INTRODUCTION

The original CraftBeer.com Beer & Food Course was designed specifically with the culinary student or beer industry professional in mind. The self-administered course covers the brewing process, beer styles, pairing beer with food, pouring and presenting beer at the table and includes a two-part final exam.

As the craft beer industry works to help beer retake its rightful place at the table alongside craft cocktails and wine, home cooks and enthusiasts are bringing beer into the kitchen and looking for information on cooking and pairing food with craft beer.

After releasing the course to the public, it was clear that a condensed version designed for beer enthusiasts was needed. This enthusiast level course covers the basics from the professional course and includes a tasting of 10 classic beer styles. This enthusiast course is designed for those looking to learn a little bit more about craft beer and how to pair their favorite recipes with beer. There are two options outlined for the kitchen portion of this course depending on your audience and/or class length.

Lecture Time: 70 - 125 minutes
Kitchen time: 1 - 4 hours (depending on demonstration type)
Tasting: 45 minutes
CRAFT BEER & FOOD COURSE

POINtERS OF CRAFT BEER

In the 1970s, Fritz Maytag resurrected Anchor Brewing Company and Jack McAuliffe started New Albion Brewing Company, both in California.

Meanwhile, in the east, heritage brewers like F.X. Matt/Saranac in New York, August Schell in Minnesota, Spoetzl Brewery in Texas, and many others were also making waves in the world of craft beer. Soon the movement spread, first like a slow-moving brush fire and then like a blazing burn.

MASHING

Mashing is the steeping of crushed grains in a specific amount of water for a specific amount of time at a specific temperature. On the biochemical level, the heat of the water activates enzymes to convert the starches in the grains to fermentable sugars that the yeast will later consume and process into carbon dioxide (CO2) and alcohol. When the starch-to-sugar conversion is complete, the liquid is separated from the grains, a process known as lautering, and collected in the boil kettle. (http://www.homebrewersassociation.org/wp-content/uploads/How-To-Batch-Sparge.pdf)

Mashing can take anywhere from 60 minutes to several hours. A variety of mashing techniques and temperature rests (letting the wort sit for a time in a particular temperature range) are often employed depending on the beer style and the type of grain used.

LAUTERING

Lautering is the method of separating the sweet wort (water with dissolved sugars extracted from grain) from the mash. A lauter tun consists of a large vessel to hold the mash and a false bottom or manifold to allow the wort to drain out while leaving the grain behind. Lautering can be conducted in several ways, but it usually consists of three steps: mash-out, recirculation, and sparging.

The timing of lautering varies based on how slowly or quickly the mash is rinsed. This step is complete when the wort reaches the desired volume and pH.

- Mash-out is the term for raising the temperature of the mash to 170°F prior to lautering. This step stops all of the enzyme action (preserving the fermentable sugar profile) and makes the grain and wort more fluid.
- Recirculation, also known as vorlauf, occurs after the grain bed has settled and is ready to be lautered. The first few quarts of wort are drawn out through the drain of the lauter tun and poured back in on top of the grain. This helps settle the grain bed to ensure proper mash filtration and clarity.
- Sparging is the process of rinsing the grain bed that has settled at the bottom of the lauter tun in order to extract the remaining sugars. The temperature of the sparge water is carefully controlled so as not to also extract tannins from grain husks. (How to Brew, John Palmer, 2006, p.180-181)

BOIL

There are multiple reasons to boil wort, though it’s not done for all styles. Boiling:

- Stops enzymatic activity (no more conversion of starches to sugars), known as ‘denaturing’ enzymes;
- Blows off undesired volatile compounds including some hop oils, sulfur compounds and dimethyl sulfide (DMS);
- Encourages ‘hot break,’ which is a coagulation of proteins and tannins that improves beer’s clarity and decreases astringency;
- Concentrates wort through evaporation;
- Converts hop alpha acids into isomerized hop alpha acids that provide bitterness to beer;
- Kills off any microbes that may be in the wort, thus sterilizing it (note some microbes are favorable, but are commonly added post-boil as they cannot survive the heat).

