Developing a Data Science for Social Justice Curriculum

Sera Linardi, Associate Professor of Economics, GSPIA; Robert Gradeck, University Center for Social and Urban Research; Ron Idoko, Office for Equity, Diversity, and Inclusion; Brett Say, Pitt Honors College

University of PITTSBURGH

Abstract

This project focuses on the development of a curricular model that can be used, across disciplines, to teach students how to use public data for civic engagement. The interdisciplinary project team has developed and launched a pilot course at GSPIA, offered as PIA 2250. Course content focuses on topics ranging from socially and culturally responsible research and data practices to the development of a proposal that utilizes data science for civic engagement.

Project Team & Guest Speakers

Course Guest Speakers

University of Pittsburgh Project Team

- Sera Linardi, CAASI, Graduate School of Public and International Affairs (Primary Instructor)

- Eleanor Anderson, School of Education

- Robert Gradeck, WPRDC, University Center for Social and Urban Research

- Ron Idoko, Office for Equity, Diversity & Inclusion

- Mike Madison, School of Law

- Brett Say, University Honors College

- Graduate Assistant: Paulo Lima (Katz)

Course Guest Speakers

Lucy Gillespie, Manager, Allegheny County Stats

Alex Jackson, Founder, Pittsburgh's Data for Black Lives

Bocar Ba, Organizer, Citizen Police Data Project

Scott Wolovich, Executive Director, New Sun Rising

Rayid Ghani, Director, Center for Data Science and Public Policy, Carnegie Mellon University

University of Pittsburgh guest speakers:

Lina Dostillio, Vice Chancellor of Engagement and Community Affairs

Beth Schwanke, Executive Director, Pitt Cyber

Lara Putnam, Professor of Latin America History, Dept of History

Dominic Bordelon, Research Data Librarian, Digital Scholarship Services

The Class

Overview:

The pilot class, currently offered as PIA 2250 at the University of Pittsburgh, aims to identify the opportunities and challenges that can come from working with technology and civic data while also preparing students to understand and account for community dynamics, socially-responsible research and data practices, and implement projects that benefit both community partners and students. While the course focuses on using public data, the project team felt it was important for the course to be accessible to all disciplines. Therefore, the course does not have a strong quantitative component and no programming experience is expected.

Learning Outcomes

The project team developed the following learning outcomes for the pilot course. At the end of a 12-week session (one 170-minute class a week), students should be able to do the following:

- Identify examples of public technologies and civic data

- Understand who the producers and intended consumers of public technologies are

- Understand how to develop socially and culturally-responsible data practices.

- Learn how to effectively work with, and learn from, community research partners.

- Develop a project proposal that utilizes data science for civic engagement.

- Gain familiarity with the data lifecycle and design thinking concepts.

- Gain real world experience with the organizational politics behind data platforms and data sources.

Evaluation

Students are evaluated on class participation, weekly journal entries, and a final presentation. Journal entries are designed to help students reflect on weekly concepts and identify how they might be applied to real-world scenarios. For their final presentation, students present their own proposal to build a new or improve an existing public interest technology.

The Students

This course is open to students across disciplines and degree levels. The purpose of opening this to most any student at Pitt is to gain multiple perspectives and create interactions among students that allow them to learn how different disciplines approach issues of social justice and how each discipline might view the use of public interest technologies differently.

Student Fields/Majors

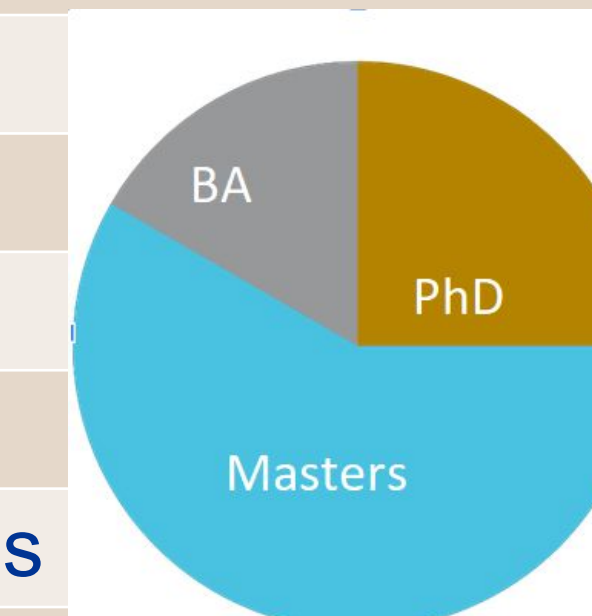| Student Fields/Majors |
| --- |
| Economics |
| Education |
| Psychology |
| Political Science |
| Geology & Environmental Science |
| Communications & Africana Studies |
| Urban Affairs & Planning |
| Public & International Affairs |

