

# 05\_Analyzing Data Unit V Copied from: Science, Technology and Society, Copied on: 06/22/22

Content Area: **Science**  
Course(s):  
Time Period: **Full Year**  
Length: **8-10 weeks**  
Status: **Published**

## **General Overview, Course Description or Course Philosophy**

This course assesses the student's ability to recognize and understand the entire health research process. Students are expected to know how to conceptualize a research project and see it through to completion, including identifying a focused research question, choosing appropriate study designs, collecting data that will answer the question, basic understanding of data analysis, disseminating findings, and following research ethical principles and considerations.

## **OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS**

- there is a primary analysis and secondary analysis
- there are systematic reviews and meta-analyses
- there is a basics of data management (codebook, data entry, recoding and cleaning, data security)
- there is a basic statistics (e.g., hypothesis test, significant level, central tendency, variability, confidence intervals, parametric and non-parametric tests)
- there are variables and choose appropriate descriptive statistics for each type of variables
- there are basic procedures of comparative and correlational analysis
- there is purpose and characteristics of qualitative research/analysis

## **CONTENT AREA STANDARDS**

VHEL.9-12.9.4.12.H.(5).2

Apply biochemistry, cell biology, genetics, mathematics, microbiology, molecular biology, organic chemistry, and statistics concepts to conduct effective biotechnology research and development.

VHEL.9-12.9.4.12.H.(5).4	Summarize and explain the ethical, moral, and legal issues related to biotech research, product development, and product use in society.
VHEL.9-12.9.4.12.H.6	Demonstrate use of the concepts, strategies, and systems for obtaining and conveying ideas and information to enhance communication.
VHEL.9-12.9.4.12.H.7	Locate, organize, and reference written information from various sources to communicate with others.
VHEL.9-12.9.4.12.H.8	Evaluate and use information resources to accomplish specific occupational tasks.
VHEL.9-12.9.4.12.H.9	Use correct grammar, punctuation, and terminology to write and edit documents.
VHEL.9-12.9.4.12.H.10	Develop and deliver formal and informal presentations using appropriate media to engage and inform audiences.

## **RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)**

---

WRK.9.1.2.CAP	Career Awareness and Planning
TECH.9.4.2.CT.1	Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).
TECH.9.4.2.CT.2	Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).
TECH.9.4.2.DC	Digital Citizenship  Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.

## **STUDENT LEARNING TARGETS**

---

### **Declarative Knowledge**

---

Students will understand that:

- primary analysis and secondary analysis
- systematic reviews and meta-analyses
- the basics of data management (codebook, data entry, recoding and cleaning, data security)
- basic statistics (e.g., hypothesis test, significant level, central tendency, variability, confidence intervals, parametric and non-parametric tests)
- types of variables and choose appropriate descriptive statistics for each type of variables
- basic procedures of comparative and correlational analysis

- the purpose and characteristics of qualitative research/analysis

## **Procedural Knowledge**

---

Students will be able to:

- Distinguish between primary analysis and secondary analysis
- Compare and contrast systematic reviews and meta-analyses
- Describe the basics of data management (codebook, data entry, recoding and cleaning, data security)
- Utilize basic statistics (e.g., hypothesis test, significant level, central tendency, variability, confidence intervals, parametric and non-parametric tests)
- Recognize types of variables and choose appropriate descriptive statistics for each type of variables
- Recognize basic procedures of comparative and correlational analysis
- Describe purpose and characteristics of qualitative research/analysis

## **EVIDENCE OF LEARNING**

---

### **Formative Assessments**

---

Required Activities:

- 1) Checkpoint questions
- 2) Comprehension of key terms

- 3) Completion of Study Guide
- 4) Chapter Quiz-test Questions

### **Summative Assessments**

---

- Benchmarks – departmental benchmark given at the end of MP1, MP2, or MP3 & MP4 b(Semester Based Course)
- Alternative Assessments
  - Lab inquiries and investigations
  - Lab Practicals
  - Exploratory activities based on phenomenon
  - Gallery walks of student work
  - Creative Extension Projects
  - Build a model of a proposed solution
  - Let students design their own flashcards to test each other
  - Keynote presentations made by students on a topic
  - Portfolio

### **RESOURCES (Instructional, Supplemental, Intervention Materials)**

---

Nearpod.com

Edpuzzle.com

Library resources tools

### **INTERDISCIPLINARY CONNECTIONS**

---

Ethics

Information writing

Historical research

Debates

## **ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS**

See link to Accommodations & Modifications document in course folder.