CRAFT BREWERS TODAY

Today’s craft brewers have succeeded in establishing high levels of quality, consistency and innovation, expanding the minds and palates of beer lovers, and creating the most diverse brewing culture in the world. With the number of breweries and beer brands available today, it’s clear that craft brewers and craft beer lovers are participants in an American beer renaissance.

As the brewing landscape continues to evolve, so do Americans’ tastes in beer. Nielsen research confirms that beer drinkers are shifting to more robust styles, and we know from market research firm IRI Group that India Pale Ale is the top-selling craft beer category in U.S. supermarkets, followed by seasonally released beers.

One sign of the changing times came in 2002, when American India Pale Ale surpassed American Pale Ale as the most-entered beer style at the annual Great American Beer Festival®. It has remained the most-entered category ever since.

Recent repeat winners in the American India Pale Ale category at GABF include: Blind Pig IPA from Russian River; Union Jack from Firestone Walker; Pallet Jack IPA from Barley Brown’s; and Head Hunter IPA from Fat Head’s.

BREWING PROCESS

When learning how beer interacts with food, it’s helpful to know how beer is made. Many will notice similarities between the brewing process and cooking (particularly baking).

MASH

Mashing is the steeping of crushed grains in a specific amount of water for a specific amount of time at a specific temperature. On the biochemical level, the heat of the water activates enzymes to convert the starches in the grains to fermentable sugars that the yeast will later consume and process into carbon dioxide (CO2) and alcohol. When the
Whirlpool
Whirlpool happens after the boil and serves to collect hop particulates and coagulated protein from the hot break. This often happens in a dedicated vessel, or can be done in the boil kettle. The beer is spun in a circular fashion, allowing particles (called "trub") to collect together at the bottom center of the vessel. Then the wort is siphoned away, leaving the trub behind.

Chill
The wort is chilled to prepare it for fermentation. Methods of chilling include immersion chillers, which are set inside the wort, and heat exchangers that pass wort and cold water through a parallel set of coils, thereby cooling the hot wort indirectly. Beer is commonly chilled down to yeast-pitching temperature, which varies depending on yeast strain and the brewer’s intentions (usually 40-70°F).

Fermentation
Fermentation begins when yeast or microorganisms are introduced to the sweet, cooled wort. Fermentation can last for several days, weeks or months depending on the brewer’s intentions. Ales ferment faster and warmer than lagers, which require a slow conditioning period at lower temperatures. Ales can ferment and mature as quickly as three weeks, while lagers traditionally require more than sixty days.

Fermentation most commonly occurs in steel tanks or wood barrels. Yeast needs oxygen to begin fermentation, so oxygen is often added at the same time the yeast is pitched.

Primary fermentation is when the yeast is the most vigorous and active. As yeast consumes the fermentable malt sugars, it begins to settle to the bottom of the tank, a process called flocculation.

Secondary fermentation is when the initial yeast cake (dormant yeast at the bottom of the fermentor) has been removed and the beer continues to ferment at a slower pace. Beer also begins to clarify during this step.

Conditioning
Conditioning occurs when the yeast has stopped fermenting the wort and has finished settling out to the bottom of the fermentor. This is also the period when yeast byproducts such as diacetyl and acetaldehyde are lessened or completely removed. Note that these byproducts are acceptable at lower levels in some beer styles.

Carbonation
Carbonation, or CO₂, is a main ingredient in beer. It lends body or weight on the tongue and stimulates the trigeminal nerves, which sense temperature, texture and pain in the face. Carbonation can be detected as an aroma (carbonic acid). It also affects appearance and is what creates the collar of foam common to most beer styles.

