable or variable two. | |  | |
| Background information included four facts about the relationship between the independent and the dependent variables or variable one and variable two. | |  | |
| Background information was referenced using correct in-text APA citations. | |  | |
| Background information is cited from at least four academic references (i.e. government agency, Google Scholar articles). | |  | |
| Background information was highlighted in bulleted format, not in paragraph form. | |  | |
| Background information was not plagiarized (summary in own words). | |  | |
| Background information was limited to 20% of quotes. | |  | |
| Research Question  *3 pts* | Research question includes the independent and dependent variables or variable one and variable two, and characteristics of the study population (where applicable). | |  | |
| Research question identifies the relationship or difference being investigated between the independent and dependent variables or variable one and variable two. | |  | |
| Research question has been reviewed by a CRA and has been determined to be safe and ethical. | |  | |
| Variables  *4 pts* | Correct independent variable OR variable one. | |  | |
| Correct dependent variable OR variable two. | |  | |
| Correct control (If no control, state no control). | |  | |
| Correct Inclusion Criteria or Constants   * Two or more inclusion criteria * Cross Sectional/Prevalence * Intervention * Human Subject Experiment     OR     * Two or more constants * Non-Human Subject Experiment | |  | |
| Hypotheses  *4 pts* | Alternative hypothesis is a statement of an effect/relationship between the independent and dependent variables or variable one and variable two. | |  | |
| Null hypothesis has been reviewed by a CRA and has been determined to be testable using an approved statistical test. | |  | |
| Alternative hypothesis is justified using some of your background research on the hypotheses slide. | |  | |
| Null hypothesis is a statement of no effect/relationship between the independent and dependent variables or variable one and variable two. | |  | |
| Procedures  *11 pts* | Procedures were numbered in the order that each step was completed. | |  | |
| Procedures identified all safety precautions (including how participants' identities would be kept confidential, i.e., CITI Training completed). | |  | |
| Procedures explained who the study population was. | |  | |
| Procedures explained details of the of the intervention. | |  | |
| Procedures explained how at least 30 participants were recruited. | |  | |
| Procedures included a list of materials used for the project. | |  | |
| Procedures included a copy of the pre and post measurement tools (Example: Survey/ observation sheet). | |  | |
| Procedures included a participant cover letter explaining the project. | |  | |
| Procedures included data collection sheet. | |  | |
| Procedures explained how pre and post data was collected. | |  | |
| Procedures included how data will be analyzed (i.e. states the name of the statistical test to be used). | |  | |
| References  *4 pts* | | Reference slide included 4 or more academic references. | |  |
| Reference slide had ONLY in-text citations that were included as full references. | |  |
| References were in the correct APA format (including being placed in alphabetical order). | |  |
| References were listed with hanging indents. | |  |

