Advanced Computing for Social Change Curriculum Development Workshop

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XSEDE
Extreme Science and Engineering Discovery Environment

Supported by OAC 15-48562.

Code of Conduct

XSEDE has an external code of conduct which represents our commitment to providing an inclusive and harassment-free environment in all interactions regardless of race, age, ethnicity, national origin, language, gender, gender identity, sexual orientation, disability, physical appearance, political views, military service, health status, or religion. The code of conduct extends to all XSEDE-sponsored events, services, and interactions.

Code of Conduct: https://www.xsede.org/codeofconduct

Contacts:

- Event organizer: Kate Cahill, OSC, kcahill@osc.edu
- XSEDE ombudspersons:
  - Linda Akli, Southeastern Universities Research Association (akli@sura.org)
  - Lizanne Destefano, Georgia Tech (lizanne.destefano@ceismc.gatech.edu)
  - Ken Hackworth, Pittsburgh Supercomputing Center (hackworth@psc.edu)
  - Bryan Snead, Texas Advanced Computing Center (jbsnead@tacc.utexas.edu)
- Anonymous reporting form available at https://www.xsede.org/codeofconduct

Words Matter!

In line with XSEDE's Code of Conduct, XSEDE is committed to providing training events that foster inclusion and show respect for all. This commitment applies not only to how we interact during the event; it also applies to the training materials and presentation. It is not XSEDE's position to use, condone, or promote offensive terminology.

XSEDE instructors strive to keep inclusive language at the forefront. If we have included inappropriate materials, verbal or written, please let us know at terminology@xsede.org.

While XSEDE has no control over external third-party documentation, we are taking steps to effect change by contacting the relevant organizations; we hope this will be addressed by all third parties soon.

If you see any terminology concerns in the following presentation or slides, we want to know!
Please contact the Terminology Task Force: terminology@xsede.org

ACSC/C4C History

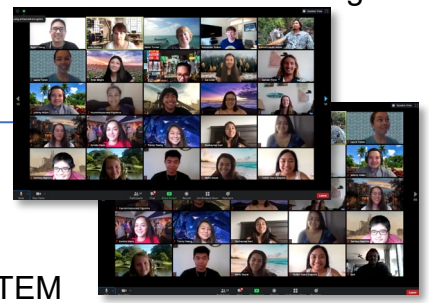
Data Science as an Enabler

SPICE 2019
Summer Immersion Program

Research4Change 2019
REU SITE

Research4Change 2020
REU SITE

SPICE 2020
Summer Immersion Program



NSF REU Site

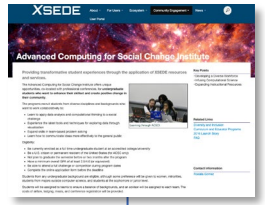
NSF CyberTraining

NSF Includes (SPICE)

PEARC19
Maternal and Infant Health

NASA Direct-STEM
Cal State Los Angeles

ACSC20

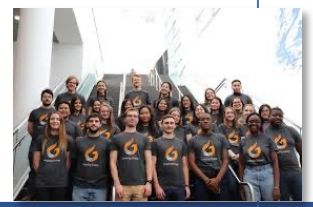


SC16
Black Lives Matter

SC17
Immigration

SC18
Violence

SC19
Maternal and Infant Health



2016 2017 2018 2019 2020

Funding for Chaminade's Data Science Program

Chaminade's First Data Science Students

Advanced Computing for Social Change • Computing4Change (C4C)

Founded in 2016 and co-located with SC

Engages undergraduates from diverse backgrounds and disciplines

Participants learn to apply data analysis and computational thinking to a social challenge

Students work in groups and:

- Construct a non-biased question for exploration
- Use computational resources to create visualization to confirm or debunk hypothesis
- Present results in teams using evidence- based analysis and visualization

Social Challenges

- Black Lives Matter (2016)
- Immigration (2017)
- Violence (2018)
- Maternal & infant morbidity and mortality in the U.S. (2019)
- COVID-19, violence, health, environment (2020)

How does the language that you speak impact your birthing experience, specifically with birth hysterectomies?

Alejandra Garcia Orosco, Biology and Microbiology, Cal State LA

IMPACT: 2016-2020 C4C Student Tracking

Participant Gender Distribution (N=126)	Count	Percent
Female	80	63%
Male	43	34%
Not Listed	3	2%

Participant Racial/Ethnic Distribution (N=118)	Count	Percent
Asian	20	17%
African American/Black	25	21%
Hispanic/Latinx	36	31%
Native Hawaiian Pacific Islander	13	11%
White	18	15%
Not Listed	6	5%