Carbonation is introduced into beer in a variety of ways:

- Natural carbonation: As yeast eats sugars during fermentation, it produces a variety of byproducts, including alcohol and CO₂. This carbonation can be captured and used to carbonate the finished beer.
- Force carbonation: One method of force carbonation is via a device called a carbonation stone. This device injects CO₂ from a separate gas tank into beer that resides in a conditioning or serving vessel. It allows CO₂ to dissolve into the beer.
- Bottle-conditioning: Addition of yeast at packaging time. This yeast, under the right conditions, will ferment residual sugars still left in the beer and produce CO₂ that dissolves directly into the beer in the bottle. Successful bottle-conditioning requires residual sugars and yeast to still be present in the beer. It is a common technique used by smaller brewers and homebrewers.

INGREDIENTS IN BEER

Hops
Hops deliver both resins and essential oils that influence beer’s aroma, flavor, bitterness, head retention, astringency and perceived sweetness. They also increase beer’s stability and shelf life.

Brewers today use well over 100 different varieties of hops worldwide. Hops grown in the U.S. contribute an estimated 30 percent of the global supply.

Though there are many varieties of hop plants, the hops used in beer generally fall into three categories: bittering, aroma and dual-purpose. Bittering hops contain more alpha acids and are used primarily to contribute bitterness, while aroma hops are used primarily to add flavor and aroma to beer. Dual-purpose hops can have higher alpha acid content, but are also used to contribute aroma compounds.

- Aroma and flavor ranges: Citrus, floral, fruity, green, herbal, onion/garlic, pine, resinous, spicy, spruce, sweaty, tropical, woody

Hop resins lend bitterness via alpha acids to balance the sweetness of malt sugars. When alpha acids are isomerized through boiling, ranges of bitterness can land anywhere from two IBUs (International Bitterness Units) to more than 100 depending on the beer style and brewer’s intention.

- Bitterness ranges: Restrained, moderate, aggressive, harsh
- Alpha acid content of most hops ranges from 2 to 20 percent by weight.
Hops’ main essential oils influencing aroma and flavor are:

- **Humulene** (common in noble hops)
  - Woody/piney notes
- **Myrcene** (pungent; largest component of hop oil; can help indicate ripeness of hop cone)
  - Green resin aromatics
- **Caryophyllene**
  - Woody notes
- **Farnesene**
  - Floral notes

These oils volatilize off when exposed to heat, so aroma and flavor hops are added at the end of the boil or during or after fermentation (a technique referred to as dry hopping).

**Water**

Beer is mostly water, which makes water quite an important ingredient. It provides minerals and ions that add various qualities to beer. pH, residual alkalinity, water hardness or softness and mineral content all come into play when brewing beer.

Some brewers make their beer without altering the chemistry of their water sources. Many do modify the water to make it most suitable to deliver the beer characteristics they hope to highlight.

- Common minerals include: Carbonate, calcium, magnesium, sulfate
- Common taste descriptors include: Chalk, flint, sulfur

**Malt**

Malt has been called the soul of beer. It is the main fermentable providing the sugars that yeast use to create alcohol and carbonation. Malt has an influence on beer’s aroma, alcohol level, body, color, flavor and head retention.

- Ranges: Bread flour, grainy, biscuity, bready, toasty, caramel, pruny, roast, chocolate, coffee, smoky, acrid

A wide variety of barley and other malts are used to make beer, including: pale malts (pilsner and pale two-row); higher-temperature kilned malt (Munich and Vienna); roasted/specialty malt (chocolate and black); and unmalted barley. Wheat malt is commonly used as well.

Malt is converted barley or other grains that have been steeped, germinated, heated, kilned (or roasted in a drum), cooled and dried, and then rested.

Fresh barley has a moisture content commonly around 13 percent. This is raised, often to more than 40 percent, until the barley begins to germinate. During the malting process it is dried to less than 4 percent moisture.

**BEER STYLES**

**What is a Beer Style?**

Beer styles continue to evolve over time. Today, there are hundreds of documented beer styles and a handful of organizations that have their own unique classifications. Style guides exist to give beer lovers a methodology to describe, compare and contrast different beers.