# Research Proposal Score Sheet – Human Experiment Projects

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CONTENT | | | 0 or 1 | |
| Title  *3 pts* | Title was a complete statement/question. | |  | |
| Title matched the research question. | |  | |
| Title clearly defined the purpose of the project. | |  | |
| Observation  *3 pts* | Observation stated the project’s problem clearly. | |  | |
| Observation included why this project was important to the community and me. | |  | |
| Observation included a short summary of project including project type: prevalence, intervention, human experiment, or non-human experiment. | |  | |
| Background Research  *8 pts* | Background information included two facts about the independent variable or variable one. | |  | |
| Background information included two facts about the dependent variable or variable two. | |  | |
| Background information included four facts about the relationship between the independent and the dependent variables or variable one and variable two. | |  | |
| Background information was referenced using correct in-text APA citations. | |  | |
| Background information is cited from at least four academic references (i.e. government agency, Google Scholar articles). | |  | |
| Background information was highlighted in bulleted format, not in paragraph form. | |  | |
| Background information was not plagiarized (summary in own words). | |  | |
| Background information was limited to 20% of quotes. | |  | |
| Research Question  *3 pts* | Research question includes the independent and dependent variables or variable one and variable two, and characteristics of the study population (where applicable). | |  | |
| Research question identifies the relationship or difference being investigated between the independent and dependent variables or variable one and variable two. | |  | |
| Research question has been reviewed by a CRA and has been determined to be safe and ethical. | |  | |
| Variables  *4 pts* | Correct independent variable OR variable one. | |  | |
| Correct dependent variable OR variable two. | |  | |
| Correct control (If no control, state no control). | |  | |
| Correct Inclusion Criteria or Constants   * Two or more inclusion criteria * Cross Sectional/Prevalence * Intervention * Human Subject Experiment     OR     * Two or more constants * Non-Human Subject Experiment | |  | |
| Hypotheses  *4 pts* | Alternative hypothesis is a statement of an effect/relationship between the independent and dependent variables or variable one and variable two. | |  | |
| Null hypothesis has been reviewed by a CRA and has been determined to be testable using an approved statistical test. | |  | |
| Alternative hypothesis is justified using some of your background research on the hypotheses slide. | |  | |
| Null hypothesis is a statement of no effect/relationship between the independent and dependent variables or variable one and variable two. | |  | |
| Procedures  *11 pts* | Procedures were numbered in the order that each step was completed. | |  | |
| Procedures identified all safety precautions (including how participants' identities would be kept confidential, i.e., CITI Training completed). | |  | |
| Procedures explained who the study population was. | |  | |
| Procedures explained what the study population did. | |  | |
| Procedures explained how at least 30 participants were recruited for EACH group (experimental & control). | |  | |
| Procedures included a list of materials used for the project. | |  | |
| Procedures included a copy of the measurement tools (Example: Survey/observation sheet). | |  | |
| Procedures included a participant cover letter explaining the project. | |  | |
| Procedures included data collection sheet. | |  | |
| Procedures explained how data was collected. | |  | |
| Procedures included how data would be analyzed (i.e. states the name of the statistical test to be used). | |  | |
| References  *4 pts* | | Reference slide included 4 or more academic references. | |  |
| Reference slide had ONLY in-text citations that were included as full references. | |  |
| References were in the correct APA format (including being placed in alphabetical order). | |  |
| References were listed with hanging indents. | |  |

# Research Proposal Score Sheet – Non-Human Experiment Projects

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CONTENT | | | 0 or 1 | |
| Title  *3 pts* | Title was a complete statement/question. | |  | |
| Title matched the research question. | |  | |
| Title clearly defined the purpose of the project. | |  | |
| Observation  *3 pts* | Observation stated the project’s problem clearly. | |  | |
| Observation included why this project was important to the community and me. | |  | |
| Observation included a short summary of project including project type: prevalence, intervention, human experiment, or non-human experiment. | |  | |
| Background Research  *8 pts* | Background information included two facts about the independent variable or variable one. | |  | |
| Background information included two facts about the dependent variable or variable two. | |  | |
| Background information included four facts about the relationship between the independent and the dependent variables or variable one and variable two. | |  | |
| Background information was referenced using correct in-text APA citations. | |  | |
| Background information is cited from at least four academic references (i.e. government agency, Google Scholar articles). | |  | |
| Background information was highlighted in bulleted format, not in paragraph form. | |  | |
| Background information was not plagiarized (summary in own words). | |  | |
| Background information was limited to 20% of quotes. | |  | |
| Research Question  *3 pts* | Research question includes the independent and dependent variables or variable one and variable two, and characteristics of the study population (where applicable). | |  | |
| Research question identifies the relationship or difference being investigated between the independent and dependent variables or variable one and variable two. | |  | |
| Research question has been reviewed by a CRA and has been determined to be safe and ethical. | |  | |
| Variables  *4 pts* | Correct independent variable OR variable one. | |  | |
| Correct dependent variable OR variable two. | |  | |
| Correct control (If no control, state no control). | |  | |
| Correct Inclusion Criteria or Constants   * Two or more inclusion criteria * Cross Sectional/Prevalence * Intervention * Human Subject Experiment     OR     * Two or more constants * Non-Human Subject Experiment | |  | |
| Hypotheses  *4 pts* | Alternative hypothesis is a statement of an effect/relationship between the independent and dependent variables or variable one and variable two. | |  | |
| Null hypothesis has been reviewed by a CRA and has been determined to be testable using an approved statistical test. | |  | |
| Alternative hypothesis is justified using some of your background research on the hypotheses slide. | |  | |
| Null hypothesis is a statement of no effect/relationship between the independent and dependent variables or variable one and variable two. | |  | |
| Procedures  *11 pts* | Procedures were numbered in the order that each step was completed. | |  | |
| Procedures identified all safety precautions (i.e., completed lab safety training). | |  | |
| Procedures explained what plant, natural resource, invertebrate (other) the project was experimenting with. | |  | |
| Procedures explained details of the experimental environment and/or change in environment (if you have more than one experimental group explain differences among all groups). | |  | |
| Procedures included a control group. | |  | |
| Procedures included a list of materials used for the project. | |  | |
| Procedures explained that there were at least 5 replications per experimental group. | |  | |
| Procedures provided a clear description of the project. | |  | |
| Procedures data collection sheet. | |  | |
| Procedures explained how data was collected.​ | |  | |
| Procedures included how data would be analyzed (i.e. states the name of the statistical test to be used). | |  | |
| References  *4 pts* | | Reference slide included 4 or more academic references. | |  |
| Reference slide had ONLY in-text citations that were included as full references. | |  |
| References were in the correct APA format (including being placed in alphabetical order). | |  |
| References were listed with hanging indents. | |  |

