

# CaRDS Seminar

## Understanding Missing Data: Mechanisms, Descriptions, and Patterns

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Effective handling of missing data is crucial for robust statistical analysis. This presentation aims to provide a comprehensive overview of missing data analysis, encompassing the intricacies of missing data mechanisms, descriptions, and patterns. The discussion will delve into the fundamental concepts, methods, and techniques associated with addressing missing data in statistical analyses. The presentation will begin with an exploration of the different missing data mechanisms, including Missing Completely at Random (MCAR), Missing at Random (MAR), and Missing Not at Random (MNAR). An emphasis will be placed on understanding the implications of these mechanisms for data analysis and the strategies to account for each type of missingness. Furthermore, the discussion will cover the vital aspects of describing missingness in data, highlighting key measures such as Amount Missing, Percent Complete, and Percent Observed. The significance of these descriptors in evaluating the extent of missing data within a dataset will be emphasized. In addition, the presentation will delve into the examination of various missing data patterns, including Pattern Value Reporting, Dot Chart, Data Matrix Plot, and Aggregate Plot. The importance of identifying and interpreting these patterns for effective data handling and interpretation will be underscored. Finally, the session will touch upon the concept of Linkage Pattern Statistics, encompassing essential metrics such as Proportion Usable Cases, Influx Coefficient, Outflux Coefficient, and Fluxplot. These metrics serve as valuable tools for understanding the flow and patterns of missing data within a dataset, enabling a more comprehensive analysis of missing data mechanisms.

This presentation serves as a foundational framework for understanding the complexities of missing data analysis, laying the groundwork for subsequent discussions on the implementation of missing data models for robust statistical inference and decision-making.

**When? Thursday, November 16 at 2.00 pm**

**Where? Gilbreath Hall, Room 304**

**For questions: [hagelber@etsu.edu](mailto:hagelber@etsu.edu)**