Science Societies

Professional tours and workshops

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Continue your professional development and connect with peers while exploring the greater Salt Lake City, UT area. Focusing on the 2021 Annual Meeting theme, “A Creative Economy for Sustainable Development,” the following professional tours and

workshops are being offered at the 2021 International Annual Meeting.

Workshops

Crop Genomics, Bioinformatics, and Variant Calling

Next-generation sequencing has revolutionized the field of agriculture science. This workshop will be highly interactive and involve hands-on exercises on genomics data analysis and interpretation. At the end of this workshop, the attendees will be able to run jobs on a high-performance computing cluster, develop some command-line skills, perform variant calling using short-read sequence data and a reference genome, and generate variant (e.g., SNP, indel) calls for downstream applications, including genomics-assisted breeding and gene discovery.

The USDA Agricultural Genome to Phenome Initiative

The USDA Agricultural Genome to Phenome Initiative (AG2PI) is hosting a presentation-and-listening session on the various ways that agronomists, plant biologists, and crop and soil scientists could work with animal scientists, statisticians, data scientists, engineers, and social scientists to address shared needs in genome-to-phenome (G2P) research. Content to be covered includes: an overview of the USDA AG2PI (see **www.ag2pi.org**), highlights from studies of agricultural G2P research across animal and plant kingdoms, socio-economic considerations for agricultural G2P, and a discussion of shared challenges and their possible solutions. Outcomes will be summarized and shared with USDA.

Today's researchers use water potential and the soil moisture retention curve in many applications for a more complete picture of soil–plant water dynamics. In this workshop, you will learn (1) how water potential defines soil–plant water dynamics; (2) why in plant studies, stress and drought tolerance are only understandable in the

context of water potential; (3) the latest advances in measurement technology and implications for better field and lab measurements; and (4) where water potential can be applied in both managed and natural ecosystems to compare stress levels, benchmark water availability, and determine precipitation or irrigation needs.

Get What You Need! Accessing Genetic Resources and Data Through GRIN-Global

Bring your questions and research needs (and a laptop), and curators from the National Plant Germplasm System will help you access germplasm and data through the new and improved GRIN-Global Public Website. Beginners, students, and advanced users all welcome.

Spatial Recipes for Field Trials: Routine Inclusion of Spatial Statistics in Planned Field Experiments

The purpose of this workshop is to provide tools for diagnosing within-field spatial variation and accounting for that spatial variation in statistical analysis of trial data. We will cover how to test for, model, and parameterize spatial correlation. We will provide instruction on several methods for handling spatial autocorrelation and spatial trends and how these methods are implemented in R and SAS. We will address how to evaluate the impact of the different models on reducing spatial correlation, overall model fit, post-hoc power, and model estimates.

R Beginner Bootcamp: From Basics to Publication-Ready Plots

This workshop is intended for a beginner audience with zero to little knowledge in R. We will start by introducing R and RStudio, their terminology, semantics, and handy tools like Projects and R markdown files. Participants will then learn how to perform numerical and graphical exploratory data analysis followed by data wrangling, all using state-of-the-art packages from the Tidyverse family. We will perform a mixed-effect

ANOVA for a randomized complete block design, check model assumptions, extract model means, and perform pairwise comparisons. We will wrap it all up with a publication-quality plot. At the end of the workshop, participants will have enough exposure to R and its functionalities to continue learning R on their own.

Leveraging Big-Data from High-Resolution Remote Sensing Imagery for Agricultural Management

The workshop will review the state-of-the-art, high-resolution remote-sensing imagery for agricultural applications. The audience will get practical instruction on the principles of sensors and strategies for data collection, processing, and analysis. Agricultural applications will be presented, including soil analysis, phenotyping, crop monitoring, health assessment, site-specific management, and more. Challenges faced and lessons learned using high-resolution imagery will also be discussed.

Sci-Advocacy: An Advocacy and Communication Workshop

All researchers should be able to explain to Congress the rational for their research funding. In this unique policy and communication workshop, you have the opportunity to do just that! Through discussion and guided exercises, you will learn about the federal budget and how it impacts you, how to effectively engage in advocacy, and how to effectively communicate with policymakers.

Tours

Salt Lake City Turfgrass Science Tour

This tour includes visits to the Real Salt Lake Stadium, Red Butte Gardens, Salt Lake Bees Stadium, and Temple Square Rooftop Gardens.

Foray in the Nearby Mountains of the Unita-Wasatch-Cache National Forest

Join us for a nature hike in the nearby mountains along and above the prehistoric Lake Bonneville shoreline for natural history appreciation. A Unita-Wasatch-Cache National Forest Ranger will provide an orientation.

Organic Management Systems, Forages and Grazinglands Tour

This tour includes a visit to the Swanner Preserve and Ecocenter, McPolin Farm, and Copper Moose Farm. Swanner Preserve and Ecocenter is a 1,200-acre wetland nature preserve owned and operated by Utah State University. McPolin Farm is a historic farm purchased and managed by the Park City municipality since 1990. Copper Moose Farm is a 3-acre organic vegetable farm with year-round production in a large passive solar greenhouse and high tunnels.

Pre-Meeting Pedology Tour

This is a multi-day tour that travels from Salt Lake Valley north and east to beautiful Cache Valley, home of Utah State University's main campus in Logan, to explore landscape evolution and soil formation. The return travel to Salt Lake City includes a stop at the Bear River Migratory Bird Refuge west of Brigham City to marvel at the vastness of Lake Bonneville at its high stands and the importance of fresh water to wildlife at the margin of the Great Salt Lake, the remnant of Lake Bonneville.

Learn more about professional tours and workshops at acsmeetings.org.

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