Data Science Community Research Replication Roadmap:

Implementation Guide

The Long Beach - Compton
Data Science Learning Community

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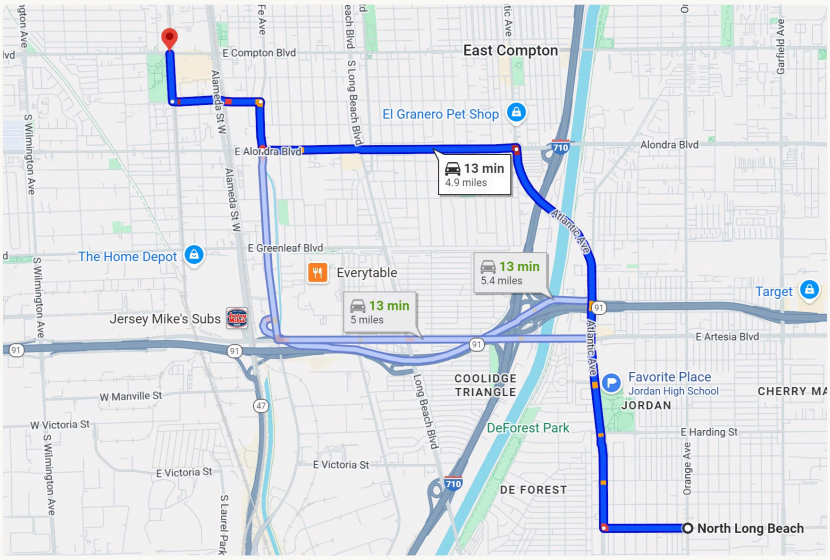


The Long Beach – Compton

Data Science Learning Community

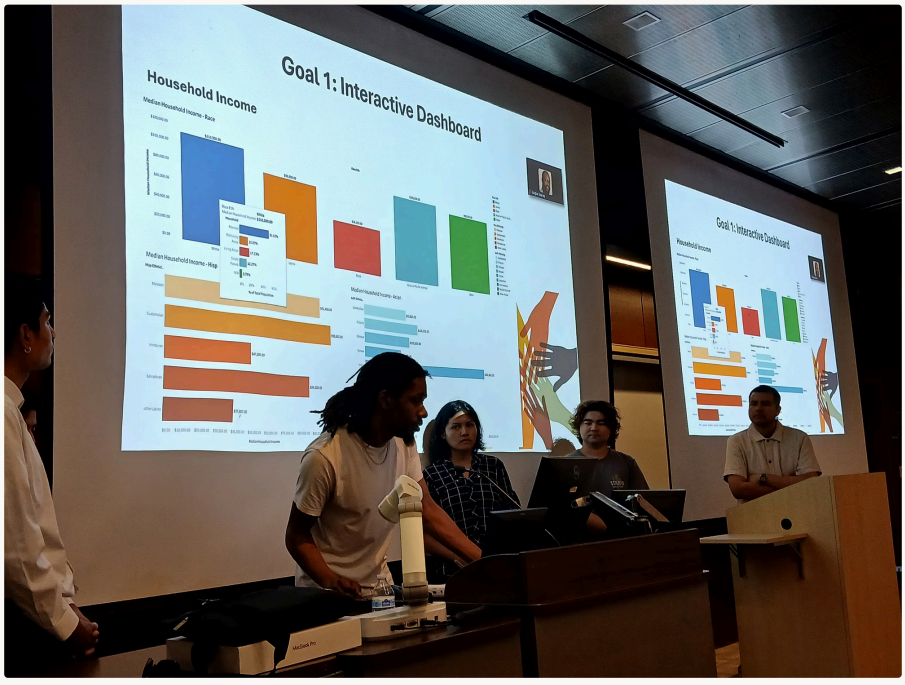
Replication Roadmap: Implementation Guide

About This Guide

The Long Beach–Compton Data Science Learning Community (LB-C DSLC) provides an intersegmental model that empowers students and faculty from multiple institutions and disciplines to collaborate with community partners through data-driven research and storytelling. This implementation guide is designed to help other institutions replicate the LB-C DSLC model in their own local contexts—strengthening data literacy, community engagement, and equity-focused innovation nationwide.

