

Posters

2019 Arboriculture & Urban Forestry Educators' Symposium & Summit

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POSTER ABSTRACTS

Kamran Abdollahi (kamran_abdollahi@subr.edu), Professor and Director, Urban Forestry and Natural Resources/SUBaton Rouge, LA

Additional contributors: Zhu Hua Ning

Integrating Climate Change Science and Technology into Urban Forestry Education and Research

This poster will be presented to demonstrate the results of a successful USDA funded project emphasizing integration of the latest climate change science and technology into urban forestry teaching and research at Southern University in Louisiana. Through this poster presentation, we will share many new and innovative techniques and science-based approaches in integration of climate change science and technology into urban forestry curriculum and research at both undergraduate and graduate levels. Several prominent examples will be used to show the impacts of this integration on students recruitment, retention and learning outcome.

Sara Barron (sara.fryer.barron@gmail.com), Sessional instructor, University of British Columbia, Vancouver, British Columbia, Canada

Building an interdisciplinary urban forestry program

This poster will discuss the early vision, curriculum development, and delivery of the first three years of the University of British Columbia’s new Bachelor of Urban Forest degree. The poster will reflect on the inspirations and challenges of building this program, with a focus on its interdisciplinary aspects. I was involved as a student representative on the core development team, delivered key courses on the early teaching team, and co-delivered the program’s final capstone studio. I will include reflection on these

experiences. The poster will also touch upon our program's diversity, from the interests of our current students to the current core disciplines included in the curriculum.

Beth Corrigan (bethcorrigan@planitgeo.com), Account Executive, Plan-it Geo, Lisle, IL

Bridging Theory and Application with Campus Trees

Many college and university campuses do a great job integrating the student experience with campus grounds. However, trees on campus can serve as a teaching vehicle, not just a great picture for the marketing brochure. Tree Campus USA locations already understand the need to engage students, faculty, and staff with campus tree planting. Many more institutions can incorporate tree science to the benefit and enjoyment of all. Leave no student inside. Engaging educators to include campus trees for outdoor lab experiences builds awareness and support for green infrastructure elements available on site. Lessons involving campus trees build student appreciation of trees and natural elements around them. More importantly, students gain experience gathering data, mapping and analyzing data. Students will benefit from the practical application of learning objectives. Courses in Natural Resources, GIS, Ecology, Horticulture, and more can incorporate lessons including trees to enhance the learning experience. Lesson plans can tie to mapping, eco-system services, climate adaptation, planning, tree planting, and community advocacy. This also provides real world experience in addition to exposure to new career options. Tree Plotter University, from Plan-It Geo is free for universities and/or educators interested in including tree measurement, mapping, and analysis in their curriculum. The goal of TPU is to provide a supplement to coursework in the fields of natural resources, forestry, GIS, or related fields with fieldwork. This browser-based software platform will allow students to inventory, map, and analyze data for real world situations. Utilizing this application with students each semester provides valuable hands-on technology tools and facilitates the vital connection between theory and practical applications. Using Tree Plotter University is an easy, free tool to build awareness and engagement on campuses everywhere.

Ellen Crocker (e.crocker@uky.edu), Assistant Professor, University of Kentucky, Lexington, KY

Additional contributors: Nic Williamson (University of Kentucky), Mary Arthur (University of Kentucky), Lynne Rieske-Kinney (University of Kentucky), and Chris Sass (University of Kentucky)

New Undergraduate Certificate in Urban and Community Forestry at the University of Kentucky

We are developing a new Undergraduate Certificate in Urban and Community Forestry at the University of Kentucky. Broad in scope, this program will fill a gap in student exposure to urban and community forestry, needed to address the expanding need for natural resource professionals trained in multiple aspects of urban forest management. After discussion with other programs nationally, we decided to proceed with an undergraduate certificate option (instead of a major, minor, or graduate offering) to best fit the university infrastructure, student body, and career opportunities available. This program draws from existing courses across a broad range of disciplines in several colleges with two new courses developed specifically for the certificate and required of all students: an introductory course and an upper level capstone service-learning project. Students will specialize in one of several pathways addressing (1) trees and tree health, (2) green infrastructure, planning, and design, (3) environmental education, and (4) human health and wellness. Completion of the certificate will help prepare students for careers that promote human interactions with urban trees, building a stronger workforce in this growing field.