# Symposium Score Sheet

|  |  |  |  |
| --- | --- | --- | --- |
| Score Sheet | | 0 or 1 | Comments |
| *1 pt* | Procedures are written in past tense |  |  |
| Results  *7 pts* | Results displayed pictorial evidence of research study (photos) |  |  |
| Results displayed raw data in a chart |  |
| Results included descriptive statistics (averages, percentages, etc.) |  |
| Results included a properly labeled graph(s) (title, key, x-y-axis) |  |
| Results including graphs and charts were explained well |  |
| Correct Number of Participants/Replications   * Prevalence – at least 100 Participants * Intervention – at least 30 Participants (Pre/Post) * Human Subjects – 30 Participants in each group (at least one control/one experimental) * Experiment – at least 5 replications in each group (at least one control/one experimental) |  |
| Results displayed data that matched research question |  |
| Data Analysis  *4 pts* | Data analysis included a statistical test used to test the hypotheses |  |  |
| Data analysis included an explanation of why statistical test was used |  |
| Data analysis included a p-value |  |
| Data analysis included an explanation of the statistical significance of statistical test |  |
| Conclusion  *5 pts* | Conclusion included a brief summary of the project |  |  |
| Conclusion interpreted the data to conclude if it supported/rejected hypotheses |  |
| Conclusion answered the research question |  |
| Conclusion discussed limitations |  |
| Conclusion discussed how student(s) would implement change and/or bring awareness to their community |  |
| Presentation Skills  *7 pts* | Student(s) spoke clearly during the presentation |  |  |
| Student(s) could answer questions with confidence |  |
| Student(s) didn’t read slides word for word |  |
| Student(s) presented slides in the correct order |  |
| Presentation had limited spelling/grammar errors |  |
| Presentation’s background (color/animation) was not distracting |  |
| Presentation’s text size/font were consistent |  |

# HSTA Statewide Survey Cover Letter

A picture containing text, font, screenshot, document

Description automatically generated

# HSTA Statewide Survey Link/QR Code

A qr code on a white background

AI-generated content may be incorrect.

<https://redcap.link/state2526>

# Lesson 2 – Ethics/CITI Training and Activities

|  |  |  |  |
| --- | --- | --- | --- |
| Partner | Name | Email | Phone Number |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |

# Lesson 4 – Project Selection and Observation

The project type is:

Prevalence/cross-sectional

Human intervention

Human experiment

Non-human experiment

(Prevalence/Statewide Survey Projects Only)

Write down your first survey question *(****survey question # 1****):*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Prevalence/Statewide Survey Projects Only)

If your research project is a prevalence/statewide survey project, write down your second survey question *(****survey question # 2****):*

*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

(All Project Types)

The project problem is:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(All Project Types)

This project is important to the community and me because:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(All Project Types)

The project summary is:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Lesson 5 – Research Question

(Prevalence/Statewide Survey Projects Only)

Write the two statewide survey research questions you are interested in analyzing for a relationship/difference.

* 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example Guided Research Questions

Is there a significant relationship/difference between state survey research question #1 and state survey research question #2?

Is there a significant relationship/difference between the independent variable and the dependent variable?

Is there a significant relationship/difference between variable one and variable two?

Develop your research question using one of the above guided research questions and your two state survey questions, or your independent and dependent variables, or your variable one and variable two.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Rewrite the research question for better flow.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Lesson 6 – Research Question and Variables

|  |  |  |
| --- | --- | --- |
| Research Question – Write down the research question. | | |
|  | | |
| Variable Identification:  Independent Variable  or Variable One | Measurement:  Identify the response options/measurements for your independent variable or variable one. | Variable Type:  Is your independent variable or variable one a qualitative or quantitative variable? |
|  |  |  |
| Variable Identification:  Dependent Variable or Variable Two | Measurement:  Identify the response options/measurements for your dependent variable or variable two. | Variable Type:  Is your independent variable or variable one a qualitative or quantitative variable? |
|  |  |  |

For all **prevalence/statewide survey and human intervention projects**, name at least two inclusion criteria.

