# **Yelp Business Data Analysis**

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| Guiding Principles, Learning Objectives and Learning Outcomes | Discussion(s) | Assignment(s) and Assessment | Learning Resources + Media | Prerequisites and Expectations for Students |
| Course Objective: This lesson will introduce students to the application of business analytics tools to analyze crime statistics. Students will also be introduced to criminology theories and their application to criminal activity.  Learning Outcomes: After this lesson, students will be able to:   * Understand the use of business analytics tools to analyze a structured dataset * Apply Power BI to a crime rate data. * Evaluate the use of Power BI in a criminal/sociological context. * Identify relationships between business analytics tools and the broader fields of AI / ML * Create their own Power BI dashboard | How are business analytical tools used to assess for crime rates or other socially relevant statistics?  Which criminology theories provide insights on reasons behind crime rates?  What are some other visualizations Power BI could be used for in your field?  Why is there more crime during the summer months?  What trends do you see when you compare crime rates by district to income by district? | **Course Overview:** Businesses and other organizations often collect data on their users through apps. This data might include information about customer demographics, purchase habits and reviews. These same apps can also be used to track other types of data such as crime rates or census data. The goal of this lesson is to introduce students to Power BI, a business analytics tool. Students will utilize the tool to assess crime rates in the city of Baltimore and hypothesize reasons for the crime rates as it relates to different criminology theories.  **To prepare for this assignment:** Review the articles a., b., and c.  **In Class Assignment:**  Students will work through the Power BI dashboard for the City of Baltimore to analyze crime rates. Using criminology theories, students will make conclusions regarding reasons behind the crime rate data. Students will use statistical analysis methods to correlate the data.  **Take Home Assignment:**  Students will use the context they’ve gained from the lesson to identify a poor visualization and explain why the visualization ‘supports’ a false claim. Students will also create their own Power BI dashboard using a tutorial and sample data.  **Survey:** Survey will primarily assess students’ understanding of the material presented in the context of the criminology Additionally, we will determine how knowledge has increased around statistical analysis techniques and how this knowledge can be applied in future classes or careers. | Articles:   1. An Examination of the Impact of   Criminological Theory on Community Corrections Practice <https://www.uscourts.gov/sites/default/files/80_3_2_0.pdf>   1. Linear regression: Detailed View   <https://towardsdatascience.com/linear-regression-detailed-view-ea73175f6e86>   1. Correlation Coefficient   <https://towardsdatascience.com/getting-the-basics-of-correlation-covariance-c8fc110b90b4>   1. Tests of significance   <https://www.westga.edu/academics/research/vrc/assets/docs/tests_of_significance_notes.pdf>   1. Using Predictive Policing to Reduce Crime Rate   <https://datasmart.ash.harvard.edu/news/article/using-predictive-policing-to-reduce-crime-rate-189>   1. Getting the Big Data to the Good Guys   <https://datasmart.ash.harvard.edu/news/article/getting-big-data-to-the-good-guys-140>   1. Crime Trend Prediction Using Regression Models for Salinas, California   <https://apps.dtic.mil/dtic/tr/fulltext/u2/a563653.pdf>   1. Bad Data Visualization in the Time of COVID:   <https://medium.com/nightingale/bad-data-visualization-in-the-time-of-covid-19-5a9f8198ce3e>   1. Getting Started with Power BI:   <https://www.ndsu.edu/fileadmin/oira/Data_Resources/GettingStartedWithPowerBIDesktop.pdf>  Videos:   1. Power BI How To:   <https://www.youtube.com/watch?v=BsXliHbOFDM> | Knowledge of:   * Statistics * Criminology theories   Experience with:   * Reading charts and graphs   Platforms required:   * Web Browser * Power BI (setup instructions provided) |