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.