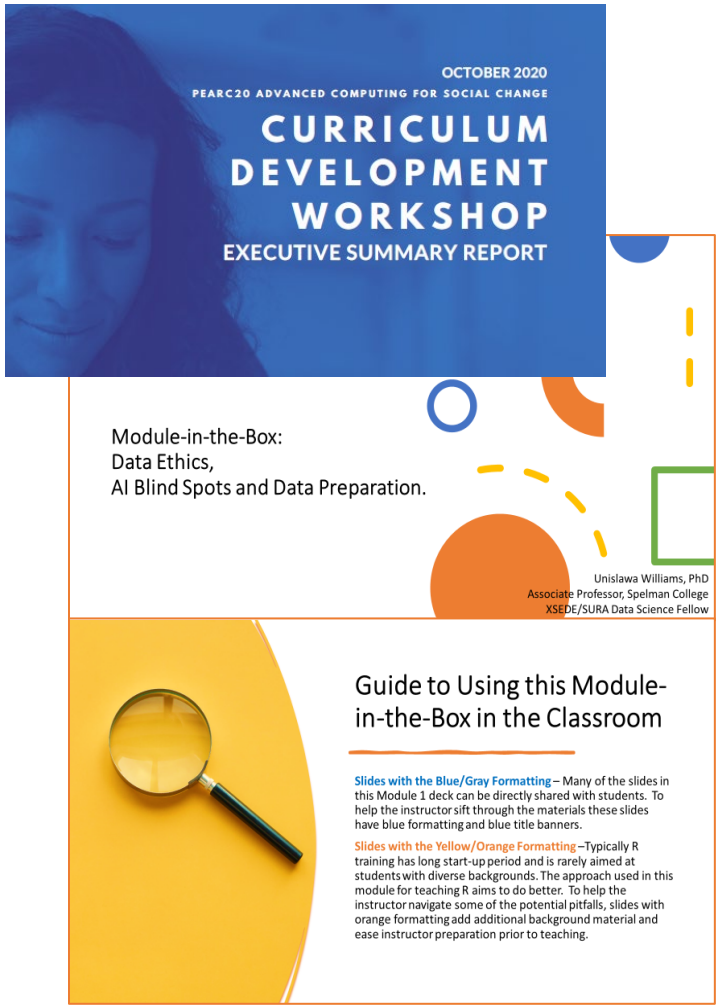
Evaluation data show effective engagement of students from non-STEM disciplines

Majority participants recruited from MSIs and institutions with limited research opportunities

Increase in # of underrepresented XSEDE student users

Participants demonstrate increased participation in XSEDE sponsored research opportunities

ACSC Curriculum Development (2020 – 2021)



ACSC Faculty Curriculum Development Workshop, July 2020

- 34 applicants; 20 accepted; 18 participated from 10 institutions including Albany State University, AUCC, Livingstone College, UMES, and UC Santa Barbara
- Disciplines – Biology, Computer Science, Economics, Philosophy, Political Science and World Languages,
- Evaluated via focus group, observation, and survey
- Overall, participants valued their experience, enjoyed the opportunity to network with like-minded faculty, and appreciated being exposed to new tools.

Advanced Computing for Social Change (ACSC) Modules-in-a-Box Curriculum Materials

- Data Ethics, AI Blind Spots, and Data Preparation using maternal and infant mortality and morbidity problems and datasets – implemented at UPRM
- Data Ethics, Privacy, Modeling/Analysis using immigration problems and datasets
- Data Ethics and Scientific Visualization using COVID-19 and health disparities problems and datasets

Workshop Staff

Linda Akli (SURA)

Kate Cahill (OSC)

Unislawa Williams (Spellman College)

John Holly (SURA)

Jay Alameda (NCSA)

Wilbur Ouma (OSC)

Workshop Agenda

Agenda

All times Eastern Daylight Time (EDT)

Wednesday, August 4, 2021

11:00am – Noon	ACSC Introduction & XSEDE Classroom Resources
Noon – 1:00pm	ACSC Curriculum Modules – Unislawa Williams - Review Module-in-a-box materials, exercises, outcomes, tools
1:00pm – 1:30pm	*Lunch Break*
1:30pm – 3:00pm	ACSC Curriculum Modules cont'd
3:00pm – 3:30pm	*Break*
3:30pm – 4:30pm	Hands-on Module exercises
4:30pm – 5:00pm	Wrap Up & Discussion Questions

Thursday, August 5, 2021

11:00am – 1:00pm	Teri Platt, *Clark Atlanta University*; Matthew Platt, *Morehouse College* and curriculum discussion
1:00pm – 1:30pm	*Lunch Break*
1:30pm – 3:00pm	Introduction to Using R – Kate Cahill
1:30pm – 3:00pm	Using R for data exploration – Unislawa Williams
3:00pm – 3:30pm	*Break*
3:30pm – 4:30pm	Rylan Chong, *Chaminade University of Honolulu* – Culturally relevant Data Science Program Development & Outcomes
4:30pm – 5:00pm	Wrap up