Demonstration Video: What is a Beer Style ([http://www.craftbeer.com/category/tips-for-tasting-videos](http://www.craftbeer.com/category/tips-for-tasting-videos))

Styles guidelines may provide more information than many beer beginners care to know. However, as your beer journey unfolds, your desire for more descriptors and resources will grow. Understanding the quantitative side of craft beer will help you much more deeply appreciate and share your knowledge and enthusiasm for the beverage.

**Who classifies?**

There are four main U.S. organizations that publish beer style guidelines: CraftBeer.com, the Brewers Association, the Beer Judge Certification Program and the Master Brewers Association of America.

**CraftBeer.com**

The CraftBeer.com Style Finder ([http://www.craftbeer.com/style-finder](http://www.craftbeer.com/style-finder)) targets beer lovers and provides a methodology to describe, compare and contrast different beers being made by small and independent U.S. producers. In 2014, CraftBeer.com overviewed almost 80 U.S. beer styles in 15 style families. The Style Finder is the most extensive U.S. style guideline that exists today and is free to access and download.

**Brewers Association**

The Brewers Association publishes a world beer styles list, released annually since 1993. The BA Beer Style Guidelines are developed using sources from the commercial brewing community and input from beer competition judges. They are the most comprehensive set of guidelines on the world’s commercial beer styles available today.

The guidelines focus first on a beer’s appearance, aroma, flavor and finish, in that order. In 2014, they included 10 style categories and 141 world beer styles. Versions of these guidelines are used by judges as a resource when tasting beers entered into the Great American Beer Festival® and World Beer Cup.

For the majority of styles, the guidelines do not list common ingredients for each style, but instead emphasize common flavor characteristics. It’s up to individual brewers to determine how to reach the flavor profiles described for each style. These guidelines are free to download from BrewersAssociation.org ([http://www.brewersassociation.org/educational-publications/beer-styles/](http://www.brewersassociation.org/educational-publications/beer-styles/)), and Brewers Association membership is not required.

**Beer Judge Certification Program**

The Beer Judge Certification Program is a global, volunteer-run program that exists to promote standards of excellence in beer judging and to teach the skills needed to properly taste and evaluate beer. The BJCP guidelines do list common ingre-
Color, aroma, carbonation and body are the qualities that determine what the eyes, nose and palate will see, smell, taste and feel with every sip of craft beer. Take a closer look at each of these attributes, as well as six of the main flavor profiles identified on the palate—and which beer styles they’re associated with.

**CraftBeer.com Flavor Profiles**

**1. Crisp & Clean**
Crisp beers will present clean and refreshing on the palate. They have a very delicate impact on the palate and can sometimes produce a feeling of dryness in the mouth. Crisp beers can cleanse the palate of flavors and leave it feeling refreshed when properly paired. These beers should be paired carefully to ensure the subtle notes of the beer are not overpowered by the pairing. Simple and clean pairings focusing on a single dominant flavor work best to allow the palate to experience both the food and the beer.

**Clean**
- Showing a nice balance of hops and malt. The yeasts used in these beers can contribute flavors of green apple or pear, and the malt comes across smooth on the palate. The flavors from these styles will not linger on the palate and should be paired with ingredients to create an overall delicate outcome.

**Examples**
- Bohemian and German-Style Pilseners
- Belgian-Style Blonde Ale
- Blonde Ale
- German-Style Kölsch

**Malt**
- These beers bring notes of bread and biscuit to the palate. They can handle more complex pairings and flavor combinations and are versatile with both dry-heat and moist-heat cooking methods that allow the craft beer to finish clean.

**Examples**
- American Amber Lager
- German-Style Helles
- American Amber Ale
- German-Style Märzen/Oktberfest
- German-Style Maibock

**Hop**
- By dry-hopping these beers, the usual crisp and clean notes of these styles will come across drier and have a distinct hop bite in the finish. Herbal or floral notes from the hops will be noticeable from the aroma all the way to the finish of the beer. The malt notes tend to take a back seat in pairing. Subtle use of grain or vegetal flavors can balance out the malt and hops on the palate.