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Additional contributors: Andrew Benjamin (West Virginia University), Susan Day (University of British Columbia), Eric Wiseman (Virginia Tech), Joe Sullivan (University of Maryland), Joel Koci (Virginia State University)

What are cities looking for in an entry level urban forester?

Urban forestry is a relatively new area of science and is still trying to establish itself as a profession. Often urban forestry and arboriculture are conflated, and urban forestry has yet to achieve much of what arboriculture has in terms of recognition and establishment of the profession. We initiated two surveys asking employers what skill sets are required for entry level urban foresters to have and whether they were satisfied with the skill level in their recent hires. One survey targeted municipal urban forestry programs at the 200 most populated cities in the US and the second was open to any type of employer (governmental, private, corporate, not-for-profit). While there have been comparable studies in closely allied fields such as arboriculture, forestry, horticulture and landscape architecture, none have concentrated their efforts specifically toward urban forestry employers. Consistent with finding from allied fields, urban forestry employers noted that in addition to technical skills, entry level urban foresters need to have strong skills in communication, team-based problem solving and leadership. We found that many of the required technical skills are being adequately met in recent graduates; yet media relations, multicultural competency, community outreach and working in a group were skills that did not receive satisfactory ratings in recent hires. Additionally, we will present data on the job outlook for urban forestry including; anticipated number new jobs becoming available, estimated salaries and values of credentials. This knowledge can help educators as they look to incorporate new material into their classroom and should serve to help students realize what skills they may wish to improve upon before entering the work force.

Asia L. Downtin (downtinas@msu.edu). Assistant Professor of Urban and Community Forestry, Michigan State University, East Lansing, MI

Additional contributors: Bert Cregg (Michigan State University Department of Forestry and Department of Horticulture)

On the Use of Urban Forestry Instruction to Inspire Critical Thought among Undergraduate and Graduate Students

As an academic discipline, urban forestry attracts an array of students from varied scholastic backgrounds. Many of these students are united by a shared interest in understanding, developing, and implementing urban land management principles that are designed to help facilitate metropolitan growth in a sustainable manner. Often, these students envision a unilateral solution to green growth in the form of uniform expansion of urban canopy cover, with little acknowledgement of the dynamic interplay of the social, political, and ecological factors that govern the success of urban forest planning initiatives. In our undergraduate-graduate Urban and Community Forestry course, we utilize a creative mixture of historic and contemporary literature, digital media, collaborative community engagement activities, and field-based learning experiences to both broaden student understanding of urban forestry, and to challenge students to think “outside of the box” with respect to urban forest ideology and practice. We incorporate both text and dialogue that are intended to inspire students toward critical thought, specifically that regarding the nuanced processes that determine the potential success and quantifiable benefits of varied urban forest planning and management initiatives. In this presentation, we will review the techniques utilized to introduce core concepts in urban forestry, encourage critical analysis of the related literature, and assess student comprehension and retention of course material over the three academic terms during which this class has been offered.

Justin Michael Kunkle (kunkleju@msu.edu), Undergraduate Academic Advisor, Department of Forestry, Michigan State University, East Lansing, MI

Additional contributors: Dr. Jennifer Rivera (Michigan State University), Dr. Emily Huff (Michigan State University), Katusha Galitzine (Michigan State University), Phillip Seaborn (Michigan State University), Dr. Asia Downtin (Michigan State University), Dr. David Rothstein (Michigan State University)

