GREENHOUSE CROP PRODUCTION & ENGINEERING DESIGN SHORT COURSE

MARCH 11, MORNING
10:00 am  Exhibitor Gallery Opens for Attendees

FUNDAMENTALS OF HYDROPONICS & CONTROLLED ENVIRONMENT AGRICULTURE (CEA)
8:30 – 9:15 am  Greenhouse Design - Structures, Glazing & Cooling
                 Dr. Gene Giacomelli - Professor, Biosystems Engineering, The University of Arizona

9:15 – 10:00 am  Hydroponics, Medium Composition & Delivery Systems
                  Myles Lewis – Owner, Arizona Vegetable Company & Instructor, CEAC Intensive Workshop

10:00 – 10:45 am  Managing plant Nutrition for Crop Production Optimization
                   Dr. Stacy Tollefson – Professor of Practice, Biosystems Engineering, The University of Arizona

10:45 – 11:45 pm  Lunch Provided & Networking Opportunity in Exhibit

MARCH 11, AFTERNOON
ESSENTIALS OF CROP PRODUCTION IN COMMERCIAL SETTINGS
11:45 – 11:50 pm  Welcome and Introductions

11:40 – 12:05 pm  5 Minute Presentations from this year’s Sponsors

12:05 – 1:00 pm  TBA
                   TBA

1:00 – 1:45 pm  Integrated Pest Management (IPM - Common Insects & Mites
                 Dr. Stacy Tollefson – Professor of Practice, Biosystems Engineering, The University of Arizona

1:45 – 2:30 pm  What Happened to my Plant?
                 Karen Tiftt - Consultant, Greenhouse Vegetable Consultants, LLC.

2:45 – 3:15 pm  Discussion of Previous Lectures, Q&A

3:15 – 3:30 pm  3, 5 Minute Exhibitor Presentations

3:30 – 4:00 pm  Coffee Break, Visit Exhibit

4:00 – 4:45 pm  Biotech: Tissue Culture Procedures & its Value added to the CEA Market
                 Hope Jones - Founder & CEO, Emergent Cannabis Sciences

4:45 – 5:30 pm  Developments in Seed Varieties
                 TBA

5:30 – 5:50 pm  Discussion of Previous Lectures

6:00 – 7:30 pm  Welcome Reception – Fueled by appetizers & cash bar

       CEAC Mission Award
MARCH 12, MORNING

7am  Breakfast provided

ENGINEERING CONSIDERATIONS & OPTIMAL SYSTEMS DESIGN AND MANAGEMENT

7:55 – 8:00 am  Welcome & Announcements

8:00 – 8:45 am  Monitoring Your Greenhouse Environment: Simple Tools to Technology Trends
Dr. Murat Kacira – Professor, Biosystems Engineering, The University of Arizona

8:45 – 9:30 am  Control Systems Design for Decision Support Management
David Story – Management Systems Consultant, Ridder HortiMax – North America

9:30 – 9:50 am  Discussion of Previous Lectures – Q&A

9:50 – 10:05 am  3, 5-minute Exhibitor presentations

10:05 – 10:30 am  Coffee Break, Visit Exhibit

10:30 – 11:15 am  TBA

TBA

11:15 – 12:00 pm  Engineering Your Greenhouse Structure for Energy Optimization
Dr. Gene Giacomelli – Professor, Biosystems Engineering, The University of Arizona

12:00 – 12:20 pm  Discussion of Previous Lectures – Q&A

12:20 – 1:20 pm  Lunch Provided

MARCH 12, AFTERNOON

VALUE-ADDED CROPS

1:20 – 2:05 pm  Co-Producing Mushrooms in CEA for Boosted CO₂
Dr. Barry Pryor - Professor, School of Plant Sciences, The University of Arizona

2:05 – 2:50 pm  The Future and Automation of Specialty Mushroom Production
Chris Bailey - MYCOPIA