**Examples**
- Specialty Beer: Hoppy Lager / India Pale Lager
- Specialty Beer: Imperial Pilsner

**2. Malty & Sweet**
Malt-driven flavors dominate the beer styles in this category. The palate can expect a degree of sweetness and deep notes of nuts, toffee, caramel, toast and dark fruit. Hops are still present and can be pulled out through careful pairing, but the focus of the pairing should be on highlighting the malt profile on the palate. Pairings rely on carbonation more than hop bitterness to help cleanse the palate.
Caramel: While still focusing on a very sturdy malt presence, these beers will bring brighter dried-fruit notes to the palate. Notes of toffee can be found next to red apples, orange zest and plum. These beers pair well with simpler dry-heat cooking methods. The use of vegetal flavors can often bring out the fruit profiles in each style.

**Examples:**
- English-Style Bitter
- Scottish-Style Ale
- Irish-Style Red
- French-Style Bière de Garde
- English-Style Pale Ale / ESB
- Scotch Ale / Wee Heavy

3. Dark & Roasty

These craft beers focus their flavor profiles on dark roasted malts that contribute coffee and cocoa notes. From aroma to palate to finish, the roast of the malt comes through stronger than in other flavor profiles.

**Dark and malty:** Intense roasting can produce a delicate bitterness in these beers, which gravitate more toward the profiles of milk chocolate, raw tree nuts and coffee with cream. The more intense these styles get, the more the fruit profile of dates and figs becomes present. Pair these beers by using ingredients that calm the stronger roasty flavors on the palate and bring out the more subtle and delicate notes of fruit and hops that can often be hidden behind roasted malts.

**Examples:**
- German-Style Schwarzbier
- English-Style Brown Porter
- Robust Porter
- English-Style Oatmeal Stout
- American Brown Ale
- English-Style Brown Ale

**Dark and dry:** These craft beers use the darkest roasts and are commonly the driest of the dark flavor profiles. Burnt grain, dark chocolate and espresso are the most notable aromas. Fruit flavors emerge in the strongest versions, often giving off aromas of plums and cherries. Though the aroma often suggests a heavier mouthfeel, these beers tend to be lighter on the palate, which allows the dry notes to come into play when pairing. Both dry- and moist-heated cooking methods work well for pairings, but caution should be taken with the depth of flavors as to not overpower the beer. Pair to the mouthfeel of these beer styles and use the aroma as a supporting quality.

**Examples:**
- Irish-Style Dry Stout
- Specialty Beer: American Black Ale
- American Stout
- American Imperial Stout

4. Hoppy & Bitter

Hops contribute the majority of aromas and pronounced bitterness found in many beer styles. Though these beers will have a solid malt base, the hops will always provide the most dominant flavors. These beers cover a very wide range and can easily be the most difficult to pair. Hops typically respond well to pairings with fatty foods, which calm the hop flavors on the palate. Fat coats the palate, and the bitterness of the hops pleasantly cleanses it away. Note: Hop bitterness that has very little to no malt support can clash with some seafood like salmon, imparting a metallic flavor. Always do a test tasting to be sure.

**Earthy and bitter:** These beers will intentionally use a lighter malt bill in order to focus the palate on the hops. Common hop varieties used here will give more herbal bittering notes. Using ingredients in the pairing to calm the hops on the palate will bring the malt forward, so the palate can experience the full flavor of these beer styles.

**Examples:**
- English-Style Bitter
- American Pale Ale
- American India Pale Ale (IPA)
- Specialty Beer: Belgian IPA

**Hop-bitter, malt-forward:** While the hops are still the driving notes for pairing, these beers will have a stronger malt bill that enables them to pair with heavier dishes. Caramel notes will become present from the malt, but the balance of the flavor and finish will still lean toward the bittering of the hops. It is common for the aroma to start with hop notes of pine and then shift to caramel malt while the beer is on the palate. The bitterness of the hops will almost always be the ending note on the palate. These styles tend to be balanced on the palate and work well with dry-heat cooking methods. Focus the flavor profile of the pairing to pull out either the malt or the hops and let the other be a supporting ingredient.