Sample activities

On week 3, students were assigned to draw data visualizations before and after reading the Do No Harm Guide. A student shared "I have always let Excel, R, or Python choose my colors/figures as I never thought anything of it. However, my eyes have been opened and I will use this to learn how to reduce harm from created figures."
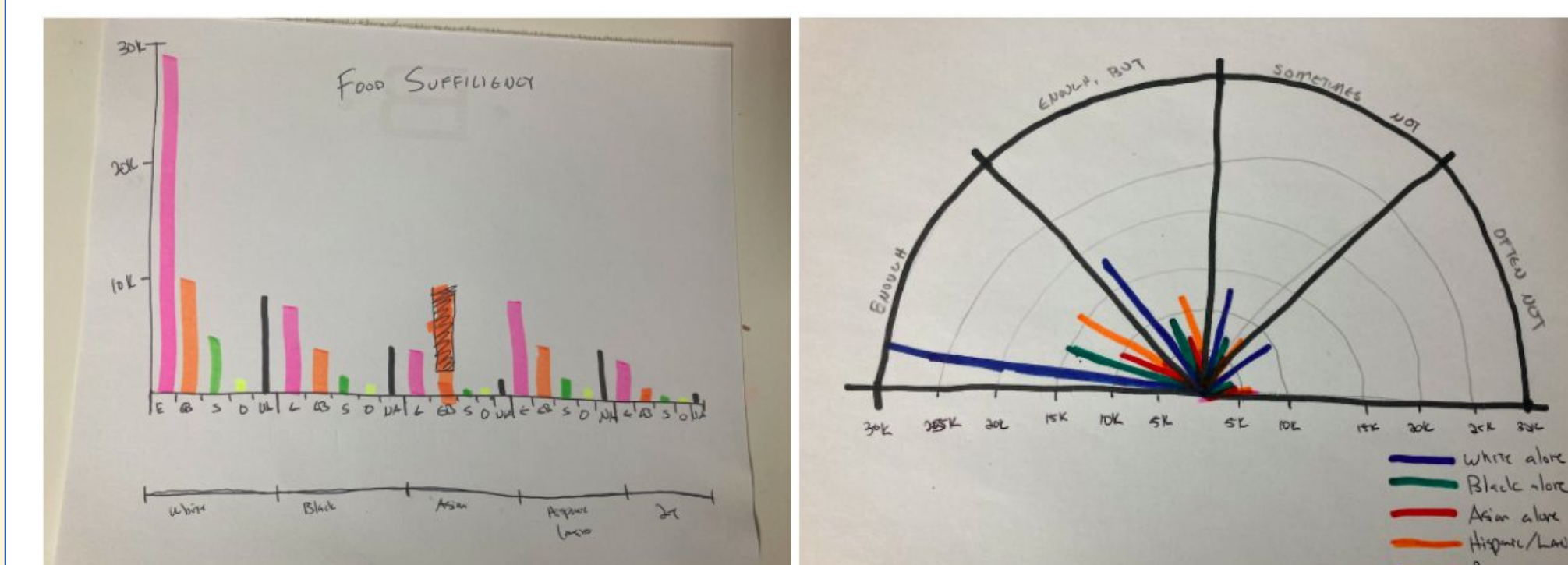
On week 6, students created a data science for social justice ecosystem map that includes all the organizations represented by the speakers and where the students see themselves.

Initial Findings

This course promotes a very collaborative environment between students and speakers, and it is also very dynamic with several hands-on activities. Students are able to share their feedback after each class. Some examples are below:

- "Today's class broadened my understanding of what civic data is and how it can be used (for better or worse)"

- "It's important to keep in mind that we want to do research with communities rather than on communities - community involvement is paramount for sustainability and success"

- "I learned a lot of new tools to help challenge myself when thinking critically about being anti-racist"

- "This was great! I like the informal in-class discussions that allow us to critically think with each other"

REFERENCES & FURTHER READING

Schwabish, J., & Feng, A. (2021). Do No Harm Guide: Applying Equity Awareness in Data Visualization. https://www.urban.org/research/publication/do-no-harm-guide-applying-equity-awareness-data-visualization

Civic Switchboard Guide to Civic Data Ecosystems (n.d.) Retrieved from https://civic-switchboard.gitbook.io/guide/

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