BOSTON
ASABE Annual International Meeting
July 7 - 10 2019

CONTINUING PROFESSIONAL DEVELOPMENT COURSES

CPDs require a minimum number of attendees registered. CPDs not meeting the minimum requirement by May 31 will be cancelled. Refunds will be issued to those who have already paid. Subject to change. As of March 15, 2019

CPD#1 - AGRICULTURAL AND BIOLOGICAL PROFESSIONAL ENGINEERING EXAM DEVELOPMENT SESSION

Sunday, July 7 - 8:00am-4:00pm

Cost: NC

Instructor(s):   Naomi Bernstein

Sponsored by: EOPD-414

Difficulty Level: Entry Level

Description: For Engineers currently holding their PE License. Session will be used to develop and review the Ag and Biological Professional Exam Materials for future examinees. Proof of License will be required upon entry. Attendees do not need to be present for entire time slot. Please reserve at least 2 hours of your day between 8am-4pm for attending this session.

Target Audience: Professional Engineers

Benefits: PDHs for amount of time attended

CPD#2 - ACTIVE LEARNING TECHNIQUES IN AGRICULTURE AND BIOLOGICAL ENGINEERING COURSES

Sunday, July 7 - 9:00am-12:00pm

Cost: $45

Instructor(s):   Ganesh C. Bora

Sponsored by: EOPD 203

Difficulty Level: Entry Level

Description: Emphasis has been given on active learning techniques (ALT) and Instructors have strategically used ALT to promote student engagement all across subject areas.

Previous implementations of general no-cost ALT in an Agricultural Engineering showed encouraging results. The 30 seconds peer discussion, class works solving problems, videos have made the students enthusiastic to participate in the class discussion.

Target Audience: New Faculty, Post-Docs, PhD students, Teaching Assistants

Learning Objectives: Effective teaching with limited resources in Agricultural and Biological Engineering.

Benefits: Innovations in teaching with available resources and engage students in learning.

CPD#3 - HYPERSPECTRAL IMAGING AND DATA ANALYSIS FOR AGRICULTURAL AND BIOLOGICAL ENGINEERS

Sunday, July 7 - 8:00am-6:00pm

Cost: $155 (includes class, lunch, and round-trip train fare to MIT)

Instructor(s):   Dr. Seung-Chul Yoon and Dr. Kurt C. Lawrence, USDA-ARS U.S. National Poultry Research Center, Athens, Georgia

Sponsored by: ITSC-348, ANGASABE

Difficulty Level: Entry Level/Intermediate

Description: Globally, image-based sensing techniques are increasingly becoming prominent and available to agricultural and biological engineers. Among these are the applications of multispectral and hyperspectral imaging for non-destructive comprehensive measurements of internal and external properties of things. Participants should expect to leave with an understanding of the fundamental principles of operation and data processing as well as explore applications. The workshop will round off with a visit with researchers at MIT who have developed novel low-cost spectroscopy and imaging instrumentation and a tour of MIT.nano.

Target Audience: Engineers, scientists, and graduate students who are interested in hyperspectral imaging and data analysis for applied research. The course is designed for researchers from beginning to intermediate knowledge of hyperspectral data analysis.

Learning Objectives: The course will be divided into three parts. The first part will cover a brief overview of hyperspectral and multispectral imaging including improved data capture, calibration, lighting, and visualization. The second part will cover intermediate topics of hyperspectral data exploration and multivariate image analysis. Emphasis will be placed on assessment of the hyperspectral data, exporting data to common chemometrics software for model development, model prediction, and validation with hyperspectral image data. Finally, the third part will explore a couple of case studies for real-world problem solving with hyperspectral imaging technology.

Benefits: Many multispectral and most hyperspectral imaging systems are still sold "as-is". That is, the hardware of the system is usually assembled and packaged with only some form of data acquisition software and limited data analysis. This course is intended to introduce multi- and hyperspectral image analysis to the audience and help them understand the basics of quality data collection, exporting data to popular chemometric packages, and finally evaluation/validation of models back on the hyperspectral imaging technology.

Agenda: 8:00 am – 12:00 pm   Class held at the Marriott Copley Place
               12:00 pm – 12:45 pm   Lunch break (Reservations made at Champions grill, Marriott)
               12:45pm – 3:15 pm   Class continuation

3:15 pm – 3:45 pm	Travel on train to MIT
3:45 pm – 5:30 pm	MIT lab tours
5:30pm – 6:00pm	Travel back to train station and Copley Place

CPD#4 - DATA ANALYTICS USING PYTHON IN AGRICULTURAL AND BIOLOGICAL ENGINEERING

Sunday, July 7 - 1:00pm-4:00pm

Cost: $10

<u>Instructor(s):</u> Gurdeep Singh, Sushant Mehan

<u>Sponsored by:</u> YPC

<u>Difficulty Level:</u> Entry Level

<u>Description:</u> Data science is a useful discipline to develop and improve existing information from data in various forms, either structured or unstructured. Python, a high-level computer language, has gradually become a more popular choice within the data science field and is user-friendly. This workshop will highlight the basics of data science with python, including data mining and data cleaning, how to best interpret and visualize of agricultural and biological engineering data, as well as some high-level machine learning/deep learning packages.

<u>Target Audience:</u> University students, researchers, and other professionals interested in using data science for generating insights.

<u>Learning Objectives:</u> (a) applying Python to clean and understand raw data (b) Understanding how to relate different variables within data and developing simplistic model using python and its advanced application.

<u>Benefits:</u> Becoming familiar with one of most highly accepted language in data science and its use to understand your data analytically and visually.

CPD#5 - TEACHING ONLINE: COURSE DESIGN, DELIVERY AND LEARNING ANALYTICS

Sunday, July 7 - 1:00pm-4:00pm

Cost: $45

<u>Instructor(s):</u> Patrizia Busato, Remigio Berruto, Fedro Zazueta

<u>Sponsored by:</u> EOPD

<u>Difficulty Level:</u> Entry Level

<u>Target Audience:</u> Individuals with teaching and extension education responsibilities including, faculty, lecturers and teaching assistants interested in acquiring knowledge and skills on for online teaching, active learning, flipped classroom instruction and learning analytics. "Real world" experience will be shared by the workshop conductors.

<u>Learning Objectives:</u> Describe principles of good instructional design; Describe active learning principles and flipped classroom pedagogy; Identify required resources and skills required for successful delivery of online and flipped classroom courses; Acquire foundational skills to develop online and face-to-face materials for flipped classroom delivery; Lessons learned in the application of the flipped classroom pedagogy; Apply learning analytics to improve student success

<u>Benefits:</u> Implementing active learning pedagogies in engineering education has been shown to improve learning outcomes and higher levels of student satisfaction and success.