Seeding the Ground: Growing the next generation of forestry professionals

In a world of ever-increasing human populations and demands, coupled with a rapidly changing climate, the scope and relevance of the Forestry profession have never been more diverse, with a contemporary portfolio that includes wildlife, water quality, climate change mitigation, recreation, human health, urban environmental improvement, and green infrastructure. However, the demographic composition of Forestry professionals has not diversified in a way which aligns to our increasingly globalized society. More significant efforts are required to develop a more diverse Forestry workforce that is reflective of society and better able to serve society's diverse needs. This poster summarizes an integrated scholarship program that provides academic and social support for recipients from their senior year of high school, through their undergraduate degree program, through their transition into the workforce. The poster will highlight specific elements of this program including: (1) partnerships with community organizations to identify and recruit talented high-school students from traditionally underserved and underrepresented groups; (2) the tailored aspects of the bridge programs aimed at promoting collegiate academic success; (3) integrated support structures for mentoring and social support; (4) academic outcomes of the program, with an emphasis on experiential learning; (5) professional development and leadership training for students throughout their collegiate program; (6) partnerships with state and federal agencies, industry, and Non-Governmental Organizations (NGOs) to provide internship and apprenticeship opportunities to enhance competitiveness for the workforce; and results from the first summer's bridge program and recruitment efforts.

Fredric Miller (fmiller@jjc.edu), Professor of Horticulture, Joliet Junior College, Joliet, IL

Applied field research experience for horticulture student interns

In cooperation with The Morton Arboretum entomology lab, undergraduate and graduate level students have the opportunity to participate in applied research projects involving rural and urban forest health issues. The student interns work on a variety of projects and take on the role of project managers responsible for field plot design, data collection and analysis, personnel management, and assisting with writing progress reports. Students spend time both in the field and the lab as part of their work responsibilities. When and where appropriate, students are given the opportunity to give presentations to green industry practitioners on their research work and/or related forest health issues.

Fredric Miller (fmiller@jjc.edu), Professor of Horticulture, Joliet Junior College, Joliet, IL

Working collaboratively with homeowner associations (HOAs) in developing comprehensive PHC management plans

Working with local HOAs, JJC students enrolled in arboriculture, soils, and sustainability courses conduct site visits, take woody plant inventories, assess overall plant condition, and develop short and long-term PHC management plans including, but not limited to, plant diversity, planting, and removals, pruning, pest management, mulching, and soil improvement. A written report accompanied by an oral presentation is required at the end of the project.

John Rayner (jrayner@unimelb.edu.au), Associate Professor / Director of Urban Horticulture, School of Ecosystem and Forest Science, University of Melbourne, Melbourne, Victoria, Australia

Additional contributors: Stephen Livesley (University of Melbourne)

Observations and learnings gained from delivering the Australian School of Urban Forestry

The inaugural Australian School of Urban Forestry was delivered in Melbourne, Australia in November 2018. Developed by the University of Melbourne's School of Ecosystem and Forest Science in partnership with the City of Melbourne, this six-day intensive professional program blended key aspects of urban forests planning and management with current research outcomes. Attended by 30 participants from across Australia and internationally, the School syllabus included seminars, workshops, case studies and field trips; delivered by both industry practitioners and academic staff. This poster will describe the School's evolution and development over almost two years; preparation of the syllabus, presenters and key learning activities (including engagement with industry); marketing and promotion activities; and an overview of School participants. It will also explore the main learnings gained through administration, delivery and evaluation of the School, from both participant and committee perspectives. These include the syllabus, networking and peer development opportunities, 'best practice' examples, problem-based learning activities and the prospects for future accreditation.

Gerard Fournier (gfournier@oldscollege.ca), Instructor, Landscape Horticulture Apprenticeship Program, School of Trades, Olds College, Didsbury, Alberta, Canada

Scaling up Arboriculture from a component to a “stand alone” trade

Currently in Alberta, Arboriculture is a component course in the Landscape Horticulturist Apprenticeship Program, The Landscape Horticulture trade is “Red Sealed” in Canada, meaning that it is recognized as an official trade in every province and there is a standardized curriculum as well as an inter-provincial exam to qualify, once apprentices have passed their provincial exams. There is a lot of interest in having “Arborist” become a Red Sealed trade in Canada too. In order to qualify for the Red Seal, a Trade must already be recognized in at least five provinces. At present, the Arborist is only a stand-alone trade in two provinces, Ontario and British Columbia. Consequently, it would have to be recognized as a Trade or offered as a trade in at least a few more provinces for the Red Seal to “kick in” The question then becomes, how could “Arborist” be scaled up as its own trade in Alberta, when it is now just a 50-hour course within the trade of the Landscape Hort. The outcomes in the Arb course are to be able to explain the goals of urban forestry, use anatomy to determine relative health of trees, assess pruning techniques, describe tree repair, describe tree removal techniques, demonstrate safe working practices aloft, tree risk assessment, tree valuation, tree inventories, tree protection and arboriculture and the law. What should the outcomes of “Arborist” as its own trade be? This poster presentation will explore these questions.