* 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

For all **human and non-human experiment projects**, name at least two controls.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Lesson 7 – Background Research and Citing Sources

Give two facts about the independent variable or variable one.

|  |  |  |
| --- | --- | --- |
| Fact # | Fact with (in-text citation in APA format) | Full Reference Citation in APA format |
| 1 |  |  |
| 2 |  |  |

Give two facts about the dependent variable or variable two.

|  |  |  |
| --- | --- | --- |
| Fact # | Fact with (in-text citation in APA format) | Full Reference Citation in APA format |
| 1 |  |  |
| 2 |  |  |

Give four facts about how the independent and dependent variables **or** variable one and variable two, are related.

|  |  |  |
| --- | --- | --- |
| Fact # | Fact with (in-text citation in APA format) | Full Reference Citation in APA format |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |

# Lesson 9 – Hypothesis

Write your null hypothesis.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Write your alternative hypothesis.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Write a supporting statement justifying your alternative hypothesis using your background information.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Lesson 10 – Introduction to Excel and Data Collection Sheet

In the space below, create a sample data collection table showing how data will be organized for collection in your project.

# Lesson 11 – Procedures

Compose a draft of your project procedures in the spaces below.

* 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  13. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  14. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  15. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  16. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  17. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  18. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Survey Development

If your research project requires you to create and administer a survey, use the table below to create a list of survey questions and response options. Remember to submit a copy of your proposed survey to your CRA for review.

|  |  |  |
| --- | --- | --- |
| **Survey Question Number** | **Survey Question** | **Response Options** |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |

## Knowledge Assessment (Pre-test/Post-test) Development

If your research project requires you to create and administer a knowledge assessment (pre-test/post-test), use the table below to create a list of questions and response options. Remember to submit a copy of your knowledge assessment (pre-test/post-test) to your CRA for review.

|  |  |  |  |
| --- | --- | --- | --- |
| **Question Number** | **Question** | **Response Options** | **Correct Response** |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |
| 6 |  |  |  |
| 7 |  |  |  |
| 8 |  |  |  |
| 9 |  |  |  |
| 10 |  |  |  |

# Lesson 16 – Descriptive Statistics: Measures of Central Tendency

## Descriptive Statistics for Projects with One Qualitative Variable and One Quantitative Variable

|  |  |  |
| --- | --- | --- |
| **Table 1: Descriptive Statistics** | | |
|  | **Independent Variable or Variable One Name**  **(units of measure)** | **Dependent Variable or Variable Two Name**  **(units of measure)** |
| Number of Observations |  |  |
| Mean |  |  |
| Median |  |  |
| Mode |  |  |
| Minimum | *(Completed in Lesson 17)* | *(Completed in Lesson 17)* |
| Maximum | *(Completed in Lesson 17)* | *(Completed in Lesson 17)* |
| Range | *(Completed in Lesson 17)* | *(Completed in Lesson 17)* |
| Standard Deviation | *(Completed in Lesson 17)* | *(Completed in Lesson 17)* |
| Variance | *(Completed in Lesson 17)* | *(Completed in Lesson 17)* |

|  |  |  |
| --- | --- | --- |
| **Independent Variable or Variable One** | **n**  **(number of observations)** | **Percentage** |
| Response #1 |  |  |
| Response #2 |  |  |
| Total |  | 100% |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Dependent Variable or Variable Two Name**  **(units of measure)** | | | | | | | |
|  |  | Mean | Median | Mode | Minimum | Max | Range | Standard Deviation | Variance |
| **Independent Variable or Variable One** | Response #1 Name  (units of measure) |  |  |  | *(Discussed in Lesson 17)* | *(Discussed in Lesson 17)* | *(Discussed in Lesson 17)* | *(Discussed in Lesson 17)* | *(Discussed in Lesson 17)* |
| Response #2 Name  (units of measure) |  |  |  | *(Discussed in Lesson 17)* | *(Discussed in Lesson 17)* | *(Discussed in Lesson 17)* | *(Discussed in Lesson 17)* | *(Discussed in Lesson 17)* |
| Total  (all observations) |  |  |  | *(Discussed in Lesson 17)* | *(Discussed in Lesson 17)* | *(Discussed in Lesson 17)* | *(Discussed in Lesson 17)* | *(Discussed in Lesson 17)* |

