

# SPARC Interest Areas

## Rural Wellness

### Physical Activity

- Allison Barry: physical activity among LEO/firefighters (SHCS)
- Geb Bastian: nutrition and physical activity (SHCS)
- Jessica Meendering: physical activity in school environments (SHCS)
- Marni Shoemaker: physical activity and skeletal/muscle health (SHCS)
- Elizabeth Tofte: place-making, walkability (SOD)

### Rural Healthcare

- Robin Arends: access, telehealth (CON)
- Abdallah Badahdah: telehealth, stigma, disparities (SPSRS)
- Mary Isaacson: palliative/end-of-life care and health disparities in tribal communities (CON)
- Becky Kuehl: women's health (COJO)
- Joshua Reineke: disparities, telehealth (DPS)
- Christopher Robbins: diabetes/cardiovascular disease, telehealth (DAPH)

### Mental Health

- Jenn Anderson: mental health & stigma (COJO)
- Robin Arends: substance abuse (CON)
- Hayden Barber: mental health among students/young people (COJO)
- Andrea Bjornestad: mental health among farmers and rural women (SECHD)
- Sean Ervin: built environment and mental health (SOD)
- Patrick Hales: schools and mental well-being (SECHD)
- Stephanie Hanson: women's mental health (perinatal) (DAPH)
- Christopher Robbins: substance use, depression (DAPH)

### Community Revitalization

- Pat Crawford: quality of life indicators (SOD)
- Aileen Garcia: quality of life of immigrants in SD (SECHD)
- Tasha Hauff: Native communities (CON)
- Becky Kuehl: diversity & inclusion (COJO)
- Katie Morrison: financial health (SHCS)
- Maria Spitz: public discourse (AGS)

### Food/Nutrition

- Geb Bastian: bolstering local food systems; nutrition education (SHCS)
- Cliff Hall: pea hull as a dietary fiber source; probiotic sweetener as food ingredient (DDFS)
- Jessica Meendering: nutrition in school environments (SHCS)
- Marni Shoemaker: nutrition education and assessment (SHCS)

## Environmental Exposure and Human Health

- Saikat Basu: fluid dynamics modeling (DME)
- Zach Smith: reducing environmental pollutants (DAS)
- Xufei Yang: odor nuisance; particulate matter and bioaerosols (DABE)

# Agricultural Technology

## Fertilizers/Nutrients

- Aritra Banerjee: enhancing soil fertility with biofilms (CCEE)
- Volker Brozel: nitrogen fixing bacteria (DBM)
- Cliff Hall: nutritional composition of commodities (DDFS)
- John McMaine: nutrient loss (DABE)
- Mazhar Sher: soil nutrient testing (DABE)
- Lin Wei: smart controlled release fertilizer production (DABE)
- Xufei Yang: biofertilizers using wastewater (DABE)

## Sensors

- Young Chang: greenness sensor for biomass and plant/field parameters; sensor fusion system for agriculture and aquaculture Cybersecurity (DABE)
- Zhengrong Gu: biosensors for pathogens of crops and animals (DABE)
- Mazhar Sher: biosensors for detection of NPK in soil samples (DABE)
- Zach Smith: cattle sensors and precision feeding (DAS)
- Sean Toporek: plant disease sensing (DAHPS)
- Xufei Yang: gas sensors (e.g., NH<sub>3</sub> and CH<sub>4</sub>) (DABE)
- Hangkui Zhang: intersection of remote sensing and deep learning (DGGS)

# Bioprocessing

- Aritra Banerjee: enhancing soil fertility with biofilms (CCEE)
- Zhengrong Gu: bioprocessing for value-added products (DABE)
- Cliff Hall: valorization of pulse co-products to enhance life cycle value (DDFS)
- Bishnu Karki: change-drivers in processes and products (DBM)
- Zach Smith: use of bioprocessing by-products in ruminant diets (DAS)
- Lin Wei: renewable smart food packaging systems (DABE)

# Supporting Expertise

- Pat Crawford: community development (SOD)
- Lisa Hager: policy, law, quantitative stats (SAGS)
- Laura Hasselquist: project evaluation, development of curricular materials (SECHD)
- Dapeng Li: spatial analysis, big data (DGGS)
- Paul Markel: community assessment (SPSRS)
- Filip Viskupic: polling (SAGS)
- David Wiltse: polling (SAGS)
- Xufei Yang: nuisance mapping (DABE)
- Weiwei Zhang: special mapping, quantitative support (SPSRS)

# Abbreviations

- COJO: School of Communication and Journalism
- CON: College of Nursing
- DABE: Department of Agricultural and Biosystems Engineering
- DAHPS: Department of Agronomy, Horticulture & Plant Science
- DAPH: Department of Allied and Population Health
- DAS: Department of Animal Science
- DBM: Department of Biology & Microbiology
- DCEE: Department of Civil & Environmental Engineering
- DDFS: Department of Dairy & Food Science
- DGGS: Department of Geography and Geospatial Sciences
- DME: Department of Mechanical Engineering
- DPS: Department of Pharmaceutical Sciences
- SAGS: School of American and Global Studies
- SECHD: School of Education, Counseling & Human Development
- SHCS: School of Health & Consumer Sciences
- SOD: School of Design
- SPSRS: School of Psychology, Sociology, Rural Studies