Kyle Daniel (daniel38@purdue.edu), Nursery and Landscape Specialist, Purdue University, West Lafayette, IN

Utilizing Extension and Outreach to Improve Student Engagement in the Classroom: A Laboratory Demonstration Direct from the Nursery

Due to a revision in departmental curriculum, our horticultural production classes were changed from a lecture to a lab-based format. This modification brought about the opportunity to engage students with experiential learning in the greenhouse and field production. Field trips to nurseries around the state allowed the students to compare and contrast various growing systems and how production methods affect the growth of the trees, specifically the root system development. A laboratory demonstration, that included air pruning growing containers and traditional growing containers, was developed for the students to analyze the effects of this production method on the growth and root system of sycamore trees. A few of the variables the students noted included substrate rating, root ball quality, root matting, visible root defects, and the percentage of circling roots. The field trips taken during the semester, visiting nurseries that employ traditional containers, air-pruning containers, pot-in-pot, and field production

systems, effectively captured the student interest in class material throughout the semester because of the real-world applications that we analyzed in laboratory projects. Extension allows the opportunity to effectively engage with stakeholders and industry professionals in a symbiotic fashion. Students learn from experts in our industry and as stakeholders they are allowed to interact with students as early career prospects as well.

Greg King (gking@ualberta.ca), Assistant Professor, University of Alberta Augustana – Science, Camrose, Alberta, Canada

Augustana's Educational Context - Opportunities for Urban Forestry

The Augustana campus of the University of Alberta has a unique position within the larger university. Augustana is both a campus and a multi-disciplinary faculty with a goal to act as a living laboratory for teaching and learning innovation. It is also one of only a few Canadian campuses dedicated to high-quality undergraduate liberal arts and sciences education. As a new faculty member interested in developing urban forestry courses and content, this poster will highlight several initiatives along with examples as a starting point for conversations on plans, strategies and ideas to incorporate urban forest educational opportunities into the curriculum and to hear from others on their experience. Four major initiatives will be discussed: 1) our unique 3/11 semester structure, 2) community service learning (CSL) opportunities that includes close collaboration with the City of Camrose, 3) the Augustana Miquelon Lake Research Station, and 4) the Sustainability Council which operates a sustainability scholars program and offers micro and major sustainability grants.

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Teaching Tree Inspection by the ANSI A300 Standard

The US Tree Inspection Standard, found in ANSI A300 Part 8, is the best-kept secret in the arboriculture industry. Few arborists know that it even exists, and fewer yet have received training on the comprehensive system detailed in 83.3: "Inspection should include: Conditions in the crown that may reflect root conditions; Stem tissue connecting the crown and the roots; Girdling of buttress roots or stems by roots or foreign objects, and the tree's response; Tree association with beneficial and harmful insects; Tree association with pathogenic and beneficial microorganisms (e.g. mycorrhizae); Wounds, and the tree's response to wounds; Mechanical damage to detectable roots, and response; Indications of root disease and response; Graft unions in grafted trees; Mulch, soil and foreign material should be removed to allow inspection; Bark tracing of wounds shall remove only dead, loose, foreign and damaged tissue; Evaluate decay, callus and woundwood growth, and response growth in trunk and crown." This guidance is unseen in BMPs or any industry publications. Arborists may look at some of these conditions while looking for 'defects,' but many go unnoticed. To deliver this information, an online course has been developed. It begins by reviewing tree anatomy and physiology, then covers a feature-by-feature analysis, from roots to crown. Embedded video clips tune in the arborists' attention at key points. Tests at the end of each section verify comprehension as the arborist proceeds. The poster will be designed to outline this course and elicit feedback on ways to improve it and explore ways to implement it for PHC, plant health care monitoring, and TRAQ tree risk assessment operations. The goal is to teach arborists, in an appealing and accessible format, how to obtain and process more information from the trees.