

Prototyping in Urban Tech: Project, Product, and People

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Course Concept (Theory)

Increasingly, designers, planners, urbanists, and data analysts have become storytellers. Whether we analyze data to critique or support policy initiatives, to create clarity within the chaos of urban life, or to demonstrate an underlying truth that might not otherwise be visible, we are called to tell stories of social and physical environments, and of the people and communities that inhabit them. As experts on data, design, analysis, and visualization, we are information arbiters. As information arbiters, we have the opportunity to be information advocates.

Being an information advocate requires knowing what stories to tell and how to tell them. And knowing what stories to tell requires collaboration with communities to understand their needs and integrate of those needs into both our research and presentation practices. This user-centric praxis is vital to the ethos and responsibilities of urban data advocacy and will guide our process.

Course Description (Praxis)

This half-semester (Session B) course aims to reframe the practice of research and data visualization toward a user-centric model and will challenge students to start with the end (users) to understand the value our work can provide. It is meant to serve as a complement to other analytics/visualization courses and provide opportunity for students to transform their work into public-facing prototypes. We will build toward an interactive product that takes user-informed functionality and data analysis as its inputs. We will reflect on and improve the practice of data analysis and urban design by connecting our projects to people through our prototyped product, such as an app, web-based map, dashboard, or other interactive digital data tool.

In this course we will seek to address urban-scale challenges through evidence-based research and community-driven agendas. We will conditionalize our work on the expectation of a clear and defined end-use case, centering our priorities on the needs of our users from research to ideation to interaction and critically engage with questions around why our work matters, who it benefits, and how we can deliver it.

Throughout the course, we will ground our projects through a service-oriented lens, asking who will benefit from our analysis and how we can put this analysis in their hands. Users (people) generate the need for a tool (product) that derives from and drives forward our research (project).

Which project, which product, and which people will be up to students to define along the way. Students may generate new analytics topics for this course, but they are welcome to consider concurrent work being done in other courses or revisiting previous analytics projects to “re-imagine.” Students may work alone or in groups of two to three.

Course Goals (Practice)

This course will rely on students conducting specific data analytics and/or generating visualizations based on their interests and on the needs defined by their user research. We will work primarily in Figma and Figjam boards in our workflow and bring in visualizations from other tools such as Adobe Creative Suite or geospatial mapping programs. No prior experience or knowledge of Figma, Figjam, prototyping, or UI/UX design is required for this course. While no prior data analysis experience is required, it is recommended that students have some idea of the type of data/visualization they want to explore.

Students will learn how to:

- Conduct user outreach and engagement to understand user needs
- Generate and vet project scope with ‘product owners’ and users through Agile workflows
- Employ UI/UX and data organization best practices
- Generate user flows, affinity maps, wireframes, and prototypes
- Integrate our data analytics research and visualizations into products
- Define clear product features, user stories, and metrics for success
- Create a product brief and interactive prototype for a minimum viable product (MVP)

Course Outline (Process)

The first half of the course will focus on strategic thinking, problem definition, and user research. Students will refine their projects and move into the ideation and prototyping phases. We will lean on our skills as data analysis and implement a user-centric design philosophy to develop and demo an interactive minimum viable product (MVP) for the final.

The course schedule (subject to change) is below:

Week 1 – Cityscape is Datascape

- Why digital technologies/user-oriented platforms matter in planning/design
- The new ‘real’ as digital overlays on physical space
- Project \supset Product \supset People

Week 2 - People Lead Product / Data Leads Design

- *Assignment due: initial project proposal (1/2 page)*
- Agile and Double Diamond
- Designing data for the web – data processing, CSR, SSR, SSG
- How to determine who your users are, and what their needs/use cases are
- In-class exercise: discussing proposals – data, users, purpose

Week 3 - Developing our Project Proposals

- *Assignment due: updated project proposal, including user interviews (2 pages)*
- Principles of prototyping – user research, affinity mapping, wireframing
- Mapping user needs to features to user-stories to products
- In-class exercise: pitching our products in pairs, interview roleplaying

Week 4 – User Flows and Affinity Maps

- *Assignment due: Research – user interviews and findings (figma)*
- Learning from our users and determining how to put our findings into action
- Guest lecture (TBD) - UI/UX basics and best practices
- In-class exercise: user flows and affinity mapping

Week 5 – Wireframes

- *Assignment due: Insights – personas, user flows, affinity maps (figma)*
- Mapping user needs to features to user-stories to products
- Design as an iterative system – wireframes to prototypes
- In-class exercise: lo-fi wireframing

Week 6 – Prototypes

- *Assignment due: Ideation – hi-fi wireframes (figma)*
- Mapping user needs to features to user-stories to products
- Design as an iterative system – wireframes to prototypes
- In-class exercise: interactive prototyping in Figma and putting it all together

Week 7 – Presentations

- *Assignment due: Prototypes – final prototypes and presentations (figma)*
- Product presentations and prototype demonstrations

Final Deliverables

The final deliverables for this course will include both the prototype presentation (a link to the Figma file is acceptable) and a 5-10 page written product brief.

Product briefs should include a summary of the product goals and intended users, as well as detailed analysis of the user research and data analysis processes. We will review examples of product briefs throughout the semester to familiarize ourselves with these expectations.

Course Grading

Grading will be determined by class participation and the quality of assignments:

1. Class participation (10%)
2. Initial project proposal (10%)
3. updated project proposal (10%)
4. User interviews and findings (10%)
5. User flows and Affinity Map (20%)
6. Hi-fi Wireframes (20%)
7. Prototype and presentation (20%)

Student Accountability Statement

Students are expected to read and understand GSAPP's and Columbia University's Honor System and Plagiarism Policies and abide by all School and University rules surrounding plagiarism and academic conduct. There is a zero-tolerance policy on all forms of cheating and plagiarism.

<https://www.arch.columbia.edu/honor-system>

<https://www.arch.columbia.edu/plagiarism-policy>

Special Accommodations

Students requiring any special accommodations in accordance with the policies defined by the University should register in advance with the Office of Disability Services.

<https://www.health.columbia.edu/services/register-disability-services>

Necessary adjustments to course expectations and workflow will be made on an individual basis to accommodate students' needs in order to ensure that they can succeed in this course.