

# Innovations in Federal Data Science Training

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# Overview

- Upskilling through internal training: Commerce Data Academy
- Upskilling through cross-disciplinary special project teams: Fellows in Innovation
- Addressing challenges moving ahead: Data Cabinet & Data Talent Working Group



# Commerce Data Academy

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# About Commerce Data Academy

- A data education initiative launched by the Commerce Data Service to offer data science, data engineering, and web development training to employees of the US Department of Commerce
- We have taught 35 classes to over 1,500 students within the categories of web development, data science, and UX/UI design.
- CDA classes are taught by team members of the Commerce Data Service, as well as General Assembly and Data Society.
- Course schedule and materials (e.g. slides, code, papers) can be accessed on Github and at <https://dataacademy.commerce.gov/>
- Questions? Feel free to write us at Data Academy ([dataacademy@doc.gov](mailto:dataacademy@doc.gov))





# COMMERCE DATA ACADEMY

Educating and empowering Commerce employees.

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## WHAT WE OFFER

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Software  
Engineering



Data  
Science



UX/UI  
Design

Class Name	Date	Class Recording	Slides	Additional Materials
Intro to Agile Development	1/12/16	N/A	Presentation	
Introduction to HTML & CSS	1/14/16	N/A	Presentation	
Introduction to Storytelling with Data	1/19/16	Class Recording	Presentation	Data Set
Excel at Excel	1/28/16	N/A	Presentation	Answer Key
Data Science Basics	3/14/16	Class Recording	Presentation	
Git and GitHub	3/21/16	Class Recording	Presentation	
Intro to Python	4/6/16	Class Recording	Presentation	Answer Key
Intro to Design and Photoshop	4/19/16 and 10/13/16	Class Recording	Presentation	Class Materials
Intro to R	5/2/16	Class Recording	Presentation	
Intro to Data Analysis with R	5/17/16	Class Recording	Presentation	NBM Wireless CSV Sheet, Getting Into Data Science Resources, README.md File, Read-Me-CSV-June, Data Analysis ReadME File, Data Analysis HTML File, Injuries CSV File
Data Storytelling with R	6/1/16	Class Recording	N/A	Step-by-Step Tutorial
Data Wrangling with Pandas	6/13/16	Class Recording	Presentation	
Intro to Machine Learning	7/11/16	Class Recording	Presentation	iPython Notebook with Code for the Titanic Example, NIST Clustering Notebook, Commerce Data Usability Project

Intro to HTML and CSS	9/15/16	Class Recording	Presentation	Beginning HTML Code, Final HTML Code, Final CSS Stylesheet
Intro to JavaScript	9/29/16	Class Recording	Presentation	Code Base, Sample API Response, Solution Code
Using APIs (Intro to REST)	10/4/16	N/A	Presentation	Starter Code
How to Work with APIs	10/27/16	N/A	Presentation	
Excel with Excel	11/8/16	N/A	Presentation	Exercises
Intro to Data Analysis	11/16/16	Class Recording	Presentation	Data Set, Install R and R Studio, plyr, hexbin, corrplot
Deep Learning	1/10/17	Class Recording	Presentation	
Intro to Object Oriented Programming	1/24/17	N/A	Presentation	GitHub Repository with Class Materials
Intro to User Experience Design	2/7/17	Class Recording	Presentation	Exercise 1 and Exercise 2
Intermediate JavaScript and Intro to jQuery	2/21/17	Class Recording	Presentation	GitHub Repository with Class Materials
Cybersecurity for Managers	3/7/17	Class Recording	Presentation	
Introduction to Qualitative Data Collection	3/21/17	Class Recording	Presentation	

# Fellows in Innovation

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A coalition of fellows across the executive branch of the federal government.

