Data Science Summer Professional Development for DCPS teachers and staff

Day 1

9:00am – 9:30am

- Greetings/Opening Messages/Introductions (AU Staff and DCPS attendees)
- What is Data Science? / The Growth and Influence and Importance of Data Science

9:31am – 10:31am

- Introduction to the R Programming Language (Origin/Focus/Utility)
- R and R Studio installation support
- Overview of Tidyverse and its subpackages
- Installation of package(s)/Tidyverse
- Overview of the Rstudio IDE
- R Trouble Shooting Tips

10:32am – 11:42am

- Usage of R as a powerful calculator / preliminary and basic R commands for calculations, analysis, and applications ; data frames / Vectors/Lists/ Variable types

Break 11:43am – 11:53am

practice / reinforcement work/application activities   **11:54am – 12:44pm**

Summary/Wrap Up/Reflections/Closure   **12:45pm – 1:00pm**

Day 2

Exploration and Analysis of Data Sets   **9:00am to 10:45am**

- Retrieving and analyzing embedded R Data Sets
- Using R commands to import Data from an external location
- Using R to create Data Sets

R for Data Visualization   **10:57am to 11:48am**

Using R code to generate the following graphs and plots: Bar graphs/Histograms/Boxplots/Pie Charts/Scatter Plots/Stem and Leaf Plots/Violin Plots

Break 11:49am 11:59am

practice / reinforcement work/application activities   **12 noon to 12:50pm**

Summary/Wrap Up/Reflections/Closure   **12:51 pm to 1:00pm**

Day 3

Data Transformation   **9:00am to 9:45am**

Introduction to and applications of the DPLYR functions:

      Select/Filter/Arrange/Mutate/Group By-Summarize

 Tidying Data   **9:46am to 10:31am**

Analysis of Nontidy Data, Tidy Data , Introduction to basic R code and techniques for Tidying Data,

Break 10:32am to 10:42am

Miscellaneous R applications   **10:43am to 11:43am**

       Matrix operations, Writing Functions, Probability…

Break   (11:44am to 11:53am)

practice / reinforcement work/application activities   **11:54am to 12:49pm**

Summary/Wrap Up/Reflections/Closure   **12:50pm to 1:00pm**