

# 2021 Master Brewers Brewing & Malting Science

October 31 – December 17, 2021

## Course Director: Rob McCaig

### Sunday, October 31: Class Orientation

15:00 – 16:30 CDT

Course Introduction and Case Study Overview

### Week 1

#### On your own content (aka Self Study): November 1 – 4

- Life Sciences for Brewers, *Jon Roll, University of Wisconsin, Madison*
- Malting Barley: Origins, Production, and Quality, *Scott Heisel, American Malting Barley Association*
- Malting and Malt Plant Operations, *Joseph Hertrich, Anheuser-Busch (retired)*
- Malt Analyses: Measurements and Functionality, *Joseph Hertrich, Anheuser-Busch (retired)*
- Specialty Malts, *Dan Bies, Briess Malt & Ingredients*
- Virtual Briess Malthouse Tour
- Virtual Craft Malthouse Tour

#### Week 1 Virtual In Class: Friday, November 5

09:00 CDT – 11:00 – Jon Roll, University of Wisconsin, Madison

11:00 CDT – 12:00 – Scott Heisel, American Malting Barley Association

12:00 CDT – 12:30 – Break

12:30 CDT – 16:00 – Joseph Hertrich, Anheuser-Busch (retired)

16:00 CDT – 17:00 – Dan Bies, Briess Malt & Ingredients

17:00 CDT – 18:00 – Happy Hour

### Week 2

#### On your own content: November 6 – 11

- Malt Flavour and Aroma, *Rob McCaig, Asahi Europe (retired)*
- Hop Production, *Mike Sutton, Hopsteiner*
- Hops, *Mike Sutton, Hopsteiner*
- Hop Extracts & Advanced Hop Products, *Mike Sutton, Hopsteiner*
- Dry Hop Practices, *Mike Sutton, Hopsteiner*
- Brewing Adjuncts, *Scott Helstad, Cargill Sweeteners North America*
- Tour of Hop Producer (Growing) and Processing Facility

#### Week 2 Virtual In Class: Friday, November 12

09:00 CST – 12:00 – Mike Sutton, Hopsteiner

12:00 CST – 13:00 – Break

13:00 CST – 15:00 – Scott Helstad, Cargill Sweeteners North America

15:00 CST – 16:00 – Rob McCaig, Asahi Europe (retired)

16:00 CST – 17:00 – Happy Hour

## Week 3

### On your own content: November 13 – 18

- Brewery Water and Adjustments, *Joe Walts, Octopi Brewing*
- Principles of Brewery Cleaning, and Sanitizing, *Dirk Loeffler, Loeffler Hygiene & Safety Solutions*
- Design and Operations Considerations for CIP, *Dirk Loeffler, Loeffler Hygiene & Safety Solutions*
- Workplace Health and Safety, *Gary Nicholas, SanTan Brewing Company*
- Plant Automation Principles and Automation for Craft, *Darren Goodlin, Goodling Process Solutions*

### Week 3 Virtual In Class: Friday, November 19

09:00 CST – 10:00 – Joe Walts, Octopi Brewing

10:00 CST – 12:00 – Dirk Loeffler, Loeffler Hygiene & Safety Solutions

12:00 CST – 12:30 – Break

12:30 CST – 15:00 – Dirk Loeffler, Loeffler Hygiene & Safety Solutions

15:00 CST – 16:30 – Gary Nicholas, SanTan Brewing Company

16:30 CST – 17:30 – Darren Goodlin, Goodlin Process Solutions

17:30 CST – 18:00 – Happy Hour

## Week 4

### On your own content: November 27 – December 2

- Grain Transport, Receiving, Storage and Pest Control, *Steve Presley, Anheuser-Busch (retired)*
- From Grain to Wort: Milling, *Steve Presley, Anheuser-Busch (retired)*
- From Grain to Wort: Mashing, *Steve Presley, Anheuser-Busch (retired)*
- From Grain to Wort: Lautering, *Steve Presley, Anheuser-Busch (retired)*
- From Grain to Wort: Wort Boiling, Whirlpool and Cooling/Aeration, *Steve Presley, Anheuser-Busch (retired)*
- Sour Beer Production, *Marcio Buffolo, Shades Brewing*

### Week 4 Virtual In Class: Friday, December 3

09:00 CST – 12:00 – Steve Presley, Anheuser-Busch (retired)

12:00 CST – 13:00 – Break

13:00 CST – 15:00 – Steve Presley, Anheuser-Busch (retired)

15:00 CST – 17:00 – Marcio Buffolo, Shades Brewing

17:00 CST – 18:00 – Happy Hour

## Week 5

### On your own content: December 4 – December 9

- Brewing Microbiology, *Bill Maca, HWM Yeast Solutions LLC*
- Yeast Metabolism, *Jon Roll, University of Wisconsin, Madison*
- Nature of Brewing Yeast, *Bill Maca, HWM Yeast Solutions LLC*
- Wort Aeration, Yeast Pitching and Fermentation, *Jeff Biegert, New Belgium Brewing Company*
- Cellar Operations and Beer Filtration, *Tom Eplett, MillerCoors (retired)*
- Specialty Beer Design, *Danny Warner, Bell's Brewery*

### Week 5 Virtual In Class: Friday, December 10

09:00 CST – 10:30 – Bill Maca, MillerCoors (retired)  
10:30 CST – 11:30 – Jon Roll, University of Wisconsin, Madison  
11:30 CST – 12:30 – Jeff Biegert, New Belgium Brewing Company  
12:30 CST – 13:00 – Break  
13:00 CST – 14:00 – Tom Eplett, MillerCoors (retired)  
14:00 CST – 16:00 – Danny Warner, Bell's Brewery  
16:00 CST – 17:00 – Happy Hour

## Week 6

### On your own content: December 11 – 16

- Physical and Flavor Stability of Beer, *Tom Eplett, MillerCoors (retired)*
- Beer Sensory, *Lindsey Barr, DraughtLab*
- Seltzers/Non-Alcohol/Cannabis and Beer, *Rob McCaig, Asahi Europe (retired)*
- Food Safety (GMO, HAACP) and Beer Quality: Process Control and Quality Management *Gary Nicholas, SanTan Brewing Company*
- Brewery Effluent Management, *Jeff VanVoorhis, Symbiont*
- Case Studies

### Week 6 Virtual In Class: Friday, December 17

09:00 CST – 10:00 – Tom Eplett, MillerCoors (retired)  
10:00 CST – 12:00 – Lindsay Barr, DraughtLab  
12:00 CST – 13:00 – Break  
13:00 CST – 15:00 – Gary Nicholas, SanTan Brewing Company  
15:00 CST – 16:00 – Jeff VanVoorhis, Symbiont  
16:00 CST – 16:30 – Rob McCaig, Asahi Europe (retired)  
16:30 CST – 16:45 – Case Studies  
16:45 CST – 17:30 – Wrap Up