About the Project

The Long Beach–Compton Data Science Learning Community is an inter-institutional data science learning community in the Long Beach and Compton communities in southern California. These storied communities are majority minority and have cemented an iconic legacy in hip hop culture, storytelling and self determination. This project seeks to empower racially minoritized students and communities through exposure and engagement in rich data science experiences at both secondary and post-secondary levels. This includes intersegmental research experiences, outreach events, and equipping teachers through professional development opportunities and curriculum creation.



Phase 1 – Foundation

Timeframe: 12+ months before launch, based on funding opportunities

I. Identify Core Team

Actions:

1. Identify Principal Investigators (PIs) and set up regular planning meetings.
2. Assign key leadership roles:
    - **Administrative Responsibilities:** Budgeting, fund allocation, campus reservations, logistics.
    - **Content Responsibilities:** Coordinate faculty mentors, design DataCamp engagement, and initiate community partnerships.
3. Secure funding (internal grants, Equity Innovation Hub, NSF, etc.).

Deliverables:

- Core team roster
- Planning meeting schedule
- Role assignment chart

II. Form Community Partnerships

Actions:

1. Engage local nonprofits, city agencies, and school districts that value the role of data in their missions.
2. Establish mutual goals through MOUs or letters of support.
3. Work with relevant campus office to explore possibility of course credit for student participants.

Deliverables:

- Partnership directory
- Signed MOUs or letters of intent

Phase 1 – Foundation ctd.

III. Resource Planning

Actions (upon confirmation and receipt of funds):

1. Hire student assistants to support coordination and provide student perspectives.
2. Secure administrative and IT support.
3. Acquire technology (tablets, laptops, VR/AI).
4. Obtain complimentary DataCamp access through the "for Education" or "Donates" programs.
5. Determine local campus rules for student scholarships, stipends and course credit. May differ based on host (funded) institution.

Deliverables:

1. Funding confirmation
2. Tech inventory list
3. Table of allowable student benefits

Technology

Tablets, Laptops, and AR devices for immersive data storytelling and visualization

DataCamp Access

Complimentary access through education or donation programs for skill development

Student Support

Scholarships, stipends, and course credit based on institutional guidelines

IV. Core Team Professional Development

Actions:

1. Attend technology integration sessions (e.g. Apple Professional Learning): Challenge-Based Learning, Elements of Storytelling, Augmented Reality.
2. Complete the Introduction to Data Science DataCamp module to establish a shared technical foundation.

Deliverables:

- Certificates of completion
- Shared documentation of learning outcomes

Phase 2 – Program Design

Timeframe: 6-9 months before launch or upon confirmation of funding

I. Recruitment

Actions:

1. Recruit faculty leads from multiple disciplines aligned with community data needs.
2. Match faculty with community partners.
3. Develop and deploy a student recruitment survey.
    - Target high school, community college, and university students—especially underrepresented groups.
    - Use social media, institutional channels, and community events (e.g., Data Day at the Beach). Avoid limiting outreach to STEM-only audiences.
4. Identify space on one of the partner campuses for summer intensive (could be non-residential or residential, based on budget), including end of summer showcase.

Deliverables:

- Recruitment materials and survey
- Confirmed faculty-partner pairings

II. Mentorship Network

Actions:

1. Pair students with faculty mentors according to interests and partner projects.
2. Establish a peer-mentoring model using graduate student "project leads" to support teams and build continuity.

Deliverables:

- Mentorship map and contact sheet
- Graduate mentor training materials

Phase 2 – Program Design ctd.

III. Curriculum Alignment

Actions:

1. Identify relevant statistical, data science, and machine learning methods.
2. Align with appropriate DataCamp courses.
3. Select tech tools (slide deck, audiovisual, VR tools, AI/productivity) for data storytelling and visualization.
4. Discuss faculty mentor policy on use of AI for data science research.

