

Organization Information:

Department of Innovation & Technology (DoIT)

City of Detroit
2 Woodward Ave Suite 1212
Detroit, MI 48226

Students will work within the [Innovation & Emerging Technology \(IET\)](#) team within the department. IET is a team of developers who partner with City departments to prototype, evaluate, and deliver digital tools that solve civic problems and information challenges.

Project Information:

Description:

Students will develop a tool that leverages open data from various City of Detroit systems (E.g. restaurant inspections, 311, permitting, etc) along with predictive analysis methods to identify factors that lead to restaurants and food establishments facing health code violations.

Strategic importance:

This project will promote the use of open data to help address and prevent public health issues like food borne illnesses. Students will analyze historical and ongoing restaurant inspection data and create a prediction model to identify which establishments are most likely to face health code challenges. Their findings will help Detroit Health Department inspectors prioritize inspections and proactively guide establishments in resolving food safety issues before they can affect customers.

Deliverables:

- "Literature review" of similar research in other cities and how their methods or findings may apply to our context (E.g. [Chicago's Food Inspection Forecasting analysis model](#))
- Exploratory analyses of Detroit's restaurant inspection data and other related data
 - Calculate baseline statistics
 - Suggest and implement transformation methods (eg cleaning data, casting data types, geocoding, etc) to enhance underlying attributes and improve usability
- Create a prediction model
 - Develop statistical model, run analyses, and visualize findings
 - Gather feedback from users (E.g. Health Dept staff, Michigan Department of Agriculture and Rural Development, possibly Industry); refine the model as needed
 - Automate processes for sustainable implementation and write documentation
 - Publish work as an open-source repository on [City of Detroit's GitHub](#)

Engineering content:

Students should be proficient in statistics, relational databases and methods for data analysis and visualization. Knowledge of SQL, Python, R, JavaScript, and/or Github workflows a plus.

DoIT web developers will be available to assist and mentor students as needed to complete programming tasks, but we don't have a dedicated Data Analyst on our team, so we're looking forward to learning robust statistical methods from you.

Business content:

Students will gain insight into the City of Detroit's open data program and our enterprise ETL workflow, meaning tools and processes to *extract-transform-load* data across systems and publish datasets that are usable and meaningful to the public. Students will interact with enterprise softwares (E.g. Socrata open data portal, ESRI ArcGIS, Sword Solutions inspection software used by the Health Department), develop custom scripts for processing data and doing analyses, as well as learn about the data-entry workflow of city health inspectors.

Other information:

n/a

Project roles:

- DoIT technical mentors: Jessica McInchak & Jimmy McBroom
- Health Department data liaison: Scott Withington
- Executive sponsors: Beth Niblock & Dr. Khaldun