Advanced Computing for Social Change Curriculum Development Workshop

Linda Akli
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XSEDE Deputy Area Director for Community Engagement and Enrichment
akli@sura.org

August 4, 2021
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
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
Data Science as an Enabler

2016
Funding for Chaminade’s Data Science Program

2017
NSF Includes (SPICE)
SC16 Black Lives Matter

2018
NSF REU Site
SPICE 2019 Summer Immersion Program

2019
Research4Change 2019 REU SITE
SC17 Immigration

2020
Research4Change 2020 REU SITE
SPICE 2020 Summer Immersion Program

ACSC/C4C History

NSF CyberTraining
PEARC19 Maternal and Infant Health

SC18 Violence

SC19 Maternal and Infant Health

ACSC20

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

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

- Black Lives Matter (2016)
- Immigration (2017)
- Violence (2018)
- 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)**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>80</td>
<td>63%</td>
</tr>
<tr>
<td>Male</td>
<td>43</td>
<td>34%</td>
</tr>
<tr>
<td>Not Listed</td>
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<td>2%</td>
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**Participant Racial/Ethnic Distribution (N=118)**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Count</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>Asian</td>
<td>20</td>
<td>17%</td>
</tr>
<tr>
<td>African American/Black</td>
<td>25</td>
<td>21%</td>
</tr>
<tr>
<td>Hispanic/Latinx</td>
<td>36</td>
<td>31%</td>
</tr>
<tr>
<td>Native Hawaiian Pacific Islander</td>
<td>13</td>
<td>11%</td>
</tr>
<tr>
<td>White</td>
<td>18</td>
<td>15%</td>
</tr>
<tr>
<td>Not Listed</td>
<td>6</td>
<td>5%</td>
</tr>
</tbody>
</table>

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)

• 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.

ACSC Faculty Curriculum Development Workshop, July 2020

• 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

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

Guide to Using this Module-in-the-Box in the Classroom

Module-in-the-Box: Data Ethics, AI Blind Spots and Data Preparation.

Precedes Advanced Computing for Social Change (ACSC) Curriculum Development Workshop, October 2020

Executive Summary Report

Module-in-the-Box: Data Ethics, AI Blind Spots and Data Preparation.

Los Angeles Veterans, PhD

Assistant Professor, Temple College

Data Science Faculty

Guide to Using this Module-in-the-Box in the Classroom

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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

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00am – Noon</td>
<td>ACSC Introduction &amp; XSEDE Classroom Resources</td>
</tr>
<tr>
<td>Noon – 1:00pm</td>
<td>ACSC Curriculum Modules – Unisawa Williams - Review Module-in-a-box materials, exercises, outcomes, tools</td>
</tr>
<tr>
<td>1:00pm – 1:30pm</td>
<td>Lunch Break</td>
</tr>
<tr>
<td>1:30pm – 3:00pm</td>
<td>ACSC Curriculum Modules cont’d</td>
</tr>
<tr>
<td>3:00pm – 3:30pm</td>
<td>Break</td>
</tr>
<tr>
<td>3:30pm – 4:30pm</td>
<td>Hands-on Module exercises</td>
</tr>
<tr>
<td>4:30pm – 5:00pm</td>
<td>Wrap Up &amp; Discussion Questions</td>
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### Thursday, August 5, 2021

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>11:00am – 1:00pm</td>
<td>Teri Platt, <em>Clark Atlanta University</em>; Matthew Platt, <em>Morehouse College</em> and curriculum discussion</td>
</tr>
<tr>
<td>1:00pm – 1:30pm</td>
<td>Lunch Break</td>
</tr>
<tr>
<td>1:30pm – 3:00pm</td>
<td>Introduction to Using R – Kate Cahill</td>
</tr>
<tr>
<td>1:30pm – 3:00pm</td>
<td>Using R for data exploration – Unisawa Williams</td>
</tr>
<tr>
<td>3:00pm – 3:30pm</td>
<td>Break</td>
</tr>
<tr>
<td>3:30pm – 4:30pm</td>
<td>Rylan Chong, <em>Chaminade University of Honolulu</em> – Culturally relevant Data Science Program Development &amp; Outcomes</td>
</tr>
<tr>
<td>4:30pm – 5:00pm</td>
<td>Wrap up</td>
</tr>
</tbody>
</table>