Deliverables:

- Curriculum alignment matrix
- Recommended course and tool list
- AI use ethics policy for student participants to adhere to

Statistical Methods

Identify relevant statistical, data science, and machine learning approaches aligned with community partner needs

DataCamp Courses

Align curriculum with appropriate online learning modules for skill development

Tech Tools

Presentation software, multimedia software, VR and AI tools for compelling data storytelling

AI Ethics Policy

Establish clear guidelines for responsible use of AI in research projects

Phase 3 – Implementation

Focus: Summer Program + Year-Round Activities

Program Overview

Three Phases of Engagement:

01	02	03
Pre-Month	**2-Week Intensive**	**Post-Month**
DataCamp upskilling (virtual, self-paced)	Hands-on research and technology immersion	Research advancement and project completion

Actions:

1. Faculty collaborate with partners to identify "low-floor, high-ceiling" community data projects.
2. Online or in-person meeting to officially launch interdisciplinary Data Science Project Teams (DSPTs) to co-create solutions.
3. Integrate technology for data storytelling:
    - Tablets, audiovisual software, and presentation software for field documentation.
    - VR glasses for immersive data mapping (if AR is being utilized).
    - AI tools for summarization and narrative creation.
4. Record video interviews and project development for use in training and dissemination.

Deliverables:

- DSPT project briefs
- Video library of program activities
- Reflection journals and progress reports

Phase 4 – Dissemination and Storytelling

Actions:

1. Showcase outcomes through research posters, short films, AR lessons, and social media storytelling.
2. Host a Research Showcase (or local equivalent) featuring student projects, community partners, and stakeholders.
3. Upload and share assets via the Virtual Immersive Platform for national access.
4. Determine relevant disciplinary venues for student- and/or faculty- poster or oral presentations for each team.

Showcase Formats

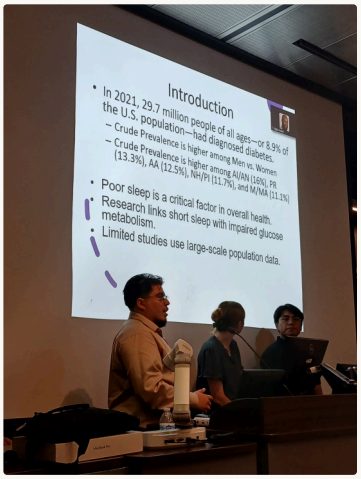
- Research posters
- Short films
- AR lessons
- Social media storytelling
- Oral presentations

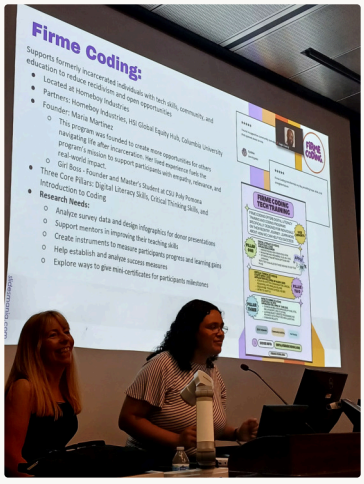
Distribution Channels

- Research Showcase events
- Virtual Immersive Platform
- Disciplinary conferences
- Community partner venues
- Digital asset libraries

Deliverables:

- Event recordings and promotional materials
- Published digital assets (videos, posters, AR demos)





Phase 5 – Evaluation and Scaling

Actions:

1. Administer pre- and post-program surveys assessing data literacy, sense of belonging, and community impact.
2. Collect qualitative feedback from faculty, students, and partners.
3. Document lessons learned and refinements for future cohorts.
4. Provide mentorship and consulting to other campuses adopting the model.
5. Core team should determine a venue to report on the discoveries, challenges and successes of the project in an academic setting.

Assess Impact

Pre- and post-program surveys measuring data literacy, belonging, and community outcomes

Gather Feedback

Qualitative insights from all stakeholders to inform improvements

Document Learning

Capture lessons learned and refinements for future cohorts

Scale the Model

Mentor other institutions and share findings in academic venues

Deliverables:

- Evaluation report
- Toolkit for replication
- Recorded workshops for peer institutions

Final Notes

> This roadmap is meant to serve as both a practical guide and a philosophical model—illustrating how intersegmental collaboration, technological integration, and data storytelling can build equitable pathways in data science education.

Each implementation should adapt to its local community context while maintaining the LB-C DSLC model's core commitments: **inclusivity**, **collaboration**, and **community impact**.

