**URP 506: Planning Methods**

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To plan a better urban future, planners must make informed decisions based on rigorous, data-driven analysis. Whether deciding where to place new parks or how to reduce traffic jams, the ability to analyze, interpret, and communicate data-backed evidence is key. This course introduces students to research and statistical methods commonly used in urban planning practice and research. Students will learn to find appropriate data, analyze it with suitable techniques, reach sensible conclusions from their analyses, and present their results convincingly to a broad audience. This course also equips students to scrutinize the integrity of statistical models, discern data biases, and reflect on the ethical choices inherent in all methods. The R programming language and its packages will serve as the primary tools for data wrangling, visualization, and statistical modeling.

**Learning Goals**

By the end of the semester, students will be able to:

* Craft and assess research designs, articulate sound questions, formulate hypotheses, and apply empirical methods.
* Understand diverse data types and their corresponding statistical methods.
* Describe data and data distribution through summary statistics and statistical plots.
* Leverage R (or Excel) for foundational data manipulation, analysis, and statistical modeling.
* Understand relationships between variables through hypothesis testing, correlation, and linear regression.
* Interpret, visualize, and communicate statistical results rigorously and effectively to a non-technical audience.
* Evaluate the robustness of statistical models and identify ways that data and data representation can be manipulated to support one argument over another.

**Course Requirements:**

This course primarily involves a series of weekly lectures for students to learn research methods and statistical concepts, along with weekly hands-on, self-paced labs for practicing data wrangling and computing statistics in R (or Excel). Beyond the labs, there will be two exams (i.e., a midterm and a final exam) and a group assignment to conduct a place report on Detroit from demographic, transportation, housing, environmental, or economic perspectives.