## Welcome

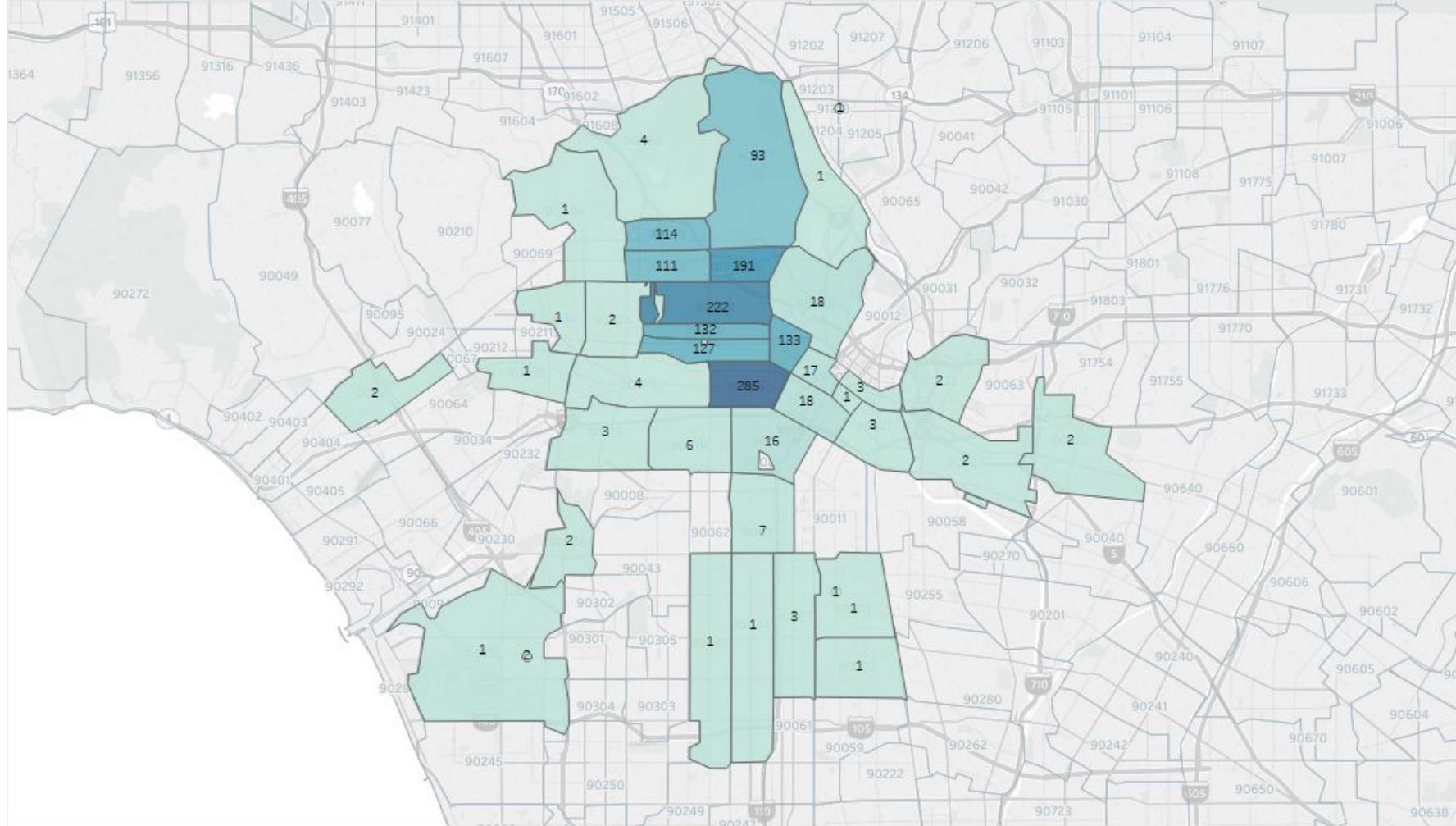
One of the Federal government's greatest assets is the talented cadre of individuals who join its ranks each year as part of a variety of Federal fellowship programs. Participants in these programs bring enthusiasm, new ideas, and fresh perspectives to Federal departments and agencies every day.

These fellows are collectively known as the **Fellows in Innovation**.

- Greening America's Cities .....
- Enhancing Climate Education and Literacy .....
- Partnership for Resilience and Preparedness .....
- Climate Resilience Dialogues .....
- Getting Solar Panels on All Federal Buildings .....
- Crowdhunting for Energy Efficiency .....
- I-Corps and Commercialization of Federally Funded R&D .....
- Buying What Works .....
- Crowdfunding for Clean Energy R&D .....
- Data-Driven Workforce Development: Using Workforce Science to Inform the National Workforce Agenda .....

# About FIN

- 400 Fellows on the mailing listserv from 27 Fellowship programs representing 30 Agencies and/or Operating Divisions
- One example: Promise Zones Data Innovation Team
  - A group of data “x-men” from 4 federal agencies
  - Machine learning, participatory digital mapping, social media content analysis, and more
  - Built, shared, and applied skills through working closely with local leaders in Camden, LA, Indianapolis



Map based on Longitude (generated) and Latitude (generated). Color shows count of Number of Records. The marks are labeled by sum of Number of Records. Details are shown for Zip Code.

# Data Cabinet & Data Talent Working Group

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# The Federal Data Cabinet

- Federal community of practice for data professionals
- Shares best practices, celebrates successes and identifies pain points in all aspects of data from creation throughout its life cycle
- Organized into working groups
  - Talent
  - Policy & Governance
  - Analytics
- Data Talent Working Group
  - Past work products include CSO survey, Data Science Microsite on USAJobs
  - Next up: Decision guide to support hiring managers and team leads, new pathways for training and upskilling through fellowships and special projects

# Challenges

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# Challenges

- Funding
- Hiring authorities
- Decision points around data science talent
  - X-men vs. unicorn, hiring vs. upskilling
  - Consistent interest in how private sector is addressing the same problems

# Thank you!

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