Inclusivity

Empowering racially minoritized students and communities through equitable access to data science education

Collaboration

Building intersegmental partnerships across institutions, disciplines, and community organizations

Community Impact

Creating data-driven solutions that address real needs and strengthen local communities

2025 Selected Project Artifacts

Research Poster

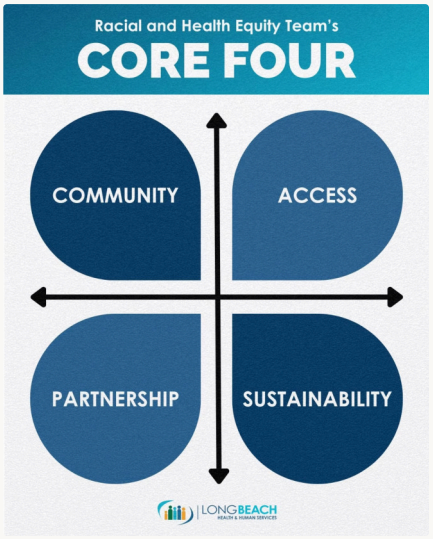
Research Poster

Research Poster

Research Poster

Slide Deck 1

Slide Deck 2



Research Poster

Project Dissemination and Resources

MathFest 2025 Presentation

Example of dissemination of this work to a regional meeting of the Mathematical Association of America.

Click here

Google Drive

LB–C DSLC – Google Drive

Link to a variety of resources to inspire your project

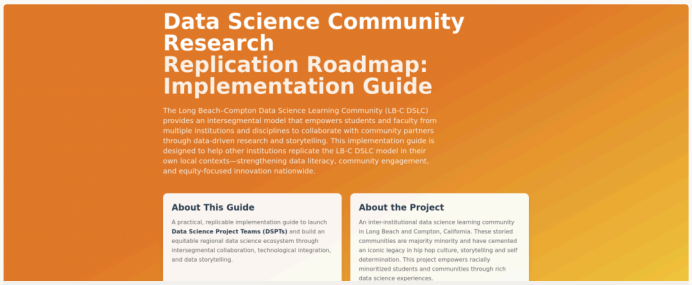
Project Resources

Samples from the 2025 LB-C DSLC Research Teams.

- Syllabus
- Recruitment and Reflection Surveys
- Position Descriptions
- **So much more**

Replication Roadmap Website

A browser based version of this document. Access sample project posters, media and other relevant information, just one click away.

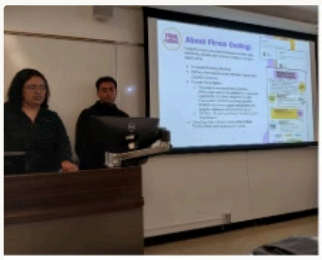


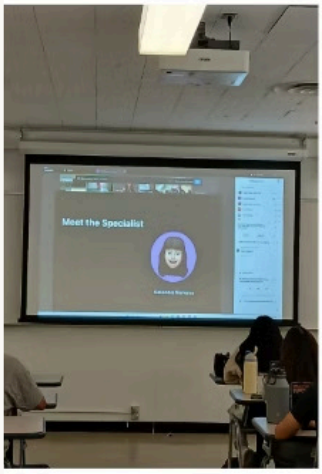
Lovable

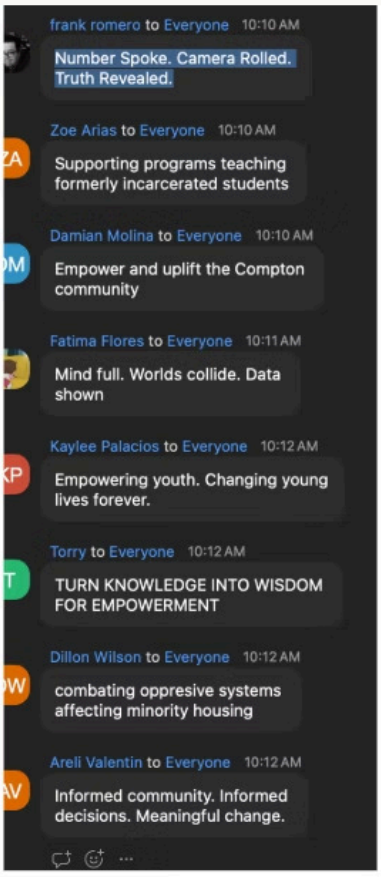
LB–Compton DSLC • Replication Roadmap

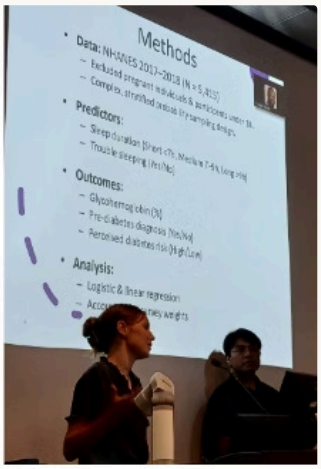
Implementation guide to launch Data Science Project Teams and build an equitable regional data science...

