# Greenhouse Crop Production & Engineering Design Short Course

**Wednesday, March 15th**

**Fundamentals of Hydroponics and Controlled Environment Agriculture (CEA)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 8:00–8:45 AM  | Check-in for on-site participants  
*1951 E Roger Road, Tucson, AZ 85719*                                                |
| 8:45–9:00 AM  | Welcome and Introductions  
*Dr. Murat Kacira, CEAC Director, University of Arizona*                                 |
| 9:00–9:45 AM  | CEA Overview  
*Dr. Merle Jensen, Professor Emeritus, University of Arizona*                            |
| 9:45–10:00 AM | Discussion and Q&A                                                                        |
| 10:00–10:45 AM| Managing Plant Nutrition for Crop Production  
*Dr. Triston Hooks, Professor, University of Arizona*                                      |
| 10:45–11:00 AM| Discussion and Q&A                                                                        |
| 11:00–11:30 AM| Break & Exhibitor Networking                                                              |
| 11:30–11:45 AM| Sponsor Presentations                                                                     |
| 11:45–12:30 PM| Integrated Pest Management  
*Speaker TBD*                                                                                  |
| 12:30–12:45 PM| Discussion and Q&A                                                                        |
| 12:45–1:45 PM | Lunch                                                                                      |
| 1:45–2:00 PM  | Sponsor Presentations                                                                     |
| 2:00–2:45 PM  | Greenhouse Design  
*Dr. Gene Giacomelli, Professor, University of Arizona*                                      |
| 2:45–3:00 PM  | Discussion and Q&A                                                                        |
| 3:00–4:30 PM  | CEAC Tour & Networking                                                                    |
Thursday, March 16th
Environmental Controls & Automation in CEA

9:00–9:45 AM  Monitoring Greenhouse Environments
               Dr. Murat Kacira, Professor, University of Arizona

9:45–10:00 AM  Discussion and Q&A

10:00–10:45 AM Autonomous Greenhouses: Data- and Plant-Centric
               Environmental Controls
               Dr. Kenneth Tran, CTO, Koidra

10:45–11:00 AM Discussion and Q&A

11:00–11:30 AM Break & Exhibitor Networking

11:30–11:45 AM Sponsor Presentations

11:45–12:30 PM Water Quality and Treatment Alternatives
               Dr. Paul Fisher, Professor, University of Florida

12:30–12:45 PM Discussion and Q&A

12:45–1:45 PM  Lunch

1:45–2:00 PM  CEAC Mission Award

2:00–2:15 PM  Sponsor Presentations

2:15–3:00 PM  Fundamentals of Supplemental and Sole Source Lighting
               Speaker TBD

3:00–3:15 PM  Discussion and Q&A

3:15–4:45 PM  CEAC Tour & Networking
**Friday, March 17th**

Alternative Crops and Growing Methods in CEA

9:00–9:45 AM  
**Beneficial Microbes**  
*Dr. Rosa Raudales, Professor, University of Connecticut*

9:45–10:00 AM  
Discussion and Q&A

10:00–10:45 AM  
**Mushroom Cultivation**  
*Dr. Barry Pryor, Professor, University of Arizona*

10:45–11:00 AM  
Discussion and Q&A

11:00–11:30 AM  
Break & Exhibitor Networking

11:30–11:45 AM  
Sponsor Presentations

11:45–12:30 PM  
**Culinary Herbs**  
*Dr. Kellie Walters, Professor, University of Tennessee Knoxville*

12:30–12:45 PM  
Discussion and Q&A

12:45–1:45 PM  
Lunch

1:45–2:00 PM  
Sponsor Presentations

2:00–2:45 PM  
**Hemp**  
*Speaker TBD*

2:45–3:00 PM  
Discussion and Q&A

3:00–4:30 PM  
CEAC Tour & Networking