

Amgen Seminar Series in Chemical Engineering

in
Cherry Auditorium, Kirk Hall, 1 PM

Presents on April 27, 2017

Chemistry Inside Brewing Science

By

McLain Cheney
Head Brewer
Half Full Brewery
Stamford, CT

This seminar will address the chemistry that makes up ingredients which create beer and touch on the reactions which take place during brewing.

The basic ingredients that make beer are: barley, hops, water, and yeast. Brewing refers to the series of mechanical processes which leads to fermentation. Home brewers are quite aware of this fact. Applying this process will indeed produce beer however the recipe for creating unique, consistent, great, and satiating beer requires an understanding of the compounds within these ingredients. The basic components remain the same but it's the interaction of compounds between ingredients and their application that develops character in beer resulting in different styles and flavors.

Fermentation requires a sugar source, in the case of brewing that is barley. The grain must first be malted, a process that makes the energy stored in starches, extractable. Hops are more than a just a flower to flavor beer but the only known source of lupulin which provides beer with its distinct character. Water is perhaps the most underappreciated ingredient but because each water source can have its own unique composition it can have the greatest impact on the flavor of beer. The science of water and its role in brewing is vast and daunting but there are some concepts which can make an understanding applicable. Yeast is perhaps the most interesting ingredient of all because it is a living organism (cultures of organisms) that actively lives in and creates beer. A common phrase in the brewing industry is "A brewer makes wort. Yeast creates beer." The brewers role is to create a hospitable environment for yeast to thrive in order to produce the ideal product. Each strain of yeast imparts its own unique character to beer which is released during its metabolism to reproduce.

An appreciation for the complexities of each ingredient will help to develop a greater understanding of the process of brewing beer and as a result create better recipes.

Bio: My path to becoming Head Brewer began at the University of Vermont where I studied to become a vintner and make wine. I discovered home brewing in my dorm room which developed a passion. This passion led me to Colorado where I learned to brew professionally at the Aspen Brewing Company. Life returned me to the east coast where I took up distilling gin and bourbon at the Black Dirt Distillery in Warwick, NY. This path eventually led me to Connecticut to be the Head brewer at a growing, production brewery in Stamford, the Half Full Brewery.

This series at the University of Rhode Island is made possible through the generosity of Amgen, West Greenwich, R.I.

Refreshments provided by the Joseph Estrin Endowment.