## Descriptive Statistics for Projects with Two Quantitative Variables

|  |  |  |
| --- | --- | --- |
| **Variable One** | **n**  **(number of observations)** | **Percentage** |
| Response #1 |  |  |
| Response #2 |  |  |
| Total |  | 100% |

|  |  |  |
| --- | --- | --- |
| **Variable Two** | **n**  **(number of observations)** | **Percentage** |
| Response #1 |  |  |
| Response #2 |  |  |
| Total |  | 100% |

***Count Table***

|  |  |  |  |
| --- | --- | --- | --- |
|  | Variable One Response #1 | Variable One Response #2 | Total |
| Variable Two Response #1 |  |  |  |
| Variable Two Response #2 |  |  |  |
| Total |  |  |  |

***Percentage Table***

|  |  |  |  |
| --- | --- | --- | --- |
|  | Variable One Response #1 | Variable One Response #2 | Total |
| Variable Two Response #1 | % | % |  |
| Variable Two Response #2 | % | % |  |
| Total |  |  |  |

## Descriptive Statistics for Projects with Two Qualitative Variables

|  |  |  |  |
| --- | --- | --- | --- |
|  | Variable One Response #1 | Variable One Response #2 | Total |
| Variable Two Response #1 |  |  |  |
| Variable Two Response #2 |  |  |  |
| Total |  |  |  |

# Lesson 17 – Descriptive Statistics: Measures of Dispersion

|  |  |  |
| --- | --- | --- |
| **Table 1: Descriptive Statistics** | | |
|  | **Variable One Name**  **(units of measure)** | **Variable Two Name**  **(units of measure)** |
| Number of Observations | *(Completed in Lesson 16)* | *(Completed in Lesson 16)* |
| Mean | *(Completed in Lesson 16)* | *(Completed in Lesson 16)* |
| Median | *(Completed in Lesson 16)* | *(Completed in Lesson 16)* |
| Mode | *(Completed in Lesson 16)* | *(Completed in Lesson 16)* |
| Minimum |  |  |
| Maximum |  |  |
| Range |  |  |
| Standard Deviation |  |  |
| Variance |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Dependent Variable Name**  **(units of measure)** | | | | | | | |
|  |  | Mean | Median | Mode | Minimum | Max | Range | Standard Deviation | Variance |
| Independent Variable | Response #1 Name  (units of measure) | *(Completed in Lesson 16)* | *(Completed in Lesson 16)* | *(Completed in Lesson 16)* |  |  |  |  |  |
| Response #2 Name  (units of measure) | *(Completed in Lesson 16)* | *(Completed in Lesson 16)* | *(Completed in Lesson 16)* |  |  |  |  |  |
| Total (all observations) | *(Completed in Lesson 16)* | *(Completed in Lesson 16)* | *(Completed in Lesson 16)* |  |  |  |  |  |

# Lesson 18 – Graphing Data

The independent variable or variable one is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and it is *qualitative* or *quantitative*. (Circle one.)

The dependent variable or variable two is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and it is *qualitative* or *quantitative*. (Circle one.)

Using the table below, the type of graph that is most appropriate to use to display my project data is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  | **Dependent Variable or Variable Two is** *qualitative* | **Dependent Variable or Variable Two is** *quantitative* |
| **Independent Variable or Variable One is** *qualitative* | Data should be displayed using a **pie chart**.    *Students will evaluate the relationship with a* ***chi-square****.* | Data should be displayed using a **bar graph**.    *Students will evaluate the difference with a* ***t-test*** *(two groups) or* ***ANOVA*** *(three or more groups).* |
| **Independent Variable or Variable One is** *quantitative* |  | Data should be displayed using a **scatterplot** or **line graph**.    *Students will evaluate the relationship with a* ***correlation****.* |

# Lesson 19 – Probability (p-values) and Hypothesis Testing

# with a t-test or an ANOVA

The independent variable or variable one is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and it is *qualitative* or *quantitative*. (Circle one.)

The dependent variable or variable two is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and it is *qualitative* or *quantitative*. (Circle one.)

