June 17, 2021

Advanced Computing for Social Change Curriculum Development Workshop

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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](https://www.xsede.org/codeofconduct)

**Contacts:**

- Event organizer: Kate Cahill, OSC, [kcahill@osc.edu](mailto:kcahill@osc.edu)
- XSEDE ombudspersons:
  - Linda Akli, Southeastern Universities Research Association ([akli@sura.org](mailto:akli@sura.org))
  - Lizanne Destefano, Georgia Tech ([lizanne.destefano@ceismc.gatech.edu](mailto:lizanne.destefano@ceismc.gatech.edu))
  - Ken Hackworth, Pittsburgh Supercomputing Center ([hackworth@psc.edu](mailto:hackworth@psc.edu))
  - Bryan Snead, Texas Advanced Computing Center ([jbsnead@tacc.utexas.edu](mailto:jbsnead@tacc.utexas.edu))
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. In the event that 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
Data Science as an Enabler

2016
Funding for Chaminade’s Data Science Program

2017
SC16: Black Lives Matter
SC17: Immigration
NSF Includes (SPICE)
NSF CyberTraining

2018
SC18: Violence
PEARC19: Maternal and Infant Health
Research4Change 2019 REU SITE

2019
SC19: Maternal and Infant Health
Research4Change 2020 REU SITE
NSF REU Site

2020
SC20: Data Science as an Enabler
ACSC/C4C History

NASA Direct-STEM Cal State Los Angeles
SPICE 2020 Summer Immersion Program
SPICE 2019 Summer Immersion Program
ACSC/C4C History
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

https://www.sighpc.org/for-our-community/computing4change
Social Challenges

- Black Lives Matter (2016)
- Immigration (2017)
- Violence (2018)
- COVID-19, violence, health, environment (2020)
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

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<th>Participant Gender Distribution (N=126)</th>
<th>Count</th>
<th>Percent</th>
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<td>31%</td>
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<tr>
<td>Native Hawaiian Pacific Islander</td>
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<tr>
<td>Other</td>
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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

Unislawwa Williams  
Spelman College

Wilbur Ouma  
OSC

Peter Vaillancourt  
OSC

John Holly  
SURA
Advanced Computing for Social Change (ACSC)
Curriculum Development Workshop
June 17 & 18, 2021

Workshop Agenda

All times Eastern Daylight Time (EDT)

Thursday, June 17, 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  Rylan Chong – Culturally relevant Data Science Program Development & Outcomes
4:30pm – 5:00pm  Wrap Up & Discussion Questions

Friday, June 18, 2021
11:00am – 1:00pm  Introduction to Using R – Kate Cahill
11:00am – 1:00pm  Using R for data exploration – Unislawa Williams
1:00pm – 1:30pm  Lunch Break
1:30pm – 3:00pm  Introduction to Computational Thinking and Data Science – Kate Cahill – Systems & Agent modeling classroom resources for teaching computational thinking
3:00pm – 3:30pm  Break
3:30pm – 4:30pm  Invited presentations and curriculum discussion
4:30pm – 5:00pm  Wrap up