

Cover Sheet

Person Nominating:

Christopher J. Seeger, Iowa State University

Award Category:

NACDEP Innovation and Creativity

Team or Individual:

Team

Geographic Region:

North Central

State(s):

Iowa

Title of Program/Initiative:

Harnessing Data Science for the Public Good during COVID-19

Person(s) Being Nominated (name, institution, NACDEP membership using the format below)

Name	Institution	NACDEP Member (yes/no)
Christopher J. Seeger	Iowa State University	Yes
Gary Taylor	Iowa State University	Yes
Cassandra Dorius	Iowa State University	Yes
Shawn Dorius	Iowa State University	Yes
Kelsey Van Selous	Iowa State University	No
Heike Hofmann	Iowa State University	No
Todd Abraham	Iowa State University	No
Adisak Sukul	Iowa State University	No
James Reecy	Iowa State University	No

50 Word Abstract (for use in the awards script)

Addressing “wicked” community problems requires complex approaches beyond what any scientific discipline can tackle by itself. Our diverse team of Data Science for the Public Good scholars addresses grand challenges to better meet ISU’s Mission to “Create, share and apply knowledge to make Iowa and the world a better place.”

From cities, counties and schools to health facilities, farms, parks, and transportation, community data are everywhere, providing an unprecedented opportunity for local leaders to identify and solve problems. However, not all communities – particularly those that are small and rural – have the expertise or resources necessary to access and utilize their own data to inform public policy, increase economic prosperity and improve the quality of life of their residents. Building upon the *Community Learning through Data-Driven Discovery* (CLD3) framework, our interdisciplinary team of extension professionals, faculty, and research staff has identified new approaches to working with local and state government to infuse data insights into decision-making to promote resiliency, support health and wellbeing, and strengthen economic mobility. At the national level, we partner with Dr. Sallie Keller (PI and CLD3 innovator) and her team at the University of Virginia as part of a three-state Coordinated Innovation Network. Locally, we partner with state, county, and local governments to identify pressing needs, uncover and process underutilized data, and share insights that can be used to develop strategies that support resilience among Iowa's 99 counties. Critical to our efforts is our goal to provide training to students and other professionals around data science, public outreach, and public good efforts. **This nomination recognizes the creativity and innovations that the Iowa State University team implemented to successfully create the inaugural Data Science for the Public Good (DSPG) summer program during the COVID-19 pandemic.**

Need or opportunity for a new solution: The ISU team was in the process of finalizing plans for their intensive in-person summer program when the COVID-19 pandemic shut down university in-class instruction. Rather than postpone the DSPG program, the team refocused the curriculum and outreach efforts to identify novel ways of delivering an engaging data science program for both students and stakeholders that helps solve problems for Iowans while simultaneously providing meaningful training for students. The first significant shift was to move from individual community projects to state-wide programs. The Iowa Department of Public Health (IDPH) agreed to be the partner for three projects, all of which were growing concerns during COVID-19.

The second issue to overcome was communication. The original intent was to meet face-to-face in a lab/office environment 8am-5pm, Monday-Friday for 10-weeks. Faculty would take turns working with students and leading lectures, students would have field trips to visit stakeholders and discuss data needs. There would also be social and team building events. The team redesigned its core communication approach to include virtual team meetings and interactions.

Goals and objectives demonstrated innovation or creativity: The inability to meet face-to-face was remedied by incorporating a variety of virtual technologies, including Zoom, Mentimeter, Data Camp, and Netflix hosting services. While these platforms may be common today, they were still quite new in May 2020, particularly for a program that met for 40 hours a week! The Iowa team created a structure that while intense, greatly reduced the mundane feeling of 'Zooming' all day. For example, each day started with a social coffee time to chat, laugh and check on the wellbeing of each other. This was typically followed by small team meetings, a lecture, some open work time, special lecture or activity with synchronous work time, break out rooms for discussion, and asynchronous video tutorials. At the end of the day, a wrap up meeting was held. In essence, the day was structured much like one would see at a summer camp where participants are moving between activities and engaging with other students and faculty throughout the day. The ISU faculty teamed up with national DSPG colleagues to deliver curriculum virtually. As a result, the

students had even more opportunities to engage with diverse faculty than they otherwise would have! The team also hosted lunch-time presentations with special guests and students organized social activities outside of work, such as live-streaming movies together on Netflix. The issue of client engagement was also facilitated through online innovation. One of the challenges was how to best implement the CLD3 Data Discovery process, which is a cornerstone of the DSPG program and usually run as in-person workshop. The solution implemented was to adopt the software Mentimeter to facilitate live audience interaction during virtual meetings.

Handouts and slide presentations for traditionally in-person workshops with communities were converted to online formats, creating a new process for interaction that proved to be very successful among our teams and stakeholders. Mentimeter allowed for participants to share their ideas about data, respond to questions “live” about project priorities and see how these inputs collectively helped define the project. This innovation led to additional opportunities to further engage students during the summer, and equally importantly, it provided significant time and cost efficiencies due to reduced travel, supported transparent and reproducible data collection, and enhanced flexibility to have multiple sessions with smaller groups. Mentimeter training was also provided to affiliates.

Evaluation: The various components of the DSPG program were evaluated throughout the summer and during the fall. A baseline and post-survey with students, CES professionals, and stakeholders found that the program improved motivation to work with data, and increased self-perceived skills around using data and identifying data insights among the community groups and CES professionals, as well as students.

Impacts: All of the summer projects were a great success and have led to expanded projects and new funding opportunities. The *Identifying Communities in Greatest Need of Alcohol Prevention Efforts* project utilized demographic, liquor distribution and OWI/crash data to identify/map areas of concern and has resulted in a project looking at the Geospatial Analysis of Health, Safety and Alcohol Outlets. The information collected in the Mentimeter Data Discovery meetings with the Department of Public Health allowed the *Mapping Iowa’s Substance Use and Systems of Care Infrastructure* project to result in an interactive dashboard of statewide resources that people can draw on for information on recovery services. This successful investigation will now be expanded to develop a substance use meeting finder for the IDPH website. Our sponsor noted: “I was impressed by the nimble dedication of the ISU team faculty, staff, students, with state partners. More importantly, the final product was of high quality and actionable...Despite maneuvering the changing environment of a global pandemic and the impacts and challenges it presented, the DSPG student-led teams engaged with us throughout the project...As I reflect on our summer collaboration with the ISU DSPG team, I can say that it was positive, productive, and educational to our team, and perhaps most importantly, directly benefited the people of Iowa. The DSPG program, leadership team, and student interns well-represented the land grant mission of ISU.”

Uniqueness and Innovation: In the words of two of our student interns: “This gave me actual hands-on experience. A lot of the work we did is actually being used to direct resources during this time of COVID-19. It helped me feel like I had an impact with the work I was doing.” A second noted: “We’re surrounded by data all of the time, but by learning how to harness that data to answer questions, the possibilities are endless. Working on these projects has shown me that data is powerful, and it can be harnessed to support the public good.”