**Examples:**
- California Common
- American Amber Ale
- American Barley Wine

**Strong hop, earthy, herbal or citrus:** The malt takes a back seat and the heavy use of intensely flavorful hops creates beers that are brimming with hop-driven notes of citrus, resin and tropical fruit. The aromas in these beers can overtake the senses at times, and the bitterness can be in excess of 100 IBUs (past the point at which most people can perceive additional bitterness). A current trend in American craft brewing is hops, hops and more hops, which can overpower many flavors. Cooking methods that utilize dry-heat, or the addition of fat, help the palate cut through the intense hop profiles.
When acidic, these craft beer styles will also show the most wine-like notes and are often aged in wood to add complexity. These beers can also be blended with other styles to deepen the overall impact on the palate. When pairing these styles, it is best to address the sour, tart or funky notes head-on and decide if your pairing will echo the flavor profile and elevate it, or calm the dominant notes and allow the palate to explore the secondary flavors in the craft beer.

Tart: Gentle acidity, lighter malts, lower alcohol and lighter body make these craft beers the tamest of the group. They are delicately tart with bright citrus notes, but will not overpower the palate with a defining funky character. They will leave the palate almost bone-dry and often have a gentle citrus finish. The carbonation level found in these styles is generally very high and can be used to refresh the palate. Pairing these styles is a delicate balance of simple clean flavors. Delicate cooking methods and raw ingredients tend to bring out the most well-rounded pairings on the palate.

Examples:
- Berliner-Style Weiss
- Specialty Beer: Leipzig-Style Gose

Sour: The most wine-like of all the styles. Pronounced acidity is blended on the palate with fruity aromas of cherry, plum, apricot, peach, pluot and strawberry. Whole fruit is often added to these beers. Notes of caramel from the malt can add balance, and if the beer has been barrel-aged, the palate will pick up additional supporting notes of vanilla and spice. In pairing, cooking proteins with the Maillard reaction can pull out roast notes in the beer that balance the vinous character on the palate. Overpowering these beers with fat can hide the acidity, and caution should be taken to not completely diminish those palate reactions.

Examples:
- Belgian-Style Flanders
- American Brett
- Belgian-Style Fruit Lambic

Funky: These craft beers will possess intense qualities of earthy, farmouse, grassy, barnyard and leather notes. Milder fruit notes in the aroma are commonly identified on the palate as peach, strawberry, apricot and grape. The carbonation level in these beers will often be higher and can have a refreshing quality on the palate. These styles can hide their ABV quite well and therefore are more versatile than the initial flavors may suggest. Cleaner cooking methods with the gentle use of fat and supporting notes of herbs and spice can round out these styles on the palate.

Examples:
- Belgian-Style Saison
- American Brett
- Belgian-Style Fruit Lambic / Gueuze

5. Fruity & Spicy

While still showing flavors of malt and hops, these craft beers are dominated by notes of fruit and spice. The spice flavors are derived from the yeast and can be supported by adding additional, complimentary spices. To enhance the fruity notes present, actual fruit puree or fruit may be added to the beer. Common pairing practices can be used to highlight the fruit or spice in the pairing, or the fruit or spice profile in the beer can be used as a supporting ingredient in the dish.

Bright yeast: Brighter fruit aromas come to the palate of these styles like tart apple, pear, peach, orange and lemon. Bubblegum is also a very common aroma sensation, as well as the following spices: clove, pepper, vanilla, coriander, cinnamon, nutmeg and bay leaf. Darker versions with more of a malt presence may show notes of toast, caramel, and deep dark fruit, but still maintain a spicy yeast note.