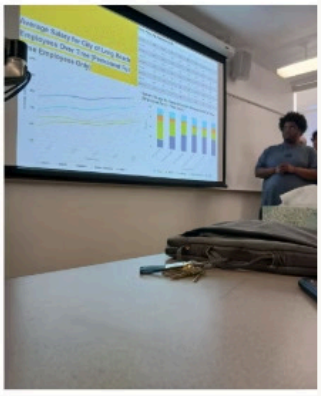
Making a Difference with Data

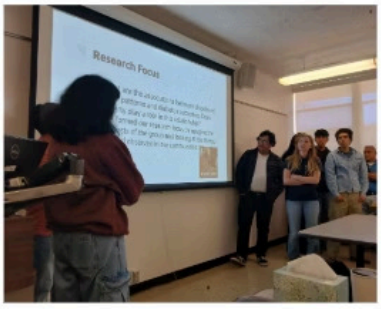


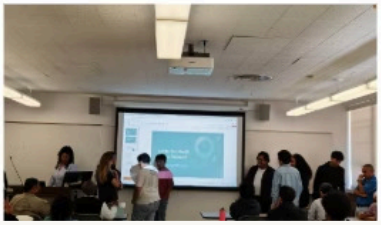


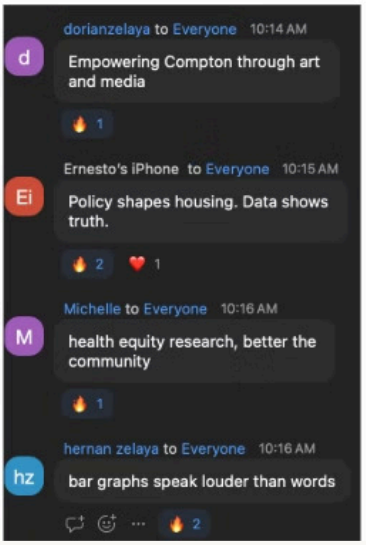


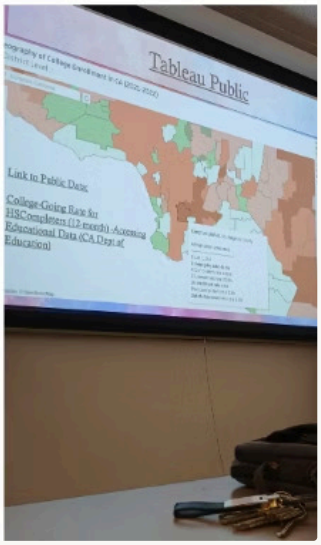












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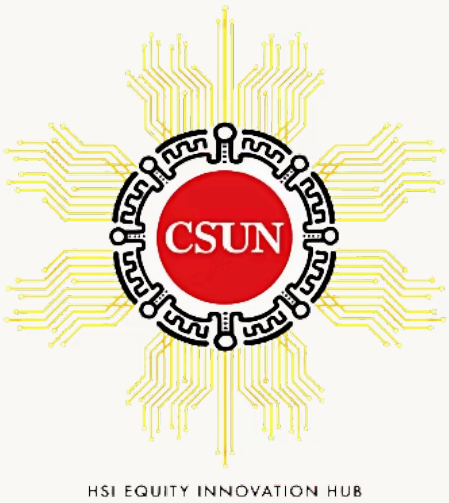
About the funder:



Building A Community of Practice

The **Global HSI Equity Innovation Hub** serves to catalyze HSI programming throughout the CSU system, statewide and nationally. Our networks link Latinx students to essential resources in STEAM by using the potency of Hispanic-serving institutions across the United States to equip future innovators for careers in high-demand industries.