Using the table below, the type of statistical test that is most appropriate to use to analyze my project data is a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  | **Dependent Variable or Variable Two is** *qualitative* | **Dependent Variable or Variable Two is** *quantitative* |
| **Independent Variable or Variable One is** *qualitative* | Data should be displayed using a **pie chart**.    *Students will evaluate the relationship with a* ***chi-square****.* | Data should be displayed using a **bar graph**.    *Students will evaluate the difference with a* ***t-test*** *(two groups) or* ***ANOVA*** *(three or more groups).* |
| **Independent Variable or Variable One is** *quantitative* |  | Data should be displayed using a **scatterplot** or **line graph**.    *Students will evaluate the relationship with a* ***correlation****.* |

If your data analysis included the use of a **t-test or an ANOVA test**, use this worksheet to assist you in developing your content for your results slides.

* 1. The statistical test used:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Why was the statistical test used:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. p-value =  \_\_\_\_\_\_\_\_\_\_\_\_

(Note: If the p-value is less than 0.001, report the p-value as p<0.001)

* 1. The interpretation of the p-value was (circle one option below):

Option 1:

If the p-value is less than 0.05, we REJECT the null hypothesis and ACCEPT the alternative hypothesis.

Option 2:

If the p-value is greater than or equal to 0.05, we ACCEPT the null hypothesis and REJECT the alternative hypothesis.

# Lesson 20 – Hypothesis Testing with Chi-square and Correlation

The independent variable or variable one is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and it is *qualitative* or *quantitative*. (Circle one.)

The dependent variable or variable two is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and it is *qualitative* or *quantitative*. (Circle one.)

Using the table below, the type of statistical test that is most appropriate to use to analyze my project data is a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  | **Dependent Variable or Variable Two is** *qualitative* | **Dependent Variable or Variable Two is** *quantitative* |
| **Independent Variable or Variable One is** *qualitative* | Data should be displayed using a **pie chart**.    *Students will evaluate the relationship with a* ***chi-square****.* | Data should be displayed using a **bar graph**.    *Students will evaluate the difference with a* ***t-test*** *(two groups) or* ***ANOVA*** *(three or more groups).* |
| **Independent Variable or Variable One is** *quantitative* |  | Data should be displayed using a **scatterplot** or **line graph**.    *Students will evaluate the relationship with a* ***correlation****.* |

If your data analysis included the use of a **Chi-square test**, use this worksheet to assist you in developing your content for your results slides.

* 1. The statistical test used:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Why was the statistical test used:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. p-value =  \_\_\_\_\_\_\_\_\_\_\_\_

(Note: If the p-value is less than 0.001, report the p-value as p<0.001)

* 1. The interpretation of the p-value was (circle one option below):

Option 1:

If the p-value is less than 0.05, we REJECT the null hypothesis and ACCEPT the alternative hypothesis.

Option 2:

If the p-value is greater than or equal to 0.05, we ACCEPT the null hypothesis and REJECT the alternative hypothesis.

If your data analysis included the use of a **correlation test**, use this worksheet to assist you in developing your content for your results slides.

* 1. The statistical test used:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Why was the statistical test used:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. r = \_\_\_\_\_\_\_\_\_\_\_, Strength = \_\_\_\_\_\_\_\_\_\_\_, Direction = \_\_\_\_\_\_\_\_\_\_\_

(Note: Use the value of r that was obtained from your correlation test to identify the strength and direction of the relationship of the two variables based on the table below.)

|  |  |  |  |
| --- | --- | --- | --- |
| **Lower Bound** | **Upper Bound** | **Strength** | **Direction** |
| -1.00 | -0.70 | Strong | Negative |
| -0.69 | -0.30 | Moderate | Negative |
| -0.29 | -0.01 | Weak | Negative |
| 0 | | No correlation | |
| +0.01 | +0.29 | Weak | Positive |
| +0.30 | +0.69 | Moderate | Positive |
| +0.70 | +1.00 | Strong | Positive |

* 1. p-value =  \_\_\_\_\_\_\_\_\_\_\_\_

(Note: If the p-value is less than 0.001, report the p-value as p<0.001)

* 1. The interpretation of the p-value was (circle one option below):

Option 1:

If the p-value is less than 0.05, we REJECT the null hypothesis and ACCEPT the alternative hypothesis.

Option 2:

If the p-value is greater than or equal to 0.05, we ACCEPT the null hypothesis and REJECT the alternative hypothesis.

A colorful human body with text

AI-generated content may be incorrect.