Examples:
- Belgian-Style Wit
- German-Style Hefeweizen
- Belgian-Style Saison
- Speciality Beer: Gruit Ale
- Belgian-Style Blonde Ale
- Belgian-Style Golden Strong Ale
- Belgian-Style Tripel

Dark: Darker fruit notes come to the palate of these styles, like fig, raspberry, prune, raisin, cherry, plum and strawberry. Pairing is sometimes akin to pairing a red wine with deep vinous notes. Spicy aromatics will present on the palate as notes of clove, pepper, rose, nutmeg, cinnamon, and even a hint of smoke in some cases. Malt flavors are more present in these styles and can strengthen the overall body of the beer. These beers can be heavy on the palate and flavors can linger post-sip for several minutes. Pairing to the richness of these beers and using key ingredients in the dish will cut through their depth to further explore the entire flavor profile. Richer foods are commonly used when pairing so that the beer does not dominate the palate.

Examples:
- Belgian-Style Dark Strong Ale
- Belgian-Style Dubbel
- Belgian-Style Quadrupel

6. Sour, Tart & Funky

Sour craft beers show a wide range of flavor profiles. Rustic, funky, barnyard, farmouse, leather, hay, grass, and even wet socks are notes that have commonly been attributed to many of these styles.
Storage of Packaged Beer
No matter the packaging type, all beer should be stored cold. Most craft beer is perishable. Aging and the development of oxidative qualities will occur faster at warmer temperatures. The Brewers Association recommends storage temperatures of 40°F for kegs waiting to be tapped and 50°F for bottled/canned product. Growlers should be stored in the refrigerator at 38°F.

Always pay attention to and track expiration dates—bottling date, best-before date and other time specific information tied to when the brewery expects a beer will be past its prime. Never serve a beer that is out of date.

HOW TO POUR BEER

How To Pour
Pouring a craft beer from a draught system is an art form. Once you have selected the proper glassware for the beer style you are pouring and have inspected it for cleanliness, position the glass underneath the tap just below the nozzle. It is important never to touch the glass to the nozzle or hold the glass so that the nozzle is inside the glass. This prevents unsanitary conditions and glass breakage.

Hold the glass at a 45-degree angle. Pull the tap toward you to open the flow of beer. As the level of beer rises, slowly reduce the angle of the glass to vertical, while continuing to pour the beer into the center of the glass.

Close the tap with one inch of room to spare before getting to the desired pour size. As you top off the beer, begin to lower the glass from the tap to allow the proper head of foam to form (for the majority of beer styles, the Brewers Association recommends a one-inch collar of foam).

Once the pour is complete, the beer must be delivered to the guest immediately. Should the head begin to collapse prior to service, it is appropriate to return the beer to the tap and pull a quick top-off to reinvigorate the head.

Bottle Pour
There are two types of bottle tops for individual bottles: cork-and-cage tops and the more common bottle cap. Both types should be presented to the guest unopened with the label facing the guest.

While bottle caps are very easy to open, the cork-and-cage requires a bit of finesse. First remove the cage, then very slowly twist the cork while gently pulling up. It is important to keep the bottle vertical while opening.

Once the cap/cork is removed, begin by holding the glass at a 45-degree angle and slowly pour the beer into the glass. Keep a constant slow stream pouring and begin to bring the glass to vertical.

As the beer nears the top of the glass or the last third of the bottle, begin to raise the bottle away from the glass to create the final head. The head should rise one to one and a half inches above the beer line. Unless requested by the guest, remove the empty bottle with you and present the glass to the guest.

Some styles, such as German-Style Hefeweizen, may require rousing of the yeast. Yeast sediment in beer contains vitamins and minerals that are healthful to consume, but it is up to the customer—aask their preference before service. If the customer does desire to consume the yeast, you can facilitate this by swirling, rolling or inverting the bottle and pouring the remaining yeast in the center of the glass (often bringing the head of the beer well above the rim of the glass). Each establishment should set guidelines for which technique servers will use.

HOW TO TASTE BEER

A brief guide to tasting craft beer
There are five steps in evaluating the flavor profiles of craft beer during a tasting. Consider using the CraftBeer.com Tasting Form (http://www.CraftBeer.com/Culinary).

