SKILL-BASED COURSE

SBC FN 201: NUTRITION AND HEALTH DATA VISUALIZATION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
SBC FN 201 Nutrition and Health Data Visualization	**2**	**0**	**0**	**2**	Basic knowledge of nutrition and public health; proficiency in computers applications	NIL

Learning Objectives

- To understand the significance and core principles of effective data visualization in the context of nutrition and health.
- To learn how to extract, prepare, and transform data for effective visualization.
- To build proficiency in creating impactful visualizations, ranging from basic charts to advanced interactive visuals, using tools like Excel, Google Sheets, and specialized data visualization software.
- To apply data visualization techniques to nutrition-related data and create meaningful visuals and dashboards.

Learning Outcomes

The students would be able to:

- Demonstrate an understanding of the significance and core principles of data visualization, specifically within the context of nutrition and health.
- Develop the ability to extract, prepare, and transform raw data into a format suitable for visualization, ensuring accuracy and clarity.
- Gain proficiency in using tools like Excel, Google Sheets, and specialized software to create a variety of visualizations, from basic charts to advanced interactive visuals.
- Apply data visualization techniques effectively to nutrition-related datasets, creating compelling visuals and dashboards that communicate key insights and trends.

PRACTICAL
(Credits: 2; Hours: 60)

Introduction to Data Visualization and Exploring Nutrition and Health Data
Critical evaluation of the key principles of data visualization using the existing visualizations
Exploring nutrition-related datasets for understanding different types of data, measurement scales and indicators (NFHS data, NSSO data etc)

Data Preparation and Summarization
Entering and cleaning of data: Data entry, cleaning and formatting; sorting and filtering data
Transforming data using conditional formatting for removing duplicates, identifying outliers, finding the missing value, data imputation

Data visualization of univariate and bivariate data using excel, Google Sheets, and data visualization software like Tableau/ QGIS/ Power BI etc.
Creating basic charts such as bar charts, pie charts, line charts, histograms, and box plots.
Creating scatter plots, line graphs and bubble charts.
Understanding when and why to use each specific chart type
Visualizing and interpreting correlation and causality

Creating Interactive Dashboards
Critical evaluation of a nutrition dashboard
Developing of nutrition dashboard

- Case study: reviewing real-world application of data visualization in nutrition and health

Essential Readings

1. Cairo, A. (2019). *How Charts Lie: Getting Smarter about Visual Information*. W.W. Norton & Company.
2. Tufte, E.R. (2001). *The Visual Display of Quantitative Information*. Graphics Press.
3. Wilke, C.O. (2019). *Fundamentals of Data Visualization: A Primer on Making Informative and Compelling Figures*. O'Reilly Media.
4. Few, S. (2012). *Show Me the Numbers: Designing Tables and Graphs to Enlighten*. Analytics Press.
5. Manorat, R., Becker, L., & Flory, A. (2019). *Global data visualization tools to empower decision-making in nutrition*. Sight and Life, 33(1), 108-114.
6. Stephen R. Midway. (2020) *Principles of Effective Data Visualization, Patterns*. Volume 1, Issue 9, ISSN 2666-3899, https://doi.org/10.1016/j.patter.2020.100141.
7. National Family Health Surveys, URL- https://www.nfhsiips.in/nfhsuser/index.php

Suggested Readings

1. Healy, K. (2018). *Data Visualization: A Practical Introduction*. Princeton University Press.
2. Murray, D. (2016). *Tableau Your Data: Fast and Easy Visual Analysis with Tableau Software*. Wiley.
3. Wickham, H. (2016). *ggplot2: Elegant Graphics for Data Analysis*. Springer.
4. Jones, B. (2023). *Python Data Visualization Cookbook*. Packt Publishing.

5. Monmonier, M. (1996). *How to Lie with Maps.* University of Chicago Press.

Note: Examination scheme and mode shall be as prescribed by the Examination branch, University of Delhi, from time to time