2:50 – 3:10 pm  Discussion of Previous Lectures – Q&A

3:10 – 3:25 pm  3, 5-minute Exhibitor presentations

3:25 – 3:45  Coffee Break, Visit Exhibit

3:45 – 4:30 pm  Critical Factors in Production of Greenhouse Veggies
Dr. Merle Jensen - Professor Emeritus, School of Plant Sciences, The University of Arizona

4:30 – 5:15 pm  Packing & Marketing your Products for Success
Dr. Merle Jensen - Professor Emeritus, School of Plant Sciences, The University of Arizona

5:15 – 5:35 pm  Discussion of Previous Lectures – Q&A

Dinner – On Your Own
## MARCH 13, MORNING

### MODERN CEA TECHNOLOGY
7am  
Breakfast provided

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>7:55 – 8:00 am</td>
<td>Welcome &amp; Announcements</td>
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<tr>
<td>8:00 – 8:45 am</td>
<td>Sunlight and Supplemental Lighting Applications for CEA</td>
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<td>Neil Mattson - Associate Professor, School of Integrative Plant Science, Cornell University</td>
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<td>8:45 – 9:30 am</td>
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<td>Discussion of Previous Lectures - Q&amp;A</td>
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<td>9:50 – 10:05 am</td>
<td>3, 5-minute Exhibitor presentations</td>
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<td>10:05 – 10:30 am</td>
<td>Break, Visit your Exhibitors</td>
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<td>10:30 – 11:15 am</td>
<td>Water Quality &amp; Considerations for Recycling Nutrient Solutions</td>
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<td>Neil Mattson - Associate Professor, School of Integrative Plant Science, Cornell University</td>
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<td>11:15 – 12:00 am</td>
<td>Sole Source Electric Lighting for Controlled Environment Crop Production</td>
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<td>Fei Jia - Technical Solutions Manager, Heliospectra</td>
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<td>12:00 – 12:20 pm</td>
<td>Discussion of Previous Lectures,</td>
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<td>12:20 – 1:15 pm</td>
<td>Q&amp;A Lunch Provided</td>
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### MARCH 13, AFTERNOON

#### THE EVOLVING CEA MARKET

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<tr>
<td>1:15 – 2:00 pm</td>
<td>Food Safety Principles &amp; Government Regulations</td>
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<td>Margarethe Cooper - Assistant Professor of Practice, Victor P. Smith Endowed Chair in Food Safety, UA</td>
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<td>2:00 – 2:10 pm</td>
<td>Discussion of Previous Lecture – Q&amp;A</td>
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<td>2:10 – 2:55 pm</td>
<td>Working with Wholesale Distribution</td>
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<td>Kristen Osgood - Regenerative Strategy Manager, Stern Produce</td>
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<td>3:45 – 4:15 pm</td>
<td>Locally Grown Market Opportunities</td>
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<td>Chaz Shelton - Co-Founder, Merchant's Garden</td>
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<td>4:15 – 5:30 pm</td>
<td>Elements for a Successful Urban Ag Start-up</td>
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<td>Jenn Frymark – Chief Greenhouse Officer, Gotham Greens</td>
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<td>5:30 – 5:50 pm</td>
<td>Discussion of Previous Lecture – Q&amp;A</td>
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Dinner – On Your Own

4:30 pm - Exhibit break-down begins
MARCH 14, All Day!

7am Breakfast provided

Hands on workshops at CEAC:

8:00 Depart hotel for CEAC [Bus provided or Drive self]
[1951 E. Roger Road Tucson, AZ 86719]

8:30 – 10:00 am ROUND 1
10:00 – 11:30 am ROUND 2
11:30 – 1:00 pm Lunch in the CEAC Classroom & Yard
1:00 – 2:30 pm ROUND 3
2:30 – 4:00 pm ROUND 4
4:00 – 5:00 pm Return to Hotel

Please see the back of this workbook for workshop offerings.
Mark down your selections if you haven’t yet!

MARCH 15
COMMERCIAL GH TOUR
8am – 2pm TBA

TBA