1. Look
Raise the beer in front of you with the white napkin or paper behind it to evaluate the true color. Pay attention to the color, what the carbonation looks like and the overall consistency of the craft beer.

2. Smell, Part I
Without agitating or swirling the beer, bring the glass to your nose and breathe in with your mouth closed. Then agitate the beer by gently swirling the glass to pull out aromas and stimulate the carbonation.

3. Smell, Part II
90 percent of what you taste, you first experience through smell. Pay attention to the aroma now, compared to before agitating. Breathe in with your mouth both closed and open and take note of the subtle differences.

4. Taste
Sip the beer but do not swallow. Hold the beer on your palate, moving it around from side to side. Note the body consistency, and remember to breathe out through your nose with the beer
still on your palate. Pay attention to how the beer starts on your palate, where it hits in the middle, and, once you swallow, what the lasting effects of the beer are.

5. Rest and Reset
Do not sip water right away. Let the fading flavors of the beer linger. Take note of the finish (the last flavor profile), and your palate senses. How long does the finish last? Is it clean, bitter, sweet, sour, weak, strong? Once you have rested your palate, reset your palate with a cracker or sip of water.

When tasting beer with food, we recommend tasting the beer, then the food and then tasting the beer again to get the best palate reactions.

PAIRING CRAFT BEER AND FOOD

Now it’s time to put what we’ve learned into action in the kitchen. Depending on the level of your participants, as well as time and venue constraints, this can be done through a simple pairing or group cooking demonstration.

Simple Pairing Demonstration
If you are not set up for a complete cooking activity, having simple pairings—that don’t require a lot of prep—that exemplify common beer and food interactions is a great option. Here are six of the most popular and versatile beer styles and suggested pairings to share with the group:

- Belgian Style Wit | fromage blanc or ricotta on light toast
- Belgian Style Dubbel or Brown Ale | candied pecans
- American Pale Ale | gouda or manchego cheese
- American India Pale Ale | carrot cake
- American Stout | oysters on the half shell or dark chocolate
- Barrel-Aged Beer | Honey Crisp (or other brand that is not tart)

Cooking Demonstration
Should you have a more extensive cooking program and access to a full kitchen and pantry, a group cooking demonstration adds another dynamic to the pairing experience. Depending on time and space, dishes can be made in advance—or partially in advance—and a short demo can be followed by the group sitting down to taste or the groups can tackle recipes in teams led by a chef.

Assign each group a protein or recipe and the beer they will be pairing with their finished dish (they can also use it in their dish if they’d like*). Suggestions for proteins as well as beer styles to pair with each are found below.

We suggest giving each group 30 minutes of planning time before getting into the kitchen and 45 minutes to one hour for actual cooking/plating. Once all dishes are complete plate up portions to taste through each pairing discussing the thought process behind the dish as well as interactions between the beer and food. How does the dish enhance or detract from the beer? How does the beer enhance or detract from the dish.

Here are six beer styles with suggested proteins and flavors that generally work well with each style:

- Belgian Style Wit—light seafood, clean pasta, shellfish recipes
- Belgian Style Dubbel or Brown Ale—poultry, game bird, grains and dried fruit recipes
- American Pale Ale—root vegetable, braised pork, fried seafood, light spice, savory dessert recipes
- American India Pale Ale—grilled or brined pork and poultry, steak, blue cheese, salmon recipes
- American Stout—braised red meat or game, pickled vegetables, oysters, caramelized onion recipes
- Barrel-Aged Beer—risotto, winter squash, braised meats, custard dessert recipes

*While it is common to use beer in a recipe, a general rule is to only use beer in a dish if it truly impacts the quality and flavor of the overall dish. Adding beer to add beer is not cooking with beer. Using the beer in place of wine in a recipe to de-glaze a pan, finishing a sauce with the beer, or brining with the beer are all